

## Appendix A: Botanical Survey Report





BOTANICAL SURVEY REPORT FOR THE WAIĀNAPANAPA  
STATE PARK MASTER PLAN

FOR  
WILSON OKAMOTO AND ASSOCIATES  
1907 SOUTH BERETANIA STREET, SUITE 400  
HONOLULU, HAWAII 96826

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## INTRODUCTION

Wai'ānapanapa State Park is located along the northeastern coast of the Island of Maui, Hawai'i, approximately two miles north of the town of Hana, Maui. From its northern boundary to its southern boundary, the park is approximately one and one half to two miles long. The total land area of the park is about one hundred and ten acres.

A botanical survey of the park was carried out in September 2002. The purpose of the survey was to determine what plants grow on the study site, to describe the vegetation types, to determine if candidate or listed threatened or endangered species occupy the site, and to prepare a species list of all taxa found in the park.

## METHODS

Before beginning the field survey, a search was made of the Environmental Impact Statements (EIS) and Environmental Assessments (EA), and other pertinent botanical surveys done in the Hana, Maui area. The results of this search are given below.

A two person field team spent six man-days collecting botanical data in the park. The walk through method of data collection was used from existing roads and trails with frequent forays into the forested areas of the site

## RESULTS

Many EAs and EISs have been carried out in the vicinity of Hana, Maui. Most have been negative declarations. One EIS prepared by the Division of Water and Land-Maui (1979) noted that the vegetation was "typical natural vegetation and would include California grass, guava, Hāla, Kukui, 'Ōhi'a, and tree ferns".

In 1991, the Department of Accounting and General Services in the Hana Medical Center Acquisition negative declaration stated, “the project would not create any major environmental impact”.

In 1994, Chris Hart and Partners in their EA for the Hana Fire Station Project declared that the “flora on the site reflected a native habitat which has been heavily invaded by introduced species due to actions of past human disturbances”.

In 1990, Pacific Planning and Engineering carried out a full EIS for the proposed Hana Ranch Country Club project that included a botanical survey report in which the vegetation was described “grassland with guava and Christmas berry scrub”.

In 1992, the Department of Land and Natural Resources (DLNR) reported the results of a Biological Database and Reconnaissance Survey of the Wai'ānapanapa area. For this study, spot surveys were performed in all the unimproved land from the Hāna Airport Road south to Hāna Bay and seaward from Hāna Highway. Three of the spot survey points were within the Wai'ānapanapa State Park site. One plant of *Capparis sandwichiana* DC, a species of concern was found within the Park during that survey.

#### VEGETATION TYPES

The most distinctive vegetation type found on the Park site is the Naupaka/Hala Community which consists of wind sheared Naupaka (*Scaevola sericea* Vahl.) along the rugged coastline with scattered hala trees (*Pandanus tectorius* S. Parkinson ex Z.). As this forest grades landward it often becomes pure hala forest. Associated with the Naupaka/Hala Community can be found low growing *Fimbristylis cymosa* R. Br., some 'Ākulikuli (*Sesuvium portulacastrum* (L.) L.), and near the fisherman's shack a large enclave of the garden escapee *Hoya bicarinata* Gray. Near the southern boundary of the

study site the Naupaka/Hala Forest gives out and the last five hundred yards of the coastline is unvegetated lava.

Inland from the Naupaka/Hala Forest, approximately one half of the Park has been partially developed. There are twelve visitor cabins scattered under the trees, a park headquarters, a comfort station, a paved parking area and an open lawn with picnic tables. The remaining vegetation in this area is High Canopy False and True Kamani Forest (*Terminalia catappa* L. and *Calophyllum inophyllum* L.). The trees are forty to forty-five feet in height with an understory of kamani seedlings and saplings as well as various sized Shoebutton ardisia shrubs (*Ardisia elliptica* Thunb.), and some coconut trees (*Cocos nucifera* L.). Two large enclaves of matted California grass (*Brachiaria mutica* (Frossk) Stapf.) are also present. Around the cabins and other developed areas there is some landscaping. The names of the landscape plants are not included in this report.

Near the cabins the High Canopy False and True Kamani Forest begins to give way to a Dense Christmas Berry Bush/Mixed Trees Scrub. Here the Christmas Berry bushes (*Schinus terebinthifolius* Raddi) are twenty to twenty-five feet in height with low growing, tangled branches. Among the Christmas Berry bushes can be found Hala, Shoebuttan ardisia, octopus (*Schefflera actinophylla* (Endl.) Harms), ironwood (*Casuarina equisetifolia* L.), and Java plum (*Syzygium Cumini* (L.) Skeels) trees. The understory is a mix of grasses and ferns such as Laua'e (*Polypodium aureum* L.) and sword ferns (*Nephrolepis* spp.)

Further south the Dense Christmas Berry Bush/Mixed Trees Scrub gradually gives way to much drier Hala/Lantana/Christmas Berry Scrub. Under the low stature

hala trees can be found dense mats of fallen leaves where nothing grows and the area is open and accessible while the wind sheered lantana (*Lantana camara* L.) and Christmas Berry is low and tangled and almost impenetrable. Some yellow guava (*Psidium guajava* L.) and some alien grasses are coming into this area.

South of the Hala/Lantana/Christmas Berry Scrub, and on past the southern boundary of the park the vegetation is Ironwood Forest. The trees are of various sizes from mature trees to seedlings. Some naupaka shrubs can be found along the seaward edge of the Ironwood Forest, inland some ferns and grasses persist.

#### NATIVE SPECIES

Although most of the vegetation of the proposed park site is introduced or alien, some indigenous taxa persist. Of the one hundred species found, eleven were indigenous. These include such common plants as hala, naupaka, *Pleopeltis thunbergiana* Kaulf., 'ākulikuli (*Sesuvium portulacastrum* (L.) L.), beach morning glory, hue hue (*Cocculus trilobus* (Thunb.) DC, *Fimbristylis cymosa* (R.) Brown, *Pycnus polystachyos* (Rottb.) P. Beauv, *Vigna marina* (J. Burm) Merr., *Cassipoupa filiformis* L *Hibiscus tiliaceus* L.,

Other features of the proposed park vegetation that should be noted are the Naupaka/Hala Forest and the Pandanus Forest. The Naupaka/Hala Forest is found along the rugged coastline of the site. This assemblage of indigenous plants is very well adapted to this hostile environment. It is also very beautiful and should not be disturbed.

The Pandanus Forest is not actually part of the park vegetation. It is located just north of the park boundary and extends northward to the Airport Road. "There are few examples of hala forest in the state, and the examples in the Wai'anapanapa area provide opportunities to preserve this native coastal forest ecosystem on Maui" (DLNR, 1992).

The early Hawaiians used all parts of the hāla tree, the leaves for thatch, for woven mats, hats, and bags, the root tips for medicine, the keys of the fruit for lei and brushes, and the seeds were eaten. Because of the size of this hala forest and the plant's place in Hawaiian history and culture this forest should be preserved.

The names of well known hala forests are preserved in old mele. For example "Hala o Naue" speaks of the hala forest that existed beyond Hanalei, Kauai and at Haena there was a pu hala named "KaHala o Mapuana". On Oahu there was Na Hala o Kelele below the Nu'uaniu Pali (Handy & Handy, 1978). Other memorable hala forests were found in the gulches below Ke-ahi-a-ha-hoe cliffs, in the Kahala district of Oahu, in Puna and the Hana district of Maui (Handy & Handy 1978)

#### ENDANGERED SPECIES

One species\* of concern, *Capparis sandwichiana* DC, has been reported from the Wai'anapanapa State Park area, however, no candidate, proposed\*2, or listed\*3 threatened\*4 or endangered\*5 species as set forth in the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) were found during this survey.

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\*Species of concern is one that the US Fish and Wildlife Service (USFWS) do not have enough information to determine its status.

\*2 Proposed Species are those species for which the USFWS has published a proposal rule to list as threatened or endangered in the Federal Register.

\*3 Listed refers to those species that have been added to the lists of Endangered and Threatened wildlife and plants.

\*4 Threatened refers to a plant species that is not currently designated as endangered but is believed likely to become so.

\*5 Endangered species are those taxa whose numbers have been reduced to a critical level or their habitat has been drastically reduced.

\*6 Candidate refers to a species that USFWS has on file sufficient information of biological vulnerability and threats to support proposals to list it as endangered or threatened

SPECIES LIST OF THE PLANTS FOUND ON THE WAI'ĀNAPANAPA  
STATE PARK MASTER PLAN SITE

This species list contains the names of all plant taxa found on the Wai'ānapanapa State Park Master plan site. Plant families have been arranged alphabetically within three groups, Ferns and Fern Allies, Monocotyledons, and Dicotyledons. The genera and species are arranged alphabetically within families. The taxonomy and nomenclature follow that of Wagner, Herbst, and Sohmer (1990). For each taxon the following information is provided:

1. An asterisk before the plant name indicates a plant introduced to the Hawaiian Islands since Cook or by the aborigines. (Taxa without an asterisk or other markings are native to the Hawaiian Islands.)
2. pol = Polynesian introduction
3. The scientific name of the plant.
4. The Hawaiian name or the most widely used common name of the plant.
5. ncn = No common name.
6. ? = Unknown origin.
7. Abundance ratings are for this site only and they have the following meanings:
  - Uncommon = a plant that was found less than five times.
  - Occasional = a plant that was found between five and ten times.
  - Common = a plant considered an important part of the vegetation.
  - Locally abundant = plants found in large numbers over a limited area. For example the plants found in grassy patches.
  - Abundant = plants found in large numbers on all parts of the site.

This species list is the result of an extensive survey of this site during the rainy fall season (September, 2002) and it reflects the vegetative composition of the flora during a single growing season. Minor changes in the vegetation will occur due to introductions and losses and a slightly different species list would result from a survey conducted during a different growing season.

Scientific Name	Common Name	Abundance
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### FERNS AND FERN ALLIES

#### POLYPODIACEAE - Common Fern Family

* <i>Nephrolepis exaltata</i> (L.) Schott.	Sword fern	Common
* <i>Nephrolepis multiflora</i> (Roxb.) Jarrett ex Morton.	Sword fern	Common
<i>Pleopeltis thunbergiana</i> Kaulf.	ncn	Occasional

### MONOCOTYLEDONS

#### AGAVACEAE – Agave Family

* <i>Agave sisalana</i> Perrine	Sisal	Occasional
* <i>Cordyline fruticosa</i> (L.) A. Chev.	Ti	Occasional

#### ARACEAE – Arum Family

* <i>Monstera deliciosa</i> Liebm.	Monstera	Uncommon
* <i>Scindapsus aureus</i> (Lind. & Andre) Engl.	Golden pothos	Locally abundant
* <i>Syngonium</i> sp.	ncn	Uncommon
* <i>Xanthosoma roseum</i> Schott	'Ape	Occasional

#### AMARYLLIDACEAE – Amaryllis Family

* <i>Crinum asiaticum</i> L.	Crinum	Occasional
* <i>Hymenocallis litoralis</i> (Jacq.) Salisb.	Queen Emma' lily	Common

#### ARECACEAE - Palm Family

* <i>Cocos nucifera</i> L.	Coconut palm	Occasional
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#### CANNACEAE – Canna Family

* <i>Canna indica</i> L.	Indian shot	Uncommon
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#### COMMELINACEAE - Spiderwort Family

* <i>Commelina diffusa</i> N. L. Burm.	Honohono	Occasional
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Scientific Name	Common Name	Abundance
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COSTACEAE – Costus Family

* <i>Costus sp.</i>	Spiral flag	Occasional
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CYPERACEAE – Sedge Family

* <i>Cyperus rotundus</i> L	Nut grass	Common
<i>Fimbristylis cymosa</i> (R.) Brown	Mau'u 'uki'uki	Common
* <i>Kyllinga nemoralis</i> (R.J. Forester & G. Forester) Dandy ex Hutchinson &	Dalziel	Common
<i>Pycreus polystachyos</i> (Rottb.) P. Beauv.	ncn	Occasional

MUSACEAE – Banana Family

pol <i>Musa x paradisiaca</i> L.	Banana	Occasional
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PANDANACEAE – Screw pine Family

<i>Pandanus tectorius</i> S. Parkinson ex Z	Hala	Abundant
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POACEAE - Grass Family

* <i>Brachiaria mutica</i> (Forssk.) Stapf.	California grass	Locally abundant
* <i>Chloris barbata</i> (L.) Sw.	Swollen finger grass	Occasional
* <i>Chloris divaricata</i> R. Br.	Star grass	Common
* <i>Chrysopogon aciculatus</i> (Retz.) Trin.	Golden beard grass	Occasional
* <i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	Common
* <i>Digitaria ciliaris</i> (Retz.) Koeler	Henry's crabgrass	Common
* <i>Digitaria violascens</i> Link.	Smooth crabgrass	Locally abundant
* <i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	Locally abundant
* <i>Eleusine indica</i> (L.) Gaertn.	Wiregrass	Occasional
* <i>Melinis minutiflora</i> P. Beauv.	Molasses grass	Abundant
* <i>Oplismenus hirtellus</i> (L.) P. Beauv.	Basket grass	Locally abundant
* <i>Paspalum conjugatum</i> Berg.	Hilo grass	Abundant
* <i>Paspalum fimbriatum</i> Kunth	Panama grass	Occasional
* <i>Sacciolepis indica</i> (L.) Chase	Glenwood grass	Locally abundant
* <i>Setaria gracilis</i> Kunth	Yellow foxtail	Locally abundant
* <i>Sporobolus indicus</i> (L.) Kunth	West Indian dropseed	Common

ZINGIBERACEAE – Ginger family

* <i>Hedychium sp.</i>	Ginger	Locally abundant
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Scientific Name	Common Name	Abundance
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### DICOTYLEDONS

#### AIZOACEAE – Fig-marigold Family

<i>Sesuvium portulacastrum</i> (L.) L.	‘Ākulikuli	Locally abundant
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#### ANACARDIACEAE – Mango Family

* <i>Mangifera indica</i> L.	Mango	Uncommon
* <i>Schinus terebinthifolius</i> Raddi	Christmas berry	Occasional

#### APIACEAE – Parsley Family

* <i>Centella asiatica</i> (L.) Urb.	Asiatic pennywort	Occasional
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#### ARALIACEAE – Ginseng - Family

* <i>Schefflera actinophylla</i> (Endl.) Harms	Octopus tree	Common
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#### ASCLEPIADACEAE – Milkweed Family

* <i>Asclepias curassavica</i> L.	Butterfly weed	Occasional
* <i>Hoya bicarinata</i> Gray	Wax plant	Locally abundant

#### ASTERACEAE – Sunflower Family

* <i>Ageratum conyzoides</i> L.	Maile honohono	Occasional
* <i>Bidens cynapiifolia</i> Kunth	ncn	Locally abundant
* <i>Calytocarpus vialis</i> Less.	ncn	Locally abundant
* <i>Conyza bonariensis</i> (L.) Cronq.	Hairy horseweed	Occasional
* <i>Eclipta alba</i> (L.) Hassk.	False daisy	Uncommon
* <i>Emilia sonchifolia</i> (L.) DC	Flora’s paintbrush	Occasional
* <i>Erechtites hieracifolia</i> (L.) Raf. ex DC	ncn	Uncommon
* <i>Erigeron bellioides</i> DC	ncn	Locally abundant
* <i>Pluchea symphytifolia</i> (Mill.) Gillis	Sourbush	Occasional
* <i>Sonchus oleraceus</i> L.	Sow thistle	Uncommon
* <i>Synedrella nodiflora</i> (L.) Gaertn.	Nodeweed	Occasional

#### BALSAMINACEAE – touch-me-not Family

* <i>Impatiens wallerana</i> J. D. Hook.	Busy Lizzy	Locally abundant
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<u>Scientific Name</u>	<u>Common Name</u>	<u>Abundance</u>
BIGNONIACEAE – Bignonia Family		
* <i>Spathodea campanulata</i> P. Beauv.	African tulip tree	Occasional
BORAGINACEAE – Borage Family		
* <i>Tournefortia argentea</i> L. fil.	Tree heliotrope	Uncommon
CACTACEAE – Cactus Family		
* <i>Cereus uruguayanus</i> Ritter ex R. Kiesling	Hedge cactus	Uncommon
CARIACEAE – Papaya Family		
* <i>Carica papaya</i> L.	Papaya	Uncommon
CASUARINACEAE – She-oak Family		
* <i>Casuarina equisetifolia</i> L.	Ironwood	Abundant
CLUSIACEAE – Mangosteen Family		
(pol) <i>Calophyllum inophyllum</i> L.	Kamani	Abundant
COMBBRETACEAE – Indian almond Family		
* <i>Terminalia catappa</i> L.	False kamani	Abundant
CONVOLVULACEAE – Morning glory Family		
* <i>Ipomoea alba</i> L.	Koali pehu	Occasional
<i>Ipomoea pes-caprae</i> (L.) R. Br.	Beach morning glory	Occasional
* <i>Merremia tuberosa</i> (L.) Rendle.	Woodrose	Occasional
CUCUBITACEAE – Gourd Family		
* <i>Momordica charantia</i> L.	Balsam pear	Locally abundant

Scientific Name	Common Name	Abundance
<b>EUPHORBIACEAE – Spurge Family</b>		
(pol) <i>Aleurites moluccana</i> (L.) Willd.	Kukui	Occasional
* <i>Chamaesyce hirta</i> (L.) Millsp.	Hairy spurge	Common
* <i>Chamaesyce hypericifolia</i> (L.) Millsp.	Graceful spurge	Occasional
* <i>Chamaesyce prostrata</i> (Aiton) Small.	Prostrate spruge	Locally abundant
* <i>Phyllanthus debilis</i> Klien ex Willd.	Niruri	Locally abundant
* <i>Ricinus communis</i> L.	Castor bean	Locally abundant
<b>FABACEAE – Bean Family</b>		
* <i>Canavalia cathartica</i> Thouars	Maunaloa vine	Locally abundant
* <i>Chamaecrista nictitans</i> (L.) Moench	Partridge pea	Common
* <i>Desmodium incanum</i> DC	Spanish clover	Occasional
* <i>Desmodium tortuosum</i> (Sw.) DC	Florida beggarweed	Occasional
* <i>Desmodium triflorum</i> (L.) DC	ncn	Uncommon
* <i>Macroptilium atropurpureum</i> (DC) Urb.	Cowpea	Locally abundant
* <i>Mimosa pudica</i> L.	Sensitive plant	Abundant
<i>Vigna marina</i> (J. Burm) Merr.	Beach pea	Common
<b>GOODENIACEAE – Goodenia Family</b>		
<i>Scaevola sericea</i> Vahl.	Naupaka	Abundant
<b>LAURACEAE – Laurel Family</b>		
<i>Cassytha filiformis</i> L.	Kauna'oa pehu	Locally abundant
* <i>Persea americana</i> Mill.	Alligator pear	Occasional
<b>MALVACEAE – Mallow Family</b>		
<i>Hibiscus tiliaceus</i> L.	Hau	Abundant
<b>MENISPERMACEAE – Moonseed Family</b>		
<i>Cocculus trilobus</i> (Thunb.) Dc	Hue'hue	Locally abundant
<b>MYRSINACEAE – Myrsine Family</b>		
* <i>Ardisia elliptica</i> Thunb.	Shoebuttan ardisia	Abundant

Scientific Name	Common Name	Abundance
<b>MYRTACEAE – Myrtle Family</b>		
<i>*Psidium guajava</i> L.	Common guava	Abundant
<i>*Syzygium cumini</i> (L.) Skeels	Java plum	Common
<b>OXALIDACEAE – Wood-sorrel Family</b>		
<i>*Oxalis corniculata</i> L.	Yellow wood sorrel	Occasional
<i>*Oxalis corymbosa</i> DC	Pink wood sorrel	Uncommon
<b>PASSIFLORACEAE – Passion Flower Family</b>		
<i>*Passiflora edulis</i> Sims	Passion fruit	Uncommon
<b>POLYGALACEAE – Milkwort Family</b>		
<i>*Polygala paniculata</i> L.	nen	Locally abundant
<b>PORTULACAEAE – Purslane Family</b>		
<i>*Portulaca oleracea</i> L.	Pig weed	Occasional
<b>PROTEACEAE – Protea Family</b>		
<i>*Grevillea robusta</i> A. Cunn. ex R. Br.	Silk oak	Uncommon
<b>RUBIACEAE – Coffee Family</b>		
(pol) <i>Morinda citrifolia</i> L.	Noni	Common
<b>SOLANACEAE – Nightshade Family</b>		
? <i>Solanum americanum</i> Mill.	Pōpolo	Occasional
<b>VERBENACEAE – Verbena Family</b>		
<i>*Lantana camara</i> L.	Lantana	Occasional
<i>*Stachytarpheta dichotoma</i> (Ruiz & Pav.) Vahl	'Owī	Common

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## **Appendix B: Survey of Avian and Mammalian Species**





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A Survey of Avian and Mammalian Species,  
Wai‘ānapanapa State Park, Hāna, Maui,  
Hawai‘i.

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Maui.....6

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## ***Introduction:***

This report summarizes the findings of a two day ornithological and mammalian survey of Wai‘ānapanapa State Park, Hāna, Maui. Fieldwork was conducted on December the 13<sup>th</sup> and 14<sup>th</sup>, 2002. The Department of Land and Natural Resources (DLNR) is proposing to reconstruct and/or replace many of the existing facilities within the park. In pursuit of this goal a comprehensive master plan and Environmental Impact Statement are being prepared to identify and address the preferred long-range management strategy for the park.

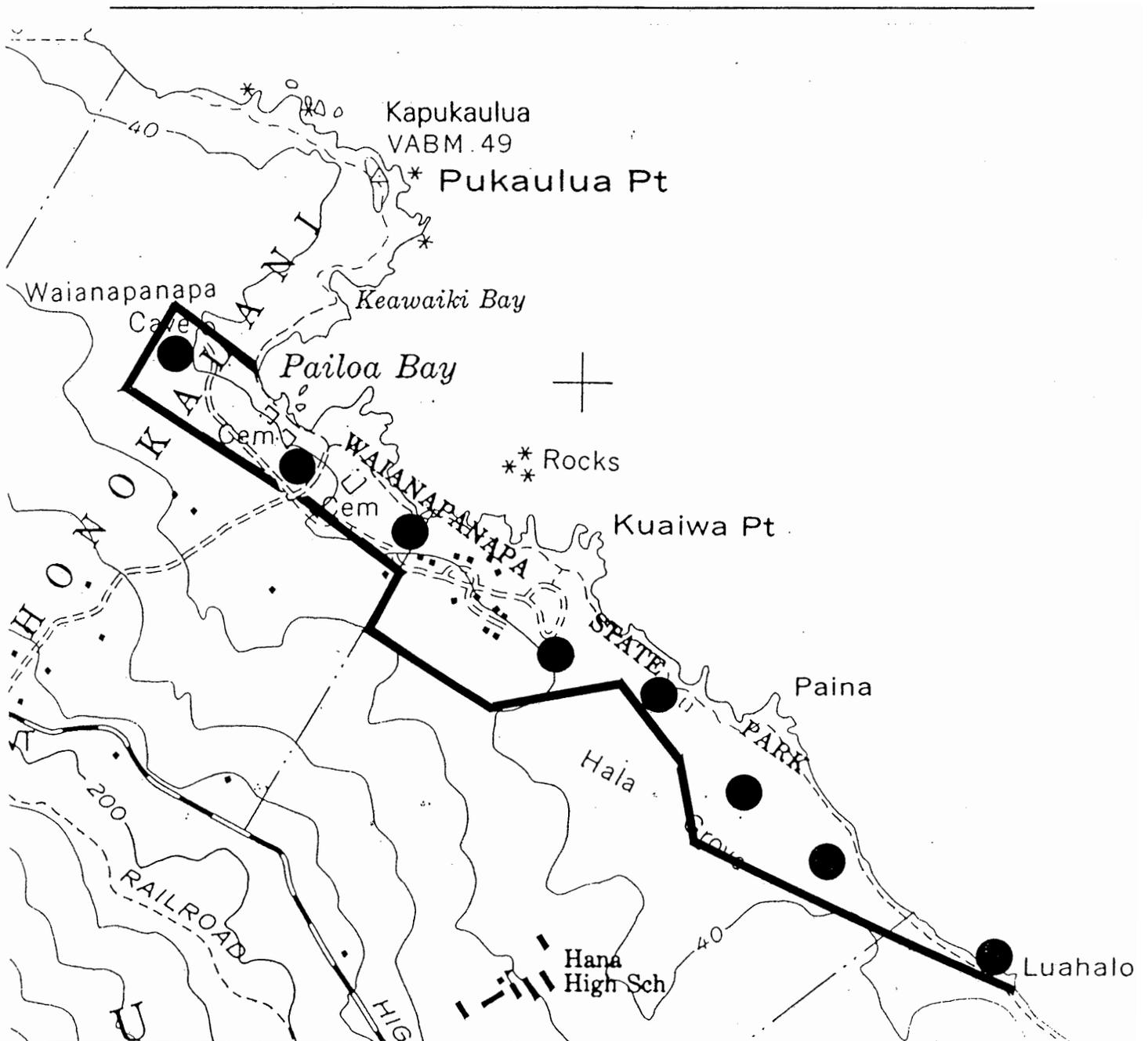
The primary purpose of the survey was to determine if there were any federally listed endangered, threatened, proposed, or candidate avian or mammalian species on, or in the immediate vicinity of the park. In addition, to the study we assessed the probability of any usage of the park by listed avian and mammalian species given the habitat currently found within it's boundaries. Federal and State of Hawai‘i listed species are those that are published in the following documents (DLNR, 1998; Federal Register, 1999a, 1999b, 2001)

Avian phylogenetic order and nomenclature follows *The American Ornithologists' Union Checklist of North American Birds 7<sup>th</sup> Edition* (American Ornithologist's Union 1998), and the 42<sup>nd</sup> and 43<sup>rd</sup> supplements to *Check-list of North American Birds* (American Ornithologist's Union 2000, 2002). Mammal scientific names follow *Mammals in Hawaii* (Tomich 1986). Plant names follow *Manual of the Flowering Plants of Hawai‘i* (Wagner et al. 1990). Place names follow *Place Names of Hawaii* (Pukui et al. 1974).

## ***General Site Description:***

Wai‘ānapanapa State Park is located north of the town of Hāna, Maui. The park extends ~ 7200 feet south from Pailoa Bay to Luahaloa Point (USGS 1983, Figure 1). The land gently slopes towards the ocean from a maximum elevation of ~ 50 feet down to mean sea level at Pailoa Bay (USGS 1983, Figure 1).

The vegetation present within the park falls into three broad categories. The northern third of the park is vegetated with a mix of predominately alien (i.e., introduced to Hawai‘i by humans) species, including numerous ornamental shrubs and various fruit trees. The bulk of the central and southern parts of the park is comprised of a coastal *hala* (*Pandanus tectorius*) Mesic forest, which is separated from the ocean by a *naupaka* (*Scaevola sericea*) coastal dry shrubland / and *Fimbristylis* coastal dry grassland. Along the southern edge of the park the shoreline is primarily barren lava flows (The Nature Conservancy of Hawaii 1992).

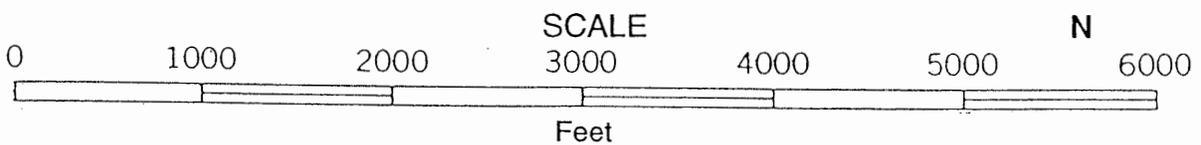


**FIGURE 1.**  
**WAI'ĀNAPANAPA STATE PARK STUDY SITE**  
**LEGEND**

-  Study Site
-  Bird Count Stations



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### ***Mammalian Survey Methods:***

All observations of mammalian species were of an incidental nature. With the exception of the endemic (i.e. native and unique to Hawai'i), endangered Hawaiian hoary bat, or 'ōpe 'ape 'a, as it is known in Hawaiian, all terrestrial mammals currently found on the island of Maui are alien species. Most are ubiquitous; no trapping program was proposed or undertaken to quantify the use of the study site by alien mammalian species. The survey of mammals was limited to visual and auditory detection, coupled with observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed and heard within the park. An additional two hours were spent within the park on the evening of the 13<sup>th</sup> of December, in an attempt to detect Hawaiian hoary bat activity.

### ***Avian Survey Methods:***

Eight count stations were established along a linear transect running the length of the park (Figure 1). Eight-minute unlimited distance avian counts were made at each station (Reynolds *et al.* 1980). Count stations were counted once; additionally, a tally was kept of all bird species detected while in the park. Field observations were made with the aid of Leitz 10 X 42 binoculars and by listening for vocalizations. Counts were concentrated during the early morning hours between 0700 hrs. and 1000 hrs., the peak of daily bird activity. An additional two hours were spent within the park on the evening of the 13<sup>th</sup> of December, and again in the early morning of the 14<sup>th</sup> of December, in an attempt to detect nocturnally flying seabirds and owls over flying the area. Additionally two 30 minute time dependent seabird counts were conducted. Time not spent counting was used to search the site and the surrounding area for species not detected during count sessions. All paved and unpaved roadways and trails within the park were walked twice during the course of this survey.

### ***Mammalian Survey Results:***

Four mammalian species; Hawaiian hoary bat, domestic dog (*Canis f. familiaris*), small Indian mongoose (*Herpestes a. auro punctatus*), and cat (*Felis catus*) were detected during the course of this survey.

On the evening of the 13<sup>th</sup> of December a minimum of four Hawaiian hoary bats were seen foraging over the *hala* grove and near-shore areas of Wai'ānapanapa State Park. Dogs were heard barking in the private housing areas located to the west of the park on both days of the survey. Dog sign was also observed within the park. Numerous small Indian mongooses were encountered within the study area. Three cats were seen within the park, one at the upper parking below the Wai'ānapanapa caves, and two close to the park headquarters building. Cat sign was also encountered at several locations within the park.

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### ***Avian Survey Results:***

A total of 165 individual birds, representing 11 avian species, from 11 separate families, were recorded during variable circular plot station counts (Table 1).

One additional species representing one additional family was detected during the 30 minute time dependant seabird watches (Table 1). Of the 12 species detected, two species, Pacific Golden-Plover (*Pluvialis fulva*), or *kōlea*, and Ruddy Turnstone (*Arenaria interpres*), or *'akekeke*, are indigenous (native to Hawai'i, but also found naturally elsewhere) migratory species, which spends their winters in the central and south Pacific. The remaining 10 species recorded are alien species.

No avian species listed as endangered, threatened or proposed for listing under the Federal Endangered Species Act of 1973, as amended (ESA), or by the State of Hawai'i under it's endangered species program were recorded during the survey (DLNR 1998, Federal Register 1999a, 1999b, 2001).

Avian diversity was relatively low. Two species; Japanese White-eye (*Zosterops japonicus*) and Common Myna (*Acridotheres tristis*) accounted for 51% of the total number of birds recorded during station counts. The most common avian species detected was the Japanese White-eye, which accounted for 34.5% of the total individual birds recorded. An average of 20.6 individual birds were recorded per station-count.

### ***Discussion:***

A one-time survey cannot provide a total picture of the wildlife using any given area. Certain species will not be detected for one reason or another. Seasonal variations in populations, coupled with seasonal availability and use of resources, will cause different use patterns throughout a year and, in fact, over a number of years.

We detected relatively low vertebrate species diversity and density within the park during the course of this survey. This finding is not unexpected - xeric coastal plant community lacking wetland features tend to support low vertebrate diversity and population densities.

The detection of the endangered Hawaiian hoary bat within the park is significant. Historically there have been very few documented sightings of bats from the island of Maui (Tomich 1986; Duvall and Gassman-Duvall 1991; USFWS 1998). The apparent scarcity of this species on Maui may reflect a lack of data rather than the true status of this species on the island.

**TABLE 1**

<b>Avian Species Detected Within Wai‘ānapanapa State Park, Hāna, Maui</b>			
<i>Common Name</i>	<i>Scientific Name</i>	<i>ST</i>	<i>RA</i>
HERONS - Ardeidae.			
Cattle Egret.	<i>Bubulcus ibis</i>	A	S-4
PHEASANTS & ALLIES – Phasianidae			
Red Junglefowl - <i>Moa</i>	<i>Gallus gallus</i>	A	1.21
PLOVERS – Charadriidae			
Pacific Golden-Plover - <i>Kōlea</i>	<i>Pluvialis fulva</i>	IM	0.60
SANDPIPERS & ALLIES – Scolopacidae			
Ruddy Turnstone – ‘ <i>Akekeke</i>	<i>Arenaria interpres</i>	IM	0.60
PIGEONS & DOVES – Columbidae			
Spotted Dove.	<i>Streptopelia chinensis</i>	A	4.24
Zebra Dove.	<i>Geopelia striata</i>	A	9.70
SILVEREYES – Zosteropidae			
Japanese White-Eye.	<i>Zosterops japonicus.</i>	A	34.55
BABBLERS – Timaliidae			
Hwamei	<i>Garrulax canorus</i>	A	16.36
STARLINGS – Sturnidae			
Common Myna.	<i>Acridotheres tristis</i>	A	16.36
CARDULINE FINCHES & ALLIES – Fringillidae			
House Finch.	<i>Carpodacus mexicanus frontalis</i>	A	7.88
SALTATORS, CARDINALS & ALLIES – Cardinalidae			
Northern Cardinal.	<i>Cardinalis cardinalis</i>	A	9.09
WAXBILLS & ALLIES - Estrildidae			
Nutmeg Mannikin	<i>Lonchura punctulata topela</i>	A	7.88

**KEY TO TABLE 1**

- ST Status  
 I Indigenous (i.e., native to Hawai‘i, but also found elsewhere naturally) species  
 IM Indigenous migratory species  
 A Alien (i.e., introduced to Hawai‘i by humans) species – established in the wild in Hawai‘i  
 RA Relative Abundance: Number of birds detected divided by the number of count stations (8)  
 S Time dependant seabird count – total number of birds seen

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It is unlikely that the replacement of existing structures or the construction of new ones will result in any deleterious impacts to this species. Unlike nocturnally flying seabirds which often collide with manmade structures, bats are uniquely adapted to avoid collision with both man-made and natural obstacles. If the installation of outdoor lighting is part of the improvements planned for the park, it is likely that such lights will attract moths and other volant insects which may in turn attract bats. Hawaiian hoary bats have regularly been observed harvesting insects attracted to outdoor lighting on both Kaua'i and Hawai'i (Cooper and Day 1995, David 1995, 1996).

Although no rodents were detected, it is likely that roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*) as well as European house mice (*Mus domesticus*), utilize resources within the park. Without conducting a trapping program, it is difficult to assess the presence or population densities of these often hard-to-see mammals. All introduced mammalian species are deleterious to native plant and avian populations, and rodents may pose health risks to humans.

With the exception of the lone Pacific Golden-Plover, and Ruddy Turnstone, all avian species detected during the course of this survey are alien to the Hawaiian Islands. The results of the avian species survey are in keeping with the habitat present within the park. Although not detected during the course of this survey, it is possible that small numbers of the endangered endemic Hawaiian Petrel (*Pterodroma sandwichensis*)<sup>1</sup>, or 'ua'u and the threatened Newell's Shearwater (*Puffinus auricularis newelli*), or 'a'o, over-fly the park between the months of July and October (Cooper and Day, in press). Both species have been recorded flying over the town of Hāna this year (Cooper and Day, in press).

Both species was formerly common throughout the Hawaiian Islands (Munro 1960, Banko 1980a, 1980b, Harrison 1990). Within recent historic times Hawaiian Petrels have been reduced to relict breeding colonies located at high elevations on Kaua'i, Maui, Hawai'i and on Moloka'i (Banko et al. 2001). On Maui there are approximately 900 known nesting burrows, which are mostly located in and around Haleakelā's crater rim (Hodges and Nagata 2001). Newell's Shearwaters breed on Kaua'i, and Hawai'i in relatively large numbers, and on Moloka'i in extremely small numbers. Population numbers for this species on Maui are unknown. Newell's Shearwater populations have dropped precipitously since the 1880s (Banko 1980b). This pelagic species nests high in the mountains in burrows excavated under thick vegetation, especially *uluhe* (*Dicranopteris linearis*).

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<sup>1</sup> The Hawaiian endemic endangered sub-species of the Dark-rumped Petrel (*Pterodroma phaeopygia sandwichensis*) has been elevated to a full species, based on the differences in vocalizations, and morphology between in and the nominate Galapagos species (*Pterodroma p. phaeopygia*). The new common name for the Hawai'i breeding species is Hawaiian Petrel (*Pterodroma sandwichensis*) (American Ornithological Union 2002)

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The primary cause of mortality in both species is thought to be predation by alien mammalian species at the nesting colonies (Cooper and Day 1995, Day and Cooper 1998, Ainley et al. 2001). Collision with man-made structures is considered to be the second most significant cause of mortality of this seabird species in Hawai'i. Nocturnally flying seabirds, especially fledging birds, can become disoriented by exterior lighting on their way to sea in the summer and fall. When disoriented, seabirds often collide with manmade structures and, if not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals (Ainley et al. 1995, 1997, 2001, Cooper and Day 1995, 1998, Day and Cooper 1997, Podolsky et al. 1998). There is no suitable nesting habitat within the park for either of these pelagic seabird species.

***Recommendations:***

To reduce the potential for interactions between nocturnally flying Hawaiian Petrels and Newell's Shearwaters with external lights and other man-made structures, it is recommended that any external lighting planned within the park be shielded so as to prevent upward light radiation (Reed et al. 1985, Telfer et al. 1987).

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## Appendix C: Archaeological Inventory Survey





**ARCHAEOLOGICAL INVENTORY SURVEY  
WAI‘ĀNAPANAPA STATE PARK  
LANDS OF HONOKALANI, WĀKIU  
AND KAWAIPAPA, HĀNA DISTRICT  
ISLAND OF MAUI  
(TMK [2] 1-3-05: 6-9, 1-3-06: 09)**

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**ARCHAEOLOGICAL INVENTORY SURVEY**  
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**(TMK: [2] 1-3-05:6-9, 1-3-06: 9)**

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## SUMMARY

At the request of Wilson Okamoto & Associates on behalf of the Department of Land and Natural Resources, Haun & Associates conducted an archaeological inventory survey of Wai'ānapanapa State Park, a c. 111-acre parcel located in the Lands of Honokalani, Wākiu, and Kawaipapa, Hāna District, Island of Maui. The objective of the survey was to satisfy historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawai'i Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules.

The archaeological survey documented 59 sites with 119 features. The features consist of enclosures, walls, cairns, terraces, pavements, platforms, trails, caves, upright stones, U-shape and L-shaped enclosures, mounds, overhangs, alignments, cemeteries, C-shapes, and several miscellaneous types. Feature function includes permanent habitation, ceremonial, temporary habitation, marker, agriculture, transportation, burial, livestock control, boundary, and rock art.

The identified sites conform to the types expected based on previous archaeological work and historic documentary research. The sites, particularly those in the central and southeastern portion of the park, represent the well preserved remains of traditional Hawaiian settlement on the Hāna coast that largely has escaped historic disturbance by plantation agriculture and ranching. The radiocarbon dates indicate occupation between A.D 1200 and the mid-1600s. Occupation continued into the historic period and use of the park for recreation, marine exploitation, and burial continues today.

All fifty-nine sites are assessed as significant for the sites' information content, for their association with the broad pattern of traditional Hawaiian windward coastal settlement, and as an excellent site type example of a habitation complex in Hana. All of the sites are assessed as culturally significant to the Hawaiian people, and for the three historic cemeteries, potentially other ethnic groups as well. The main coastal Kiha-a-Pi'ilani Trail is additionally assessed as significant because of its association with the Maui chief Kiha-a-pi'ilani and the broad pattern of history represented by his rule, which is credited with the construction of the trail and other public works projects during the 1600s.

All fifty-nine sites are recommended for preservation because the sites are significant for multiple criteria. The specific plans for preservation and maintenance of the sites will be proposed in a Site Preservation Plan prepared for DLNR-SHPD review and approval. Plans for preservation and maintenance of sites where burials are present will be detailed in a Burial Treatment Plan prepared for DLNR-SHPD and the Maui/Lan'i Island Burial Council review and approval.

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## INTRODUCTION

This report presents the results of an archaeological inventory survey conducted of Wai'anapanapa State Park situated in the Lands of Honokalani, Wākiu and Kawaipapa, Hāna District, Island of Maui (*Figure 1*). The objective of the survey was to satisfy current historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawai'i Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules (DLNR 1998). The work was done in support of a master plan for the park and Environmental Impact Statement (EIS).

The survey fieldwork was conducted on September 9-14 and October 3-7, 2002 under the direction of Dr. Alan Haun. Described in this final report are the project scope of work, field methods, background information, survey findings, and significance assessments of the sites with recommended treatments.

## Scope Of Work

Based on DLNR-SHPD rules for inventory surveys, the following specific tasks were determined to constitute an appropriate scope of work for the project:

1. Conduct background review and research of existing archaeological and historical documentary literature relating to the project area and its immediate vicinity--including examination of Land Commission Awards, *ahupuaa*'a records, historic maps, archival materials, archaeological reports, and other historical sources;
2. Conduct a high intensity, 100% pedestrian survey coverage of the project area;
3. Conduct detailed recording of all potentially significant sites including scale plan drawings, written descriptions, and photographs, as appropriate;
4. Conduct limited subsurface testing (manual excavation) at selected sites (a) to determine the presence or absence of potentially significant buried cultural deposits or features, and (b) to obtain suitable samples for radiocarbon age determination analyses;
5. Analyze background research and field data; and
6. Prepare and submit Final Report.

## Project Area Description

The project area consists of an irregularly-shaped c. 111-acre parcel bounded on the northeast by the ocean and on the northwest, southwest and southeast by undeveloped land. The parcel varies in elevation from 10 to 40 feet above sea level. The Wai'anapanapa Caves are situated just outside of the park boundary to the north. The northwestern half of the parcel contains park facilities, consisting of the park headquarters office, restrooms, parking lots, cabins, a warehouse, maintained lawns and a network of paved roads. Approximately 18-acres of the park have been developed. Examples of park facilities are illustrated in *Figures 2* and *3*. Three historic cemeteries are also situated in this area. Vegetation in this portion of the parcel is comprised of mango (*Anacardiaceae*), African tulip (*Spathodea campanulata*), ti (*Cordyline fruticosa*), *hala* (*Pandanus odoratissimus*), *milo* (*Thespesia populnea* [L.]), and coconut (*nuī*, *Cocos nucifera*).



The soils in the northwestern portion of the project area are comprised of Malama extremely stony muck (3-25% slopes), which consists of a thin layer black muck over a'a lava (Foote et al. 1972:92). This soil type has a rapid permeability, a slow runoff and a slight erosional hazard.

The soil in the southeastern portion of the project area consists of a'a lava flows comprised of clinkery, sharp lava on uneven terrain (Foote et al. 1972:80). The vegetation along the coast consists of *naupaka kai* (*Scaevola taccada*; Figure 4). The vegetation inland of the coastal escarpment is comprised of ironwood trees (*Casuarina equisetifolia*), *hau* (*Hibiscus tiliaceus*), *uluhe* (*Dicranopteris linearis*), *'ulu* (*Artocarpus altilis*), *hala*, false *kamani* (*Terminalia catappa*), *kukui* (*Aleurites moluccana*), *'ilima* (*Sida fallax*), Christmas berry (*Schinus terebinthifolius* Raddi), with scattered coconut and banana (*Musa sp.*). A dirt road extends from Hana High School towards the ocean into the parcel. A bulldozed road cut extends from this road to the northwest.

A coastal trail (Site 5340a) discussed below extends through the project area, generally following the rugged cliffline. A set of modern mortared stone stairs is incorporated into the trail in approximately the center of the parcel. Other portions of the trail have been modified by park personnel to offset the effects of erosion. A small wooden shack is situated on the coastline in the southeastern end of the project area (Figure 5). The shack is currently utilized by local fishermen.

## Field Methods

The project area was subjected to 100% surface examination with the surveyors spaced at 5 m to 15 m intervals depending on vegetation. The identified sites and features were flagged with blue and pink flagging tape and their locations plotted on a scaled project area map. The sites were subjected to detailed recording consisting of the preparation of scaled plan maps with a tape and compass, the completion of standardized site/feature forms, and photographic documentation. A metal site tag was placed at each site and the tag's location was plotted on the site map. The accuracy of the GPS device for a single point is +/- 15 m. This accuracy is increased to less than c. 3-5 meters by taking multiple points including property corners and overlying the plotted points on a scaled map using AutoCAD software. The location of all sites and features was determined by using a Garmin Global Positioning System (GPS) III+. The accuracy of the GPS device for a single point is +/- 15 m. This accuracy is increased to less than c. 3-5 meters by taking multiple points including property corners and overlying the plotted points on a scaled map using AutoCAD software.

Subsurface testing was undertaken in six locations during the study. The tested features consist of three platforms, a pavement, a terrace, and a cave. The test units were dug in arbitrary levels within stratigraphic layers and were terminated on either bedrock, or within culturally sterile soil. Standardized excavation records were prepared after the completion of each stratigraphic layer. The soil removed during the excavations was screened through ¼" mesh. Portable remains collected were placed in paper bags labeled with the appropriate provenience information. Recovered charcoal samples were carefully removed from either *in situ* locations or collected during the screening process. These samples were deposited in aluminum foil pouches and placed in properly labeled paper bags. Following the excavation of the test units, a section drawing depicting the stratigraphy was prepared, post-excavation photographs were taken, and the units were backfilled. Recovered cultural remains were transported to Haun & Associates laboratory for analysis.

Examination of a small cave in the southeastern portion of the parcel (Site 5372, Feature C) identified two human teeth on a ledge in a small chamber on October 3, 2002. The Department of Land and Natural Resources-State Historic Preservation Division, Burial Sites Program staff; and the Hāna representative of the Maui/Lana'i Island Burial Council (MLIBC) were notified immediately after the teeth were found. Mr. Minn, the Hāna MLIBC representative, examined the site and remains on October 6, 2002.

## ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

### Historical Documentary Research

Archival research was conducted at the Hamilton Library Hawai'i and Pacific Collection at the University of Hawai'i-Manoa, the University of Hawai'i-Hilo Hawaiian Collection, the Land Survey Office and the Archives Division of the Hawai'i Department of Accounting and General Services, the Bishop Museum Ar-



Figure 4. A'a flow in southeastern portion of parcel, view to southeast

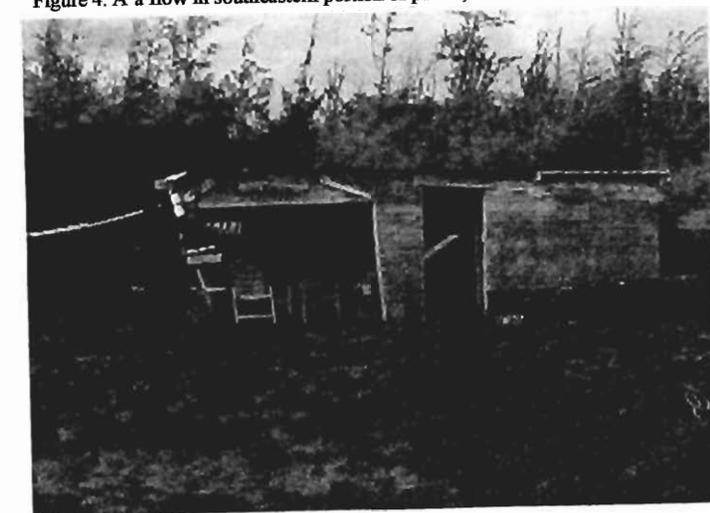


Figure 5. Fishing Shack, view to southwest

chives, Hawai'i Children's Mission House Museum archives, State Historic Preservation Division library, State Survey Division, Maui Historical Society Archives at Bailey House Museum, Hāna Cultural Center Archives, and the Hawai'i State Public Libraries in Honolulu and Hilo.

Wai'ānapapa State Park is located in the *moku'āina* (district) of Hāna on the northeast coast of the island of Maui, in the *ahupua'a* (land division) of Honokalani, Wākiu and Kawaipapa (Figure 6). The District of Hāna or East Maui, is made up of five *moku'āina* (Kahikinui, Kaupō, Kīpahulu, Hāna, and Ko'olau) each radiating from a large rock called Palaha, on the northeast rim of the crater of Haleakalā.

Legendary accounts and traditional historical information concerning Hāna District are described in detail by Cleghorn and Rogers (1987), Orr (2002), and Sterling (1998). Legends concerning the deities Pele, Pu'uhele, Kane, Kanaloa, Maui, and Kū'ula figure prominently in Hāna's legendary history.

In Thrum's *Hawaiian Annual* he recounts the legend of Kū'ula in which the first *loko* (fishpond) was invented and constructed in Hāna at Leho'ula (Thrum 1901:115). *Mo'olelo* (legends), *mele* (songs), *'ōlelo no'eau* (proverbs), and *oli* (chants) about events that took place in pre-contact times are revealing in that they illustrate that many of the battles of this period were relatively quickly contained by the opposing *ali'i* (see History of Kualii in Fornander 1917:IV: II: 364-434). These stories also illustrate the on-going inter-relationships between the people of the various islands.

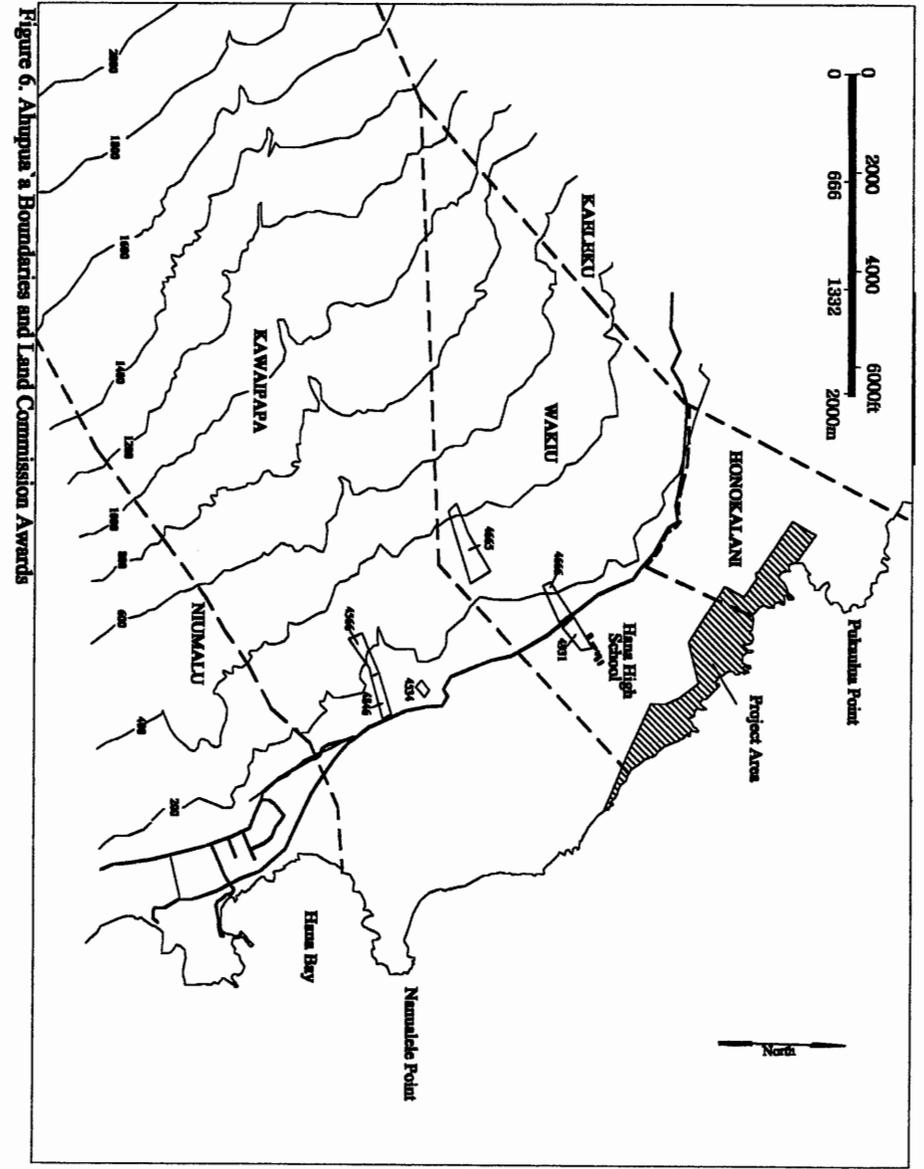
One of Maui's most famous *ali'inui* during the late 1500s to early 1600s was Pi'ilani who's ancestors made Hāna their home (Orr 2002). As a ruler, Pi'ilani spent time at both Hāna and Lele/Lahaina. He was well known for his peaceful rule of Maui, Moloka'i and Lāna'i. While he ruled there were no wars between chiefdoms and island polities. Pi'ilani met his second son Kiha-a-Pi'ilani in Lele (now Lahaina). Kiha (ca. early 1600s) was raised on O'ahu (Waikiki) with his mother's family. As a young adult he grew tired of listening to his uncles and wanted to meet his father. A *mo'olelo* indicates that from the moment he met his father, Kiha was never satisfied with being a junior son to his older brother, Lono-a-Pi'ilani.

After the death of Pi'ilani in Lele, friction between the brothers escalated (Orr 2002). Kiha went to the Big Island to solicit the help of his sister Pi'ikea and her husband, Hawai'i *ali'inui* 'Umi-a-Liloa, but not before he spent some time living in Hāna. After a year of building an army to challenge Lono-a-Pi'ilani, Kiha and Umi traveled to Maui to find that Lono had recently died, presumably from fear of doing battle with his brother and brother-in-law. Kiha-a-Pi'ilani eventually took control of the Maui domain. He is credited with many public works, one of which was to finish the Hono-a-Pi'ilani trail that his father started. Remnants of this monumental feature, also referred to as the King's or Kihapi'ilani Trail, can still be seen today in various parts of Maui, including the coastal zone of Wai'ānapapa State Park.

In the *History of Kualii*, the exploits of Kualii (great-great grandson of Kāhūhewa, *ali'inui* of O'ahu) take him to every island and he eventually unites all the islands "from Hawai'i to Ni'ihau" (Fornander 1917:IV: II: 406). Kualii lives in the time of Maui *ali'inui* Kamalāwahu and Kauhioakalani, sons of Kiha-a-Pi'ilani by each of his two wives [Kumaka and Koleamoku] and Kauhikama, son of Kamalāwahu (Kamakau 56; McKenzie 1983, 1986).

Between 1650 and 1795, many wars took place between intra-island chiefdoms and inter-island kingdoms; the majority of these *ali'inui* were related in various ways. In 1736, Maui *ali'inui* Kekaulike died. He chose his *ni'aupii* o son Kamehameha-nui to be his heir; although Kauhū was the oldest, he was of a slightly lower rank. Kamehameha-nui was the brother of Ka-lola, Ka-hekili, and Ku-ho'oiheihai-pahu. In 1737 and 1738 Kauhū-aimoku-a-Kama (Kauhū), oldest son of Ke-kau-like rebelled against his younger brother, Kamehameha-nui. The fighting men of Kamehameha-nui were slaughtered. This prompted Kamehameha-nui to flee to his uncle's canoe, Hawai'i Island *ali'inui* Alapa'i-nui-a-Ka-uaua (Alapa'i), who took him to Hawai'i Island where they spent a year preparing for war. Alapa'i was the half-brother of Kamehameha-nui's mother (Kamakau 1992:73-74).

When Kauhū heard that Alapa'i was heading back to Maui, he enlisted the help of Pele-io-holani, Kauai *ali'inui* who was also ruling chief of O'ahu and the son of Kualii; Pele-i'ō-hōlani was also father of Ke'eumoku and cousin of Alapa'i (McKenzie 1986:23). Alapa'i attacked Maui (1738), drying up the streams of Kau'ula, Kanahā and Kahoma near Lahaina Luna, destroying the taro patches. His men kept



guard over the streams of Olowalu, Ukumehame, Wailuku and Hōnokōwai. “When Pele-i’ō-hōlani heard that Alapa’i was in Lahaina he gathered all his forces at Honokahua and at Honolulu. At Hōnokōwai an engagement took place between the two armies, and the forces of Alapa’i were slaughtered and fled to Keawawa” (Kamakau 1992:74). Pele-i’ō-hōlani had 640 men to Alapa’i’s 8,440. However, the cousins once again came face to face in Pu’unēnē and decided to once more opt for peace between the families. Kamehameha-nui ruled Maui in peace; Pele-i’ō-hōlani retired to Moloka’i for a while, and Alapa’i went back to rule Hawai’i Island.

Around 1759, High Chief Kalani’ōpu’u from the Island of Hawai’i made war on East Maui and conquered Hāna from *ali’i nui* Kamehameha-nui, brother of Kalola, Kalani’ōpu’u’s wife. Kalani’ōpu’u [father of Kiwala’ō and grandfather of Keōpūolani, sacred wife of Kamehameha I] took control of Hāna’s prominent Pu’u Ka’uiki as his fortress. He appointed one of his chiefs, Puna, as “governor” of Hāna and Kīpahulu. Puna was later tricked by Mahihelelima into going back to Hawai’i Island, thereby leaving Mahihelelima in control of Hāna. Mahihelelima was an independent chief of Hāna, Kīpahulu and Kaupō, whose ancestors, grandparents, and parents had been chiefs of the districts (Kamakau 1992:81-82).

Kamehameha-nui relinquished Hāna and lived in peace in west Maui. In 1766 the peaceful Maui *ali’i nui* died. After ruling Maui for 29 years, Kamehameha-nui was taken ill at Kawaipapa on a journey about the island. There in Hāna he ceded his lands to his younger brother Kahekiliinui’āhumanu (Kahekili), a fierce warrior and “manipulator” [and biological father of Kamehameha I] (Kamakau, 1992:82-84, 188; Karne’eleihiwa 1992:47). During this period, Ka’ahumanu, daughter of Ke’eaumoku and Namahana, was born at Mapuwena, Paliuli, in a cave at the base of Pu’u Ka’uiki, (she would later become queen and favorite wife of Kamehameha I, unifier of the Hawaiian Islands and nephew of Kalani’ōpu’u). “Her afterbirth was taken and buried at Kani-a-mako in Kawaipapa above Pihēle” (Kamakau 1992:309).

In 1775, Kalani’ōpu’u, son of Ka-lani-nui-i-a-mamao and his forces in Hāna raided and severely destroyed the neighboring Kaupō district, before continuing several more raids on the islands of Moloka’i, Lana’i, Kaho’olawe and parts of West Maui. He returned again in 1776 and for several years later, raiding and treating the *maka’āinana* cruelly. In 1777 when very young, her parents took Ka’ahumanu and their whole family to Hawai’i to get away from the war between Kalani’ōpu’u and Kahekili (Silverman, 1987:iii, 5-6; Kamakau, 1992:310).

In January 1778 Cook landed in Waimea, Kaua’i and the culture of old Hawai’i began its spiraling change (see Day 1992). Cook left Hawai’i for several months, but returned later in the year. Captain Cook’s ship *Resolution* stood off Hāna’s shore for four days in November 1778 (Barrow 1993). They “saw people on several parts of the shore, and some houses and plantations. The country seemed to be well wooded and watered.” (1993:404). The Hawaiians traded cuttlefish, breadfruit, potatoes, taro, bananas and small pigs for nails and iron tools.

Kalani’ōpu’u was fighting Kahekili’s forces in Wailua, Maui on November 19, 1778 when Cook’s ship was sighted on his return trip to the islands. Kalani’ōpu’u visited Cook on the *Resolution*, while Kahekili visited Clerke on the *Discovery* (Kuykendall and Day 1976:16). When Cook sailed into Kealakekua Bay on January 17, 1779, Kalani’ōpu’u was still fighting Kahekili on Maui. At this time Kaeo was ruling chief of Kaua’i; Ka-hahana of O’ahu and Moloka’i; Kahekili of western Maui, Lana’i and Kaho’olawe; and Kalani’ōpu’u of Hawai’i Island and Hāna (Kamakau, 1992:84-86, 92, 97-98). On January 25<sup>th</sup> Kalani’ōpu’u visited Cook again at Kealakekua Bay, presenting him with several feather cloaks. In February Cook’s scheme to kidnap Kalani’ōpu’u as a hostage was thwarted and Cook was killed following a skirmish over a stolen cutter (Kuykendall and Day 1976:18).

The warring between the Hawai’i and Maui forces continued. When Kahekili heard about the death of Kalani’ōpu’u, he was determined to retake East Maui [Hāna District]. The chiefs of Hāna, based at the fortress of Ka’uiki, were Mahi-hele-lima, Kaloku-o-ka-maile, Nae’ole, Malua-lani, Kaloku, a grandson of Keawe and other chiefs of Hawai’i who “liked to live there” [in Hāna] as well as some native Hāna chiefs “who with some commoners, took the side of Hawai’i” (Kamakau 1992:115). Kahekili split his forces and sent them through the southeastern Kaupō Gap and the northeastern Ko’olau Gap into Hāna in 1781. After being thwarted Kahekili sent for Ku-la’-a-hola who advised him.

The fortress of Ka’uiki depends upon its water supply. Cut that off and Ka’uiki will surrender for want of water.... Let the chiefs, guards, and fighting men cut off the springs of Punahoa, Waka’akihī, Waikoloa [Kawaipapa], and the ponds from Kawaipapa to Honokalani on the Ko’olau side of the hill.... When the people are dying of thirst and can get no water, then they may be slaughtered (Kamakau 1992:116).

After damming and diverting the supply of spring water to Pu’u Ka’uiki, the Hawai’i chiefs were finally defeated, and the Maui *ali’i nui* regained control of Hāna in 1782. The corpses of the defeated Hawai’i forces were burned at two *luakini heiau* (war/human sacrifice temple), Kuawalu and Honua’ula; *heiau* that King Hua was supposed to have built during his infamous reign in Hāna (Kamakau, 1992:84-86; 115-116; Fornander 1900: Vol II 146-7, 150, 216). Both *heiau* were destroyed during the sugar plantation era and on their sites, Catholic and Protestant churches now stand (Walker 1931:186; see also Sterling, 1998:133). Kahekili reclaimed Hāna, then through war and trickery went on to gain control of all the islands except Hawai’i Island (Kamakau 1992:116, 128-141).

By 1790 Kamehameha I had gained enough control of the island of Hawai’i that he could leave to join the war parties on Maui. The canoe fleet “beached at Hāna and extended from Hāmoa to Kawaipapa” to battle Kalanikūpule, son of Kahekili, and ruling chief of Maui while his father ruled O’ahu. After several battles along the East Maui coast, Kamehameha’s force reached Wailuku where the “great battle” took place. This would be the beginning of the end of independent ruling chiefs because of the inequity of battle strategy. Kamehameha had brought a cannon from the *Eleanor* along with her captain, Isaac Davis, and crewmember John Young, now his *āikāne punahele* (favorites) and advisors (Kamakau 1992:147-148).

In October 1819, seventeen Protestant missionaries set sail from Boston to Hawai’i. Earlier that year, on May 8, 1819, Kamehameha I died. Following his death, his son and heir Liholiho banished the *kapu* system on the advice of his queen mother Keōpūolani and queen regent Ka’ahumanu (Kamakau, 1992:210, 222). The missionaries arrived in Kailua-Kona in 1820. They quickly started missions on all of the islands, including a station in Hāna. In 1828 a group of Protestant missionaries made a trip to Hāna where they “found nearly a thousand scholars” on the plain of Hāna (Forster 1959:18). In 1837 Rev. Conde brought his wife and baby to Hāna, establishing its first permanent mission station--they were the “first European woman and baby ever seen by the local inhabitants.” Conde estimated there were about 6,000 Hawaiians living in the district at that time. Later a missionary report of 1839 stated that “31 schools existed in the [Hāna] district with 1,523 pupils” (Forster 1959:17-19, see also McGregor 1989:355).

The first sugar venture in Hāna was established in 1849 when 60 acres of land in the heart of Hāna was cleared and planted by a refugee of the whaling industry (Youngblood 1992:44). The Hāna Plantation, later called the Ka’eleku Sugar Company, was first established in 1851. “The acquisition of lands by the plantations created a new population distribution in the district. For the first time, dwellings were moved to the sea coast and the hinterland was completely given over to the raising of sugar” (Forster 1959:22).

The 1840s also heralded other changes as well. The Hawaiian government, with the aid of the missionaries, encouraged the sugar industry as well as other enterprises such as coffee, cotton, rice, potatoes, and silk worms (Speakman 2001: 93). Disease had a devastating affect on the population and the landscape, killing *ali’i* and *maka’āinana* alike; measles epidemics in 1848 and 1849, were followed by a severe smallpox epidemic in 1853. “The whole population was wiped out from Wākiu, the uplands of Kawaipapa, Palomo, and *mauka* of Waika’akihī in the Hana district, and so for Kīpahulu and Kaupo...ten thousand [all toll] of the population are said to have died of this disease [in Hawai’i]” (Kamakau, 1992:418).

The Waihona ’Aina database (2000); which is a compilation of data from the Indices of Awards (Indices 1929), Native Register (NR n.d.), Native Testimony (NT n.d.), and Foreign Testimony (FT n.d.); lists 17 parcels claimed by eight individuals within Kawaipapa and Wākiu in the mid-1800s during the Mahele (*Table 1*). The locations of the awarded parcels are shown on *Figure 6*. Six parcels were awarded to six claimants. The Land Commission Award (LCA) parcels are situated inland along the Government Road. Land use described in the LCA claim testimony is very limited. Three claims mention *kihāpai* (cultivated patch), one consisted of a potato patch, and another had coconuts. The LCA claim testimony also

LCA	Chainment	Acres claimed	Acres awarded	Section No.	Abupua'i	III	Land Use	Boundary Māhele	Boundary Kōwhiri	Boundary Māhele	Boundary Kōwhiri	Data Rec'd	Other	Acres/ft	Royal Patent	Source	Comment
4834	M. Uluhale	1	1		Kamehameha	Pohokane	hikupai, coconuts	MHI	Kauka			1843	Lonoauai	0.70	none	NR 1776, FT 28276, NT 38776	
4890	Wahineua	2	1		Kamehameha	Kamehameha	N/A					Kaali- meru's BHP	Koahua	6.19	704	NR 1840, FT 23916, NT 37316	
4895	Pua Lulu	2	1			Kamou	Gov't Road to east	Puoa	Kaliua	Kaliuohai	Kaliuohai	1833	Kaehale	11.90	7126	NR 1886, FT 28316, NT 40016	probably 1.00 awarded Section claim read to (see)
4898	Puhaka	1	1			Pukamahi		west land, konei	Kupuka	Gov't Road	Kamui	1835	Aii	6.14	6988	NR 1896, FT 38916, NT 38976/28316	
4844	Kuana	2	0			Opulua, Kamaliua	N/A	N/A	N/A	N/A	N/A	N/A	Malua	0.00	none	NR 2096, NR 2096	
4846	Kopohai	3	1		Kamehameha							1819	Lonoauai	7.00	6447	NR 2074, FT 27916, NT 41316	
						Mehai	N/A	Pipai	Kaehale	Kahua	Kahua						
						Puohu	hikupai	korohiki	korohiki	korohiki	korohiki						
						Opohai	N/A	Kapua	Wahineua	Wahineua	Mamahu						
4831	Kaehua	1	1			Halia		Gov't Road	trail to sea	Kokoko	hala grove	1819	N/A	6.00	none	NR 2236, FT 28276, NT 38916	also awarded house lot in Hāna
5148	Kaehua	2	0		Kamehameha	Pouhai	N/A					1836	Kaehale	0.00	none	NT 41316	
								Anaunai	Lono	Kulimano	Kapekape						
								Kamua	Kamua	Kamua	Kamua						
5183	Kaehale	3	0		Kamehameha							1819	Lonoauai	0.00	none	NT 41316	awarded under LCA 4846
						Mehai	N/A	Pipai	Kaehale	Kahua	Kahua						
						Puohu	hikupai	korohiki	korohiki	korohiki	korohiki						
						Opohai	N/A	Kapua	Wahineua	Wahineua	Mamahu						

Table 1. Land Commission Award Claims

mentions a *hala* grove, a trail to the sea, the Government Road, and forest. The awarded parcels range in area from 0.7 to 11.9 acres with an average of 5.73 acres.

McCall (1940) describes the early development of commercial sugar cane cultivation in Hāna. The Hana Plantation was managed by George W. Wilfong in 1851 with 60 cultivated acres. In 1852, he brought laborers from China. The small mill only produced syrup, which was sold to whale ships. Wilfong left the plantation after the mill burned and he could not obtain credit to rebuild.

The lands of Hāna Plantation passed through a succession of owners until the partnership of Thomas E. Cooke, William G. Needham, and August Unna, a native of Denmark, controlled them in 1861 (Conde and Best 1973). Needham left the partnership soon after it was formed and Cooke left in 1867. In 1868, Unna imported workers from Japan. Unna is credited with the development of the railroad system that was put in service in 1883. Unna died in 1895. Flumes were developed to provide water to the mills and to transport cane from the fields.

Correspondence reviewed at the State Archives included a letter dated June 3, 1893 from M.H. Reuter to Minister of Interior J.A. King that refers to the recent return of lease land in Kawela, Honomā'ele, and Kaeleku to the government. Reuter offers to pay an annual lease of \$100 for fifteen years. A letter dated January 8, 1894 from August Unna to Minister of Interior E.O. Hall transmits \$50 to pay lease rent on government lease land in Kawela, Honomā'ele, and Ka'elekū for the two years ending August 26, 1872. The letter states Unna did not release the land in 1873 because he purchased 600 acres in Ka'elekū. Unna offers to pay an annual lease of \$25, which was the amount paid previously, for ten years. The lease area extends from the government road to the ocean. A letter dated January 8, 1894 from Unna to Minister of Interior L.G. Wilder transmits \$25 to pay lease rent for the year of 1880.

A Department of Interior document dated July 21, 1893 by G.L. Brown describes government lease land in Honomā'ele, Kawela and Ka'elekū. The lease area of 1,250 acres encompasses Kawela, East Honomā'ele, and most of Ka'elekū between the present forest reserve boundary and the shoreline. The lease excluded various grants within the boundaries. Figure 7 is a map of the lease area. The map shows Grant 2641 extending from the inland road to the coast at Pailoa Bay in the project area. The map also indicates that the original Government Road, named Okaka Pu'u Road, corresponds to the route of today's 'Ula'ino Road. The upper road, which later became the Hāna Highway, was not present in 1893.

In 1883, the Reciprocity Sugar Company was founded and by 1888 the company owned 2,800 acres with 600 acres in cultivation and 240 employees (McCall 1940). In 1888, the Hāna Sugar Company consisted of 5,000 acres with 700 in cultivation. The company had 250 employees and 250 head of working stock. M.S. Grinbaum formed the Hāna Plantation Company in 1889, combining the lands of the Hāna and Reciprocity Sugar Companies with lands at Hāmoa (Conde and Best 1973).

The Kaeleku Sugar Company was established in 1905 (McCall 1940). The company took over the Hāna Plantation lands, which consisted of 886 acres in fee and 13,184 in leasehold. In 1913, 300 acres were leased from the Hāmoa Agricultural Company. Additional acreage was leased from the Haneo'o Agricultural Company bringing the total acreage to 15,407 acres. Only about 20% of the land could be cultivated because of gulches and rocky areas. The Kaeleku Sugar Company eventually included the lands of six former plantations (McCall 1940). Only two plantations, Hāna and Reciprocity, had mills and piers.

A map surveyed by W.E. Wall and traced by H.E. Newton in 1915 (Figure 8) shows a cluster of houses near Pailoa Bay. A plantation railroad parallels the Government Road inland of the project area. A US Coastal and Geodetic Survey (USCGS) map based on surveys between 1923 and 1925 (Figure 9) also shows a plantation railroad track extending inland of the project area. The map shows a series of structures along the road to the coast at Pailoa Bay where a cemetery is shown.

In 1927 a 55-mile highway to Hāna built by prisoners--compliments of the Territorial Government, was completed allowing easier access to Hāna. Until then, "the settlements along the Hāna Coast were only accessible by ocean or along rugged horse and mule trails" (Youngblood 1992:96-7). By 1930,



in the Hāna District--from Ke'anae to Kahikinui--there were only "2,436 people living in this area, out of whom 1,117 or 48 per cent were Hawaiian" (McGregor 1989:353-354).

Handy and Handy (1972) report the Hāna area was used to cultivate taro, yams, bananas, *wauke*, and *olonā*. They report a coastal settlement at Hāmoa in the 1930s where people raised sweet potatoes and obtained fish from the sea and a fishpond. Taro and bananas were cultivated in inland gardens. They also report a sizable settlement at Honokalani situated above the sea cliffs and fresh water caves of Wai'ānapanapa. A small valley below Pu'u Olopawa at 1,500 ft elevation was previously used to grow taro in the dry season. A *hala* forest covered the coastal plain formed by recent lava flows between 'Ula'ino and Hāna.

Hāna's sugar industry was declining by the 1930's, when Paul Fagan bought the Ka'elekū Sugar Company. The Ka'elekū Sugar Company (previously known as Hāna Plantation), the last sugar plantation in Hāna, shut down operations in August, 1945 at the "high noon" whistle, signifying "death" of the Company, and the "end of plantation life of about 400-500 employees and their families" (Okano, nd:16). Many of the plantation laborers were relocated to other parts of Maui (Youngblood 1992:60, 67-70). In 1945, Fagan converted his sugar holdings to cattle ranching and the visitor industry (Youngblood 1992:67).

The plantation town of Hāna changed to become the *paniolo* or "cowboy" town of Hāna, with first-class accommodations at the Ka'uiki Inn, which later became Hotel Hāna-Maui, for visitors who could afford to fly in to the grassy runway of Hāmoa. The gentle Hāna slopes were modified once again as sugar cane was cleared and alien grasses planted to accommodate the newly converted grazing lands. Hāna's population declined to about 500 people in the 1950's, but started to increase again after the State paved the Hāna highway in the 1960's, making Hāna more accessible (Youngblood 1992:70-7). The economy picked up as visitors "discovered" Hāna's beauty and charm, and wealthy Mainlanders invested in hideaway property.

### Previous Archaeological Research

A search of DLNR-SHPD archaeological report database and other sources identified 26 reports for Hāna District between 'Ula'ino and Hāmoa. *Figure 10* shows the locations of 16 survey projects and *Table 2* summarizes the projects. Not included in the figure and table are the general studies by Thrum (1917), Walker (1931), Nakkim (1970), Ashdown (1971), and Orr (1990), which focus on major sites, primarily *heiau* and fishponds, throughout Hāna District, and a walk through survey by Sterling (1969) in Hāna Town. Other site-specific studies not included are inspections of a lava tube system, Kaeleku Caverns, by Estioko-Griffin (1988) and Donham (1996). Burials are reported for the cave, but were not identified by the inspections. Kam (1980) conducted an inspection of areas surrounding Hāna Airport with negative results. Dixon (1998) reported the discovery of an apparently isolated human cranium from a cinder quarry at the base of Pu'u Olopawa.

Orr (1990) reviewed previous studies by Walker (1931), Ashdown (1971), Nakkim (1970), and others in her report on *heiau* of Hāna. She lists 34 *heiau* in the eleven miles of Hāna's shoreline between Kea ā Beach to the north and Pu'uiki to the south. Many of the sites have been destroyed. The data indicate that 12 were medium-sized, *māpele heiau*; six were large, possible *luakini heiau*; six were shrines, *ko'a*; and two were places of refuge, *pu'uhoŋua*. The distribution of these sites is not uniform within Hāna District. The majority of *heiau*, 30 sites, are situated near Hāna Town and along the coast to the south of town. Of these, roughly two-thirds are situated on the coast and the remainder are situated at the base of the lower mountain slopes.

Two studies included the project area. Walker (1931) described Ohala Heiau (Site 104) as a 4 ft high platform that was 110 ft long and 75 ft wide. He noted numerous pits on the *heiau* and reported that informants said the sound of drums could be heard on certain nights coming from the site. Pearson (1970) conducted a survey of Wai'ānapanapa State Park in Honokalani and Wākiu. The survey covered an area of approximately 83 acres between the coast and approximately 40 ft elevation. The survey identified 34 features that were grouped into five complexes of related features: a *heiau* and caves, fishing shelters (caves), markers (*ahu*) and a coastal stepping-stone trail, inland permanent house sites and enclosures, and graves or

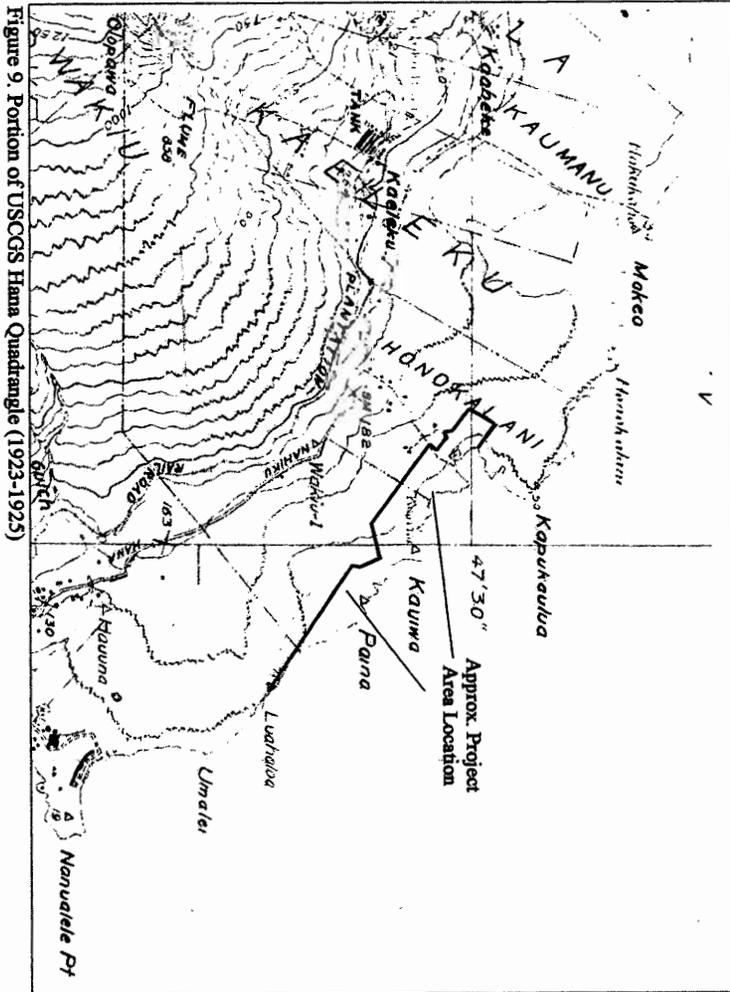


Figure 9. Portion of USGS Hana Quadrangle (1923-1925)



cemeteries. Pearson also identified a pictograph rendered in red ochre. A network of walls enclosing what were reported to be historic house sites was not recorded. No excavations were conducted. The sites were interpreted to be prehistoric to historic period in age.

The survey reports in *Table 2* cover over 1,800 acres of Hāna District identifying 174 sites. The survey location is categorized as “Coastal”, “Coastal Plain”, and “Lower Slopes”. The coastal plain is defined here as the broad gently sloping plain between the shoreline and the lower mountain slopes between ‘Ula‘ino and Hāna Town. South of Hāna Town the coastal zone borders the lower slopes. To aid in reconstructing settlement patterns, features were quantified by probable age and function. Traditional Hawaiian features were categorized as habitation, agricultural, burial, ritual, and fishpond. Historic features were not segregated by function. Features not clearly assignable to these categories were omitted. The following discussion summarizes the studies beginning in the north and proceeding south.

Several studies have been conducted in the coastal and coastal plain portions of West Honomā‘ele (Cordy 1970, Kolb 1990, Cleghorn and Flynn 1989). Cordy (1970) cleared and mapped Pi‘ilanihale Heiau and surveyed the surrounding area. The survey identified two house platforms, a house site, three graves, a circular pit, three walls, a complex consisting of a wall, platform and enclosure; and a large enclosure, which formerly contained a number of houses. Other identified features, which were not recorded, consist of a post-1950s house site and a cemetery with at least 14 historic graves. The house site and cemetery are situated on top of the cliff at Kalahu Point. The cemetery and Pi‘ilanihale Heiau were also described by Nakkim (1970).

Kolb (1990) conducted excavations at Pi‘ilanihale Heiau, which he says is the largest *heiau* in Hawai‘i. The excavations identified ritual and habitation areas and four major building episodes. Four radiocarbon age ranges span the period between A.D. 1270 and the mid-1900s. Kolb suggests that the complex may also have served as a chiefly residence.

Cleghorn and Flynn (1989) conducted a survey of Kahanu Gardens, which surrounds the area surveyed by Cordy. The report also describes nine sites recorded on Hāna Ranch lands south of Hāna Town. At Kahanu Gardens, the survey identified a boulder with cobbles piled on top, a retaining wall, an upright stone, two stone alignments in a stream bank, a low wall, two terraces, a buried stone alignment, a C-shape wall, and four feature complexes. One complex, Site 50-Ma-A10-23, consists of a L-shaped, linear mound, pavement, and overhang associated with hammerstones, cores, and flakes. Site 50-Ma-A10-24 consists of three modified boulders on a rocky beach. One boulder has indentations believed to be an unfinished *papamū*, one has four depressions thought to be bait cups, and the other boulder has a petroglyph of a human form. Site 50-Ma-A10-25 consists of three platforms believed to be graves or a shrine. Site 50-Ma-A10-26 consists of a modified outcrop, a wall, and an enclosure. A hammerstone and basalt core and flake were collected from the site. No other interpretations are offered and no excavations were conducted.

Haun and Henry (2000) conducted an inventory survey of a 125 acre parcel situated between 80 ft and 480 ft elevation in East Honomā‘ele. The survey identified four sites with seven features consisting of two complexes of historic sugar cane plantation railroad features, a historic road, and a burial. The skeletal remains represent an isolated late prehistoric to early historic burial. The railroad features were constructed before 1915 and abandoned by the 1920s. The roadbed was probably constructed after the 1920s, possibly as late as the 1960s.

Bushnell and Hammatt (2000) conducted an inventory survey of a 34-acre parcel in Kawela between the Hana Highway and ‘Ula‘ino Road. The project area ranges in elevation from 150 ft to 300 ft. No sites were identified, although piles of stone were noted throughout the area. The absence of sites and piles of stone are attributed to plantation-era cultivation.

Kennedy (1984) conducted a survey of approximately 364 acres between the coast and 200 ft elevation in Kawela and Wākiu Ahupua‘a. One site, a large complex of burial features, was recorded, which was previously identified by Pearson (1970). The survey identified 364 features consisting of filled crevices, platforms, *ahu*, incomplete graves, and a possible religious structure, a multi-tiered platform with upright stones. No counts for feature types are given and the features are not numbered on the site map. The

cemetery is presumed to have been used between 1600 and the late 1800s. No excavations were conducted. Morton and Lum Ho’s (1975) hand-written notes and maps appear to describe the seaward portion of the burial site.

Bevacqua (1972) conducted a survey of approximately 16 acres situated between 40 ft and 100 ft elevation in Wākiu. Only one site, a partially destroyed habitation, was identified. Landrum (1984) conducted a reconnaissance survey of 14-acre parcel in Kawaipapa situated between 70 ft and 90 ft elevation. The only site identified was a segment of the old government road. Kennedy (1990) conducted a reconnaissance survey of an approximately 1.6 acre parcel next to the coast in Kawaipapa. The survey identified Kauleiula Heiau, which was previously described by Walker (1931). A portion of the *heiau* was previously used for a historic house. No excavations were conducted.

Henry and Graves (1993) conducted a survey of a 10-acre parcel situated between 160 ft and 200 ft elevation in Kawaipapa. The survey identified two historic ranch walls and two complexes of features. One complex consisted of two enclosures, an L-shaped alignment, a terrace, and a platform. Excavations were conducted in several features at the site. The excavations produced food remains and historic artifacts indicating a historic habitation use for the site. The other complex consisted of a historic wall and an agricultural terrace.

Cleghorn and Rogers (1987) conducted background research for Hāna Ranch lands seaward of the coastal highway between Hāna Town and Hāmoa. The project area of 581 acres ranges from sea level to approximately 200 ft elevation. Thirty-two sites were identified through background research, examination of aerial photographs, and field inspections. At least 12 of these sites, mostly *heiau* identified by Walker (1931), had been destroyed. A subsequent survey of the “coastal fringe of the Hāna Ranch lands” (Cleghorn and Flynn 1989:5) identified nine additional sites. It is unclear from the reports whether the entire 581-acre area was systematically covered. The sites include eight fishponds, at least 25 ritual features, numerous burials, more than 14 agricultural features, and at least 17 habitation features. The habitation features include temporary shelters, primarily in caves, and probable permanent habitations represented by enclosures and platforms. Probable agricultural features consist of terraces, pits, walls, and mounds. Historic features included burials, habitations, and plantation infrastructure. No excavations were conducted.

Borthwick, Robins, Folk, and Hammatt (1992) conducted a survey of 400 acres of Hāna Ranch land between approximately 200 ft and 760 ft elevation. The survey identified 51 sites consisting of at least 80 features. Most features consisted of ranch and sugar cane plantation remains including walls, enclosures, platforms, terraces, roads, and a railroad grade. Probable traditional Hawaiian sites included habitations, agricultural features, a *heiau*, and burials. Most traditional sites were described as remnants disturbed by historic activity. Two intact habitation sites were interpreted to be temporary habitations associated with agricultural activity. Probable traditional agricultural features included terraces, pits, walls, enclosures, and mounds. Excavations were conducted at several sites. Three radiocarbon samples produced age ranges of A.D. 1345-1650, 1425-1950, and 1640-1950.

Masterson, McDermott, and Hammatt (1997) conducted a survey and subsurface trenching in a 1.5-acre parcel on the coast in Haneo‘o. The five recorded sites consist of Haneo‘o Fishpond Complex, historic graves, a historic house site, a ranch wall, and a hearth. Excavations yielded food remains and artifacts consisting of both historic and traditional Hawaiian types.

Kolb (1993) reports research conducted in the *ahupua‘a* of Hāmoa. The research included survey of 51 acres inland of the highway and an unspecified acreage between the highway and the coast. The survey identified 18 sites consisting of more than 70 features. The majority of features were agricultural terraces, walls, and pits assigned an indeterminate “prehistoric/historic” age. Ritual sites consisted of three named *heiau* and a notched enclosure. Habitation features consisted of a cultural deposit in a sand dune and a rectangular enclosure. Excavations at several sites produced seven charcoal samples that yielded age ranges spanning the 1200s to mid-1900s.

## Summary of Land Use

Overall, the archaeological surveys conducted in Hāna District have identified a relatively small sample of the traditional Hawaiian sites that were formerly present. The massive impacts of sugar cane cultivation and ranch-related pasture improvement and infrastructure have obliterated much of the pre-contact cultural landscape. Numerous *heiau*, burial sites, and fishponds along the coast attest to the presence of a substantial pre-contact population. Radiocarbon dating results indicate settlement by at least the 1200s with most results post-dating the mid-1400s. The first and largest building episode of Pi'ilanihale Heiau in West Honomā'ele dates to between 1270 and 1440 and indicates the presence of a substantial supporting population.

Habitation sites, both temporary and permanent, are present along the coast. Temporary habitations consist of caves, overhangs, and simple walled structures. Permanent habitations are represented by walled enclosures and platforms. Inland habitation sites on the lower mountain slopes are primarily temporary occupations, probably associated with agricultural activity.

Agricultural sites consist of terraces, walls, mounds, pits, and alignments. Typically these features are only found in rocky areas that were not affected by sugar cane cultivation. The agricultural features represent a pattern of informal agricultural plots and not formal fields. Opportunistically placed, informal plots are typical in agriculturally marginal, rocky areas elsewhere in Hawai'i. The absence of formal fields may be a bias resulting from historic modification of the more productive areas. Alternatively, conditions may not have required or resulted in the development of formal fields bounded by walls and terraces. The ample rainfall and soil of the district made agricultural use readily productive. Historic accounts attest to the bounty of agricultural produce, primarily grown without irrigation. Cultigens included breadfruit, yams, taro, sweet potatoes, *olona*, *wauke*, *'awa*, and bananas. Upland areas above 1,000 ft elevation were cultivated when seasonal droughts affected the lowlands.

The distribution of heiau and fishponds along Hāna's coast between Kea'a Beach and Pu'uiki shows a marked increase in density from Hāna Town south. The northern coast from Hāna Town to 'Ula'ino has relatively few *heiau*. The area differs environmentally from the southern coast. It is characterized by a broad coastal plain derived from relatively recent lava flows. Unlike the south coast, the coastal settlements are separated from the lower mountain slopes by a broad gently sloping plain up to 6,000 m in width. There are only three major drainages crossing the plain at 'Ula'ino, Honomā'ele and Kawaiapa. If the better watered lower mountain slopes were the most productive agricultural area, then the greater distance from the coast may have made the northern coast a comparatively less favored area of occupation. LCA claims appear to support a difference between the north and south. The Waihona 'Aina database (Waihona 'Aina Corp. 2000) lists 14 LCA claims (8 awarded) in the nine *ahupua'a* from Nahiku to Kawaiapa. There were 72 claims (42 awarded) in the twelve *ahupua'a* from Niūmalu to Pu'uiki.

Legendary and traditional accounts document the importance of Hāna District as a seat of social and political power, especially in relations between the chiefs of Maui and Hawai'i Islands. This prominence continued into early historic times. Historic habitations and burial sites were scattered along the coast. Small areas of subsistence agriculture apparently continued in use into the 1900s; however, for nearly 100 years between the 1840s and 1940s sugar cane cultivation was the dominant form of land use. Nearly all readily cultivated areas of the lower mountain slopes and coastal plain were put into production by up to six plantations. Cartographic and documentary evidence illustrate the aggressive acquisition of land for cultivation and development of plantation infrastructure. Roads, flumes, and a railroad system were developed by the plantations. Mill operations, harbor facilities, and a series of laborer camps were established.

The original government road, Okaka Pu'u Road, in Ka'elekū, Kawela, and Honomā'ele followed the route of today's 'Ula'ino Road. The upper Government Road, today's Hāna Highway west of the junction with 'Ula'ino Road, was constructed between 1894 and 1900. By 1915, a small settlement was present at the junction of the roads. The first railroad tracks in the area are shown on a map dating to 1915. In the

waning years of the plantation, cultivation was focused in areas closest to the transportation system (McCall 1940). After 1945, the former sugar cane lands were converted to pasture for Hāna Ranch.

## PROJECT EXPECTATIONS

Prehistoric use of the project area is potentially evidenced by permanent and temporary habitation sites dating to as early as the 1200s. Such sites should become more common after the mid-1400s until the early historic period. Probable site types include temporary habitation sites (caves and small walled shelters), permanent habitations (enclosures, platforms, and terraces), trails, burial platforms, *heiau*, and agricultural features, such as terraces, enclosures, pits, and mounds.

Sites dating to the 1800s and early 1900s would include a few scattered examples of the agricultural and habitation sites mentioned above. Sugar cane plantation-related sites would have been situated inland of the project area which was probably too rocky and too close to the ocean for sugar cane cultivation. By the 1940s, traditional agricultural and habitation sites should be rare. Ranching activity would be potentially evidenced by walls and corrals.

## FINDINGS

A large portion of the project area was previously surveyed by Pearson (1969, 1970), who identified 33 sites with 59 features (Figure 11). Most of the features were relocated during the current study. Several previously identified features, most of which Pearson believed were recent, were not relocated, and probably were destroyed during the intervening 30 years. The sites identified by Pearson's survey, which included sites in the area between Pailoa Bay and Hana Airport that is outside the present project area (see Figure 11), were designated as Honokalani Village (SIHP Site 50-50-13-1230; see Figure 12) in 1973. Also known as the Waiapanapa Complex, Site 1230 has been determined eligible for listing on the Hawaii and National Register of Historic Places. The current survey identified sites within the park boundaries that are outside of the Site 1230 boundaries in a strip of land inland of the cabins in the central portion of the park, and in the southeastern coastal portion of the park.

The archaeological survey of the project area resulted in the identification of 59 sites with 119 features. The sites consist of 41 single feature sites and 18 complexes of features. The identified features are comprised of 29 enclosures, 14 walls, ten cairns, ten terraces, eight pavements, six platforms, five trails, five caves, five up-rights, four U-shapes, four L-shapes, four mounds, three overhangs, three alignments, three cemeteries, two C-shapes, and one each of the following: cupboard, modified outcrop, pictograph and petroglyph. Functionally, the 119 features are comprised of permanent habitation (n=51), ceremonial (n=16), temporary habitation (n=15), undifferentiated habitation (n=1), marker (n=10), agriculture (n=5), transportation (n=5), historic burial (n=3), livestock control (n=6), boundary (n=2), rock art (n=2), burial (n=1), storage (n=1) and indeterminate (n=1). The 59 sites are summarized in Table 3 and their locations are illustrated in Figure 12. Table 3 also provides a correlation between the SIHP Site numbers, Pearson's (1970) feature designations and Haun & Associates temporary field designations.

Subsurface testing was undertaken in six locations during the study. The tested features consist of three platforms (Site 5364, Features D and G and Site 5366, Feature A), a pavement (Site 5356, Feature A), a terrace (Site 5374, Feature A), and a cave (Site 5372, Feature F). The results of these excavations are incorporated into the following site descriptions. Samples of charcoal recovered from two of the excavations (TU-1 at Site 5372, Feature F and TU-5 at Site 5366, Feature A) were submitted for radiometric age determination. These results are presented in the site descriptions for Site 5366 and 5372 and the laboratory results are presented in Appendix A.

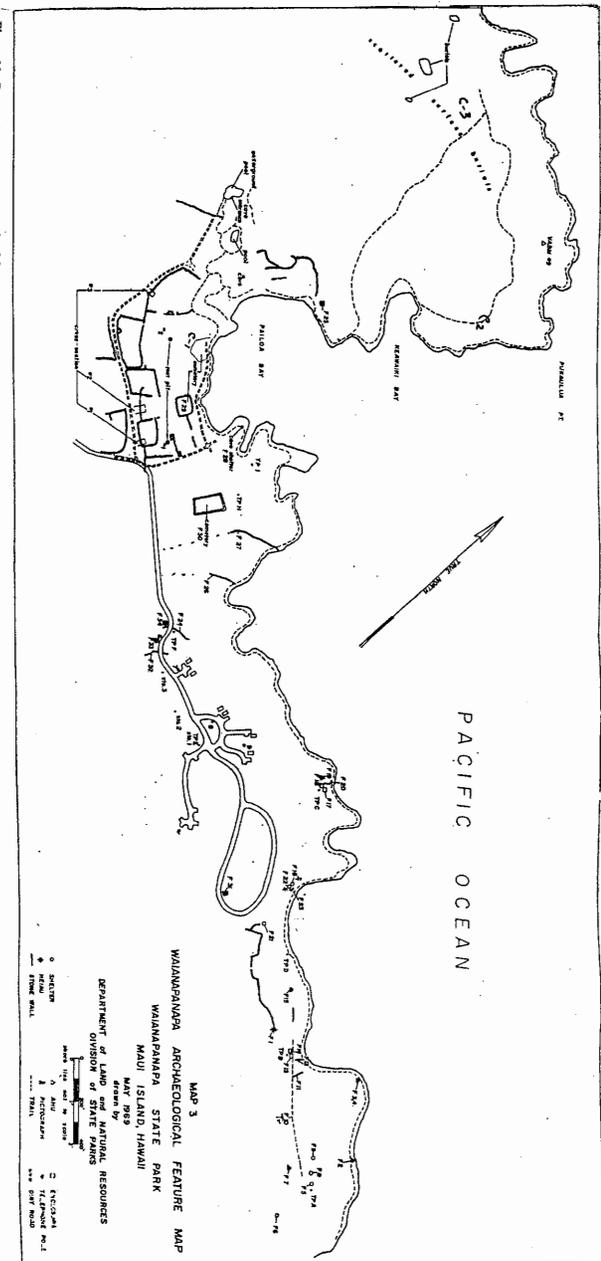
As stated above, 69 habitation features were identified during the study. The occupational permanence of these features was determined based on a criteria developed by Cordy (1981:66-82). Permanent habitation features are defined as the primary dwelling structures at a permanent habitation site. In his model, Cordy presents the following attributes for permanent habitation structures: (a) external area greater than 16.0 to 19.0 sq m; (b) substantial construction (i.e. faced walls, paving); (c) presence of special purpose structures (small structures for work and storage); and (d) location (permanent housing clustered primarily along the shoreline or at the mouth of and on the sides of valleys).

Special purpose structures, which are smaller in area than Cordy's permanent habitation size criteria, consist of structures present at permanent habitation sites, but which do not comprise the basic dwelling structure. Their specific functions cannot usually be determined at the inventory level of investigation. These structures may represent sleeping structures, cookhouses or storage areas. Special purpose structures are typically smaller and less formally constructed than permanent habitation features. For the purposes of this study other features, which would not have supported roof structures, are classified as permanent habitation ancillary features. These features consist of small platforms and terraces and pavements, which probably functioned as site furniture such as tables, benches or drying racks. Large enclosures surrounding permanent habitations sites are also termed ancillary features, functioning to define the limits of enclosed yards.

As defined by Cordy (1981), temporary habitations are (a) less than 16 sq m in external area, (b) insubstantial constructions, (c) contain numerous features of internal stratification (multiple firepits), and (d) have few or no associated structures. These habitations are of short-term or recurrent duration. Twenty-one features at twenty sites are classified as temporary habitations using Cordy's (1981) criteria.

The survey also identified four ceremonial sites which are interpreted as modern features created by visitors to the area (Site MC-1 through MC-4 on Figure 12). These sites consist of three modern cairns (MC-1, MC-3 and MC-4) and two natural alcoves in a vertical basalt face containing waterworn stones wrapped in *ti*

Figure 11. Pearson's (1970) Site Location Map



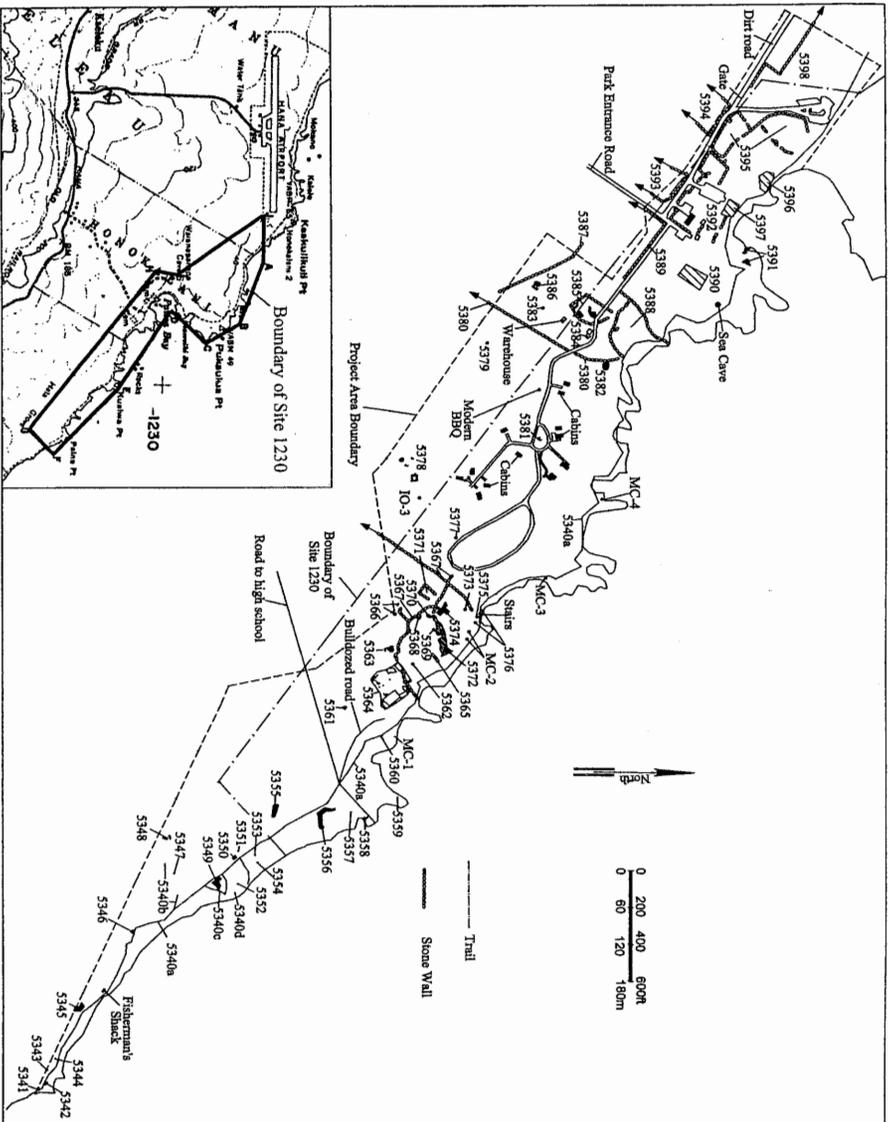


Figure 12. Site Location Map



leaves (MC-2). The three cairns contain modern materials such as wooden crosses, glass fishing floats, fishing line and hooks, coconut husks, and waterworn coral. The cairns consist of small stacked a'a mounds that range in size from 0.6 to 1.0m in diameter and 0.55 to 0.7 m in height. An example of a modern cairn is illustrated in *Figure 13*. One of the three cairns (MC-1) potentially corresponds to a cairn identified by Pearson (1970).

Site MC-2 consists of two alcoves located a vertical basalt cliff face, 40.0 m east-southeast of the base of the stone stairs. These alcoves extend 6.0 to 8.0 m into the cliff face, varying in width from 1.0 to 4.0 m and in height from 1.2 to 3.5 m above ground surface. Small waterworn basalt cobbles wrapped with *ti* leaves have been placed on natural shelves on the sides of the alcove (*Figure 14*). No other cultural remains were found at the alcoves.

### Site 5340

Site 5340 consists of a network of trails that extend through the project area (see *Figure 12*). The primary trail is Feature A (5340a), which is comprised of the remnants of a steppingstone trail that extends along the coast through the park in a roughly northwest by southeasterly direction. The trail was initially documented by Walker (1931) and by Pearson (1970), who designated it as Feature 10 (1970:15). According to Pearson, this trail is a portion of the Kihapi'ilani Trail said to have extended completely around the Island of Maui (1970:15).

Feature A includes steppingstone trail segments (*Figure 15*), and segments consisting of cleared paths through a'a lava (*Figure 16*). Pearson indicates that at the time of his survey, the majority of this feature consisted of a steppingstone trail. The steppingstone trail portion of the feature is comprised of a single course alignment of waterworn basalt cobble, spaced 0.4 to 1.1 m apart. The cleared path portion is 0.8 to 1.2 m wide from which all surface cobbles have been removed. Clearly the trail has been altered during the last 30 years, likely as a result of storm surf and pedestrian traffic. The trail in the extreme northwestern portion of the park has been replaced with a gravel and concrete path. Many of the sites discussed below, particularly at the southeastern end of the park are located in close proximity to the trail, which served as the main transportation route through this area. The feature is altered and in fair condition.

Feature B is a short section of trail that extends from the inland side of the Feature A trail, 24.0 m to the northwest. This trail consists of a linear alignment of waterworn cobbles spaced 0.8 to 1.1 m apart that extend over an area of rough a'a lava. The trail terminates within this a'a flow. No cultural remains were present. Feature B is unaltered and in fair condition. It appears to have functioned as a means of accessing an area inland of the Feature A trail.

The Feature C trail originates on the seaward side of the Feature A trail, 62.0 m north-northwest of Feature B. The trail extends 37.0 m to the north-northeast, then angles 32.0 m to the west and southwest, re-connecting to Feature A. The trail extends around the Site 5349 habitation complex (discussed below). It consists of a cleared path through the bare coastal a'a lava flow that is 0.75 to 1.2 m wide. It is unclear if this trail segment is associated with Site 5349, or if it simply served as a means of accessing the coast from the main trail. It is unaltered and in good condition.

Feature D is a section of trail situated 40.0 m northwest of the northern most leg of the Feature C trail. It extends from the seaward side of the Feature A trail for 44.5 m, terminating at the edge of the coastal cliffs. Feature D is comprised of a cleared path through the a'a lava that is 1.0 to 1.4 m wide. No cultural remains were found in association with Feature D, which is unaltered and in fair condition.

### Site 5341

Site 5341 is a small C-shaped enclosure located at the southeastern end of the project area, inland of the Site 5340a trail. The site is comprised of a stacked a'a cobble and small boulder wall built on top of a weathered a'a outcrop (*Figure 17*). The C-shaped wall is 2.6 m long (northwest by southeast) and 2.3 m long (northeast by southwest), ranging in width from 0.5 to 1.3 m. The height of the wall varies from 0.4 to



Figure 13. Modern Cairn, view to northeast

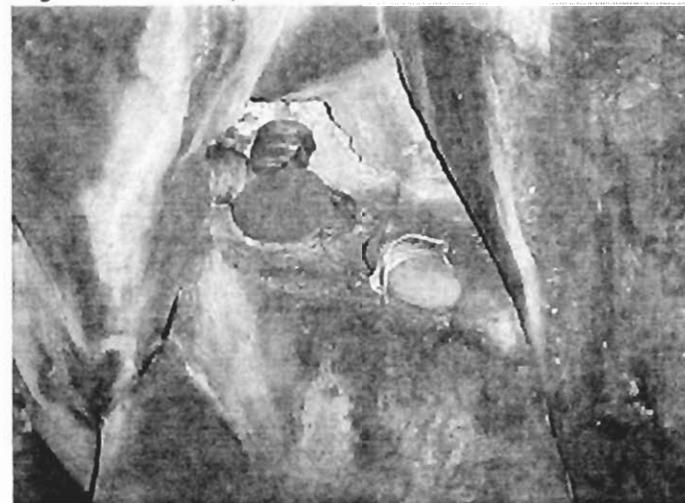


Figure 14. Modern Offerings, southwest



Figure 15. Site 5340a, Portion of trail with steppingstones, view to northwest



Figure 16. Site 5340a, Portion of cleared trail, view to northwest

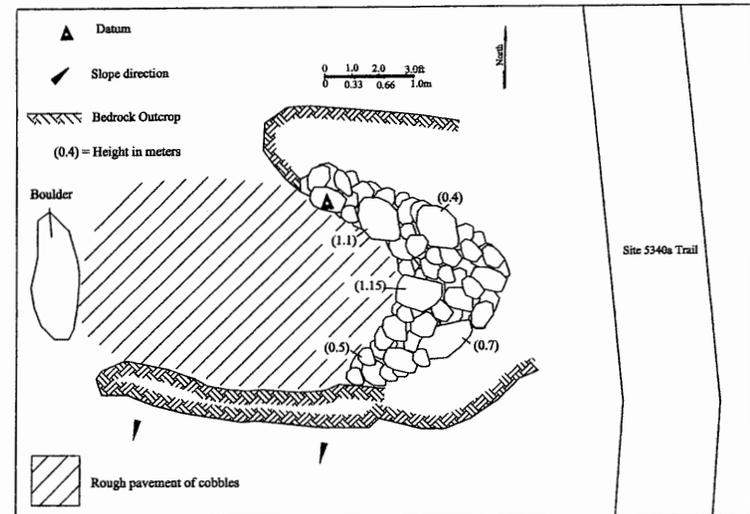


Figure 17. Site 5341 Plan Map

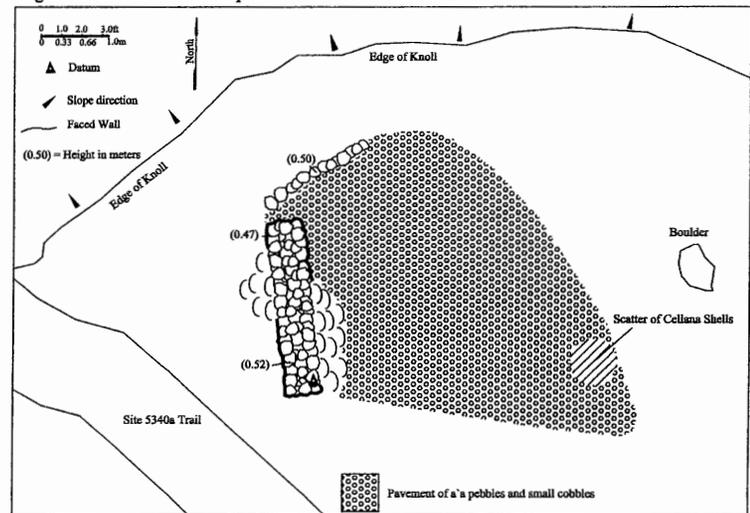


Figure 18. Site 5342 Plan Map

1.15 m. An area roughly paved with a'a cobbles is present on the inland side of the wall, encompassing an area 3.6 m long (east-west) by 2.3 m wide. The surface of the pavement is level with no cultural remains present. A freestanding boulder is located at the western end of the pavement. Site 5341 is interpreted as a temporary habitation based on its insubstantial construction and small size (9.5 sq m), following Cordy's (1981) definition for temporary habitation. The site is unaltered and in good condition.

### Site 5342

Site 5342 is a terrace situated in the southeastern portion of the project area, seaward of the Site 5340a trail and northwest of Site 5342. The site is located on top of a knoll in an area of rugged a'a lava. A stacked cobble and small boulder wall is situated on the western side of the terrace, measuring 2.65 m long (north-south), 0.6 m wide and 0.47 to 0.52 m in height (Figure 18). Portions of the wall have collapsed, though intact sections indicate it was originally faced. A retaining wall constructed of one to two courses of stacked and piled small boulders and cobbles is located along the northwestern side of the terrace, north of the stacked wall. The retaining wall 1.8 m long (northeast by southwest), 0.5 m in height on the downslope side and level with the surface of the terrace on the upslope side.

The surface of the terrace, east of the stacked wall and the retaining wall is comprised of an oval-shaped pavement of a'a cobbles and pebbles. A concentration of *Cellana (opihii)* shells is present at the southeastern end of the pavement, in a 0.7 m diameter area. No other cultural remains were present. Although Site 5342 has attributes of Cordy's (1981) permanent habitations consisting of substantial construction (faced walls, pavement) and area (17.3 sq m), its isolated location and relative small area indicate it is probably represents a temporary habitation feature. The site is unaltered and in fair condition.

### Site 5343

Site 5343 is a cairn located in the southeastern portion of the parcel, inland of the Site 5340a trail and west of Site 5342. The cairn is situated on a weathered a'a outcrop and is comprised of a boulder with three to four courses of cobbles stacked on top of it (Figure 19). The boulder is 1.15 m in length (north-south), 0.82 m wide and 0.45 m in height. The stacked cobble portion of the cairn is 0.75 m long (north-south), 0.7 m wide and 0.47 m in height above the boulder. No cultural remains were present. Site 5343 is interpreted as a marker based on its formal type. It is unaltered and in good condition.

### Site 5344

Site 5344 is a cairn situated to the northwest of Site 5343, inland of the Site 5340a trail. It is located on an uneven coastal a'a flow and is built on a raised outcrop. The cairn is constructed of stacked and piled a'a cobbles and small boulders, measuring 2.6 m long (north-northeast by south-southwest) by 1.6 m wide at the base, and 0.5 m long by 0.4 m wide at the top (Figure 20). The top of the cairn is 0.85 to 0.9 m in height above the outcrop. No cultural remains were found in association with the cairn. Site 5344 is interpreted as a marker based on its formal type. The site is unaltered and in good condition.

### Site 5345

Site 5345 is a complex of six features located inland of the Site 5340a trail and c. 42.0 m southeast of a fisherman's shack, in the southeastern portion of the project area. The features are comprised of two pavements (Features A and F), a C-shape (Feature B) and three cairns (Features C, D and E; Figure 21). The site is situated in an area of uneven a'a lava in a stand of ironwood trees and is unaltered and in good condition. Site 5345 is interpreted a temporary habitation complex with associated cairns.

Feature A is a roughly rectangular pavement located in the approximate center of the site. The pavement is 2.95 m long (east-west) by 2.0 m wide and consists of level, tightly packed cobbles with no cultural remains present. A low linear pile of a'a cobbles and small boulders is situated along the eastern side of the pavement, separating Feature A from the Feature F pavement (discussed below). This pile is 3.3 m long (north-south) 0.8 to 1.3 m wide and 0.4 to 0.56 m in height. A rough alignment of large cobbles is present along the southern side of the feature, with several scattered cobbles present on the surface of the



Figure 19. Site 5343 Cairn, view to west



Figure 20. Site 5344 Cairn, view to west-southwest

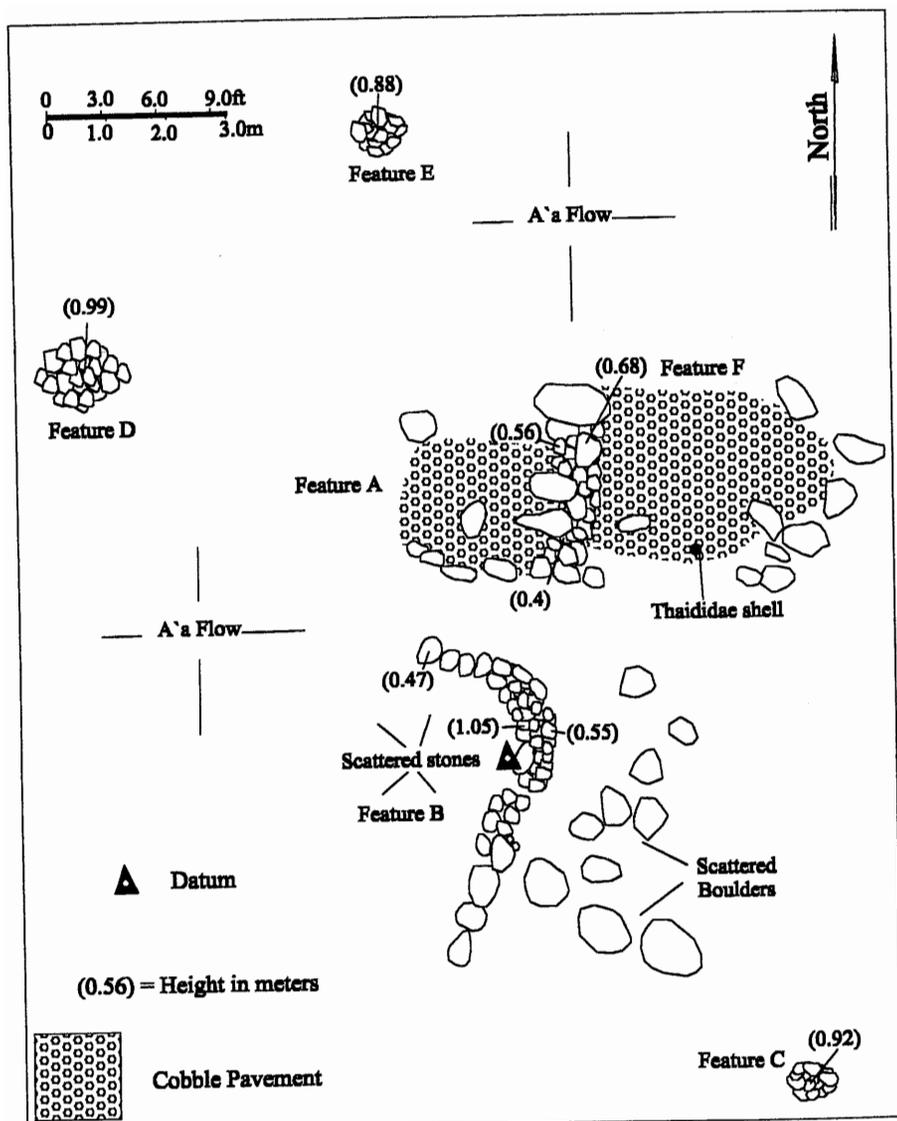


Figure 21. Site 5345 Plan Map

pavement, and one adjacent to the pavement at the northwest corner. Feature A is interpreted as a temporary habitation based on its formal type, lack of substantial construction, and area (5.8 sq m).

Feature B is a C-shaped enclosure located 1.3 m to the south of Feature A. The C-shaped wall is constructed of piled cobbles and small boulders. It is 4.8 m long (north-northeast by south-southwest) and 2.0 m long (northwest by southeast). The width of the walls range from 0.42 to 0.68 m and the heights vary from 0.47 to 1.05 m. The interior of the enclosure is comprised of scattered cobbles over bare lava. No cultural remains were observed. Feature B is interpreted as a temporary habitation based on its formal type, area (6.9 sq m) and insubstantial construction.

Feature C is a small cairn located on the uneven a'a lava, 7.6 m southeast of Feature B. The cairn is constructed of stacked and piled cobbles and small boulders. It is 0.8 m long (east-west) by 0.72 m wide at the base, 0.4 m long by 0.35 m wide at the top, and 0.92 m in height. No cultural remains were observed. Feature C is interpreted as a marker based on its formal type.

Feature D is an oval-shaped cairn located 5.75 m west-northwest of Feature A, in an area of level a'a lava. The feature measures 1.6 m long (east-west) by 1.2 m wide at the base, 1.2 m long by 1.1 m wide at the top, and 0.95 to 0.99 m in height. The cairn is constructed of stacked cobbles and small boulders with no cultural remains present. Feature D is interpreted as a marker based on its formal type.

Feature E is a pyramid-shaped cairn situated in an area of uneven a'a lava, 5.3 m north of Feature A and 6.3 m northeast of Feature D. The feature is constructed of stacked cobbles, measuring 0.92 m long (east-west) by 0.85 m wide at the base, 0.49 m long by 0.42 m wide at the top and 0.88 m in height. No cultural remains were observed. Feature E is also assigned a marker function based on its formal type.

Feature F is a rectangular-shaped pavement that abuts the Feature A pavement to the east. The linear pile of cobbles noted along the eastern side of Feature A forms the western side of Feature F. The pavement is comprised of tightly packed a'a cobbles with a single *Drupa* shell observed on the surface of the feature along the southern side. Scattered a'a cobbles are situated along the eastern, seaward side of the pavement. Feature F is interpreted as a temporary habitation based on its formal type, lack of substantial construction, and area (10.2 sq m).

### Site 5346

Site 5346 is a roughly square-shaped enclosure located on a level bench, adjacent to the Site 5340a trail to the southwest. The enclosure is 4.4 m in length (northeast by southwest) and 4.2 m in width, with walls constructed of stacked a'a cobbles and small boulders (Figure 22). The walls are 0.6 to 0.75 m wide and from 0.1 to 0.45 m in height and have collapsed to the inside and outside of the enclosure. The western corner of the structure abuts an a'a outcrop and boulders are present at the south and eastern corners. The boulders range in height from 0.65 to 0.79 m.

The interior of the enclosure is comprised of scattered surface stones over exposed bedrock. No soil is present. Several clear glass fragments and a *Cellana* shell were observed in the interior. Site 5346 is interpreted as a temporary habitation structure. Although slightly larger than Cordy's (1981) size requirements (18.5 sq m) for temporary habitations, the lack of substantial construction suggests the site was utilized temporarily. Site 5346 is unaltered and in poor to fair condition.

### Site 5347

Site 5347 is a cairn located on an uneven a'a flow inland of the Site 5340a trail in the southeast portion of the project area. The cairn is pyramid-shaped, measuring 0.8 m long (northeast by southwest) and 0.55 m wide at the base, and 0.32 m long by 0.3 m wide at the top (Figure 23). It is 0.94 m in height and is built of stacked a'a cobbles. No cultural remains were found in association with Site 5347. The cairn is assigned a marker function based on its formal type. It is unaltered and in good condition.

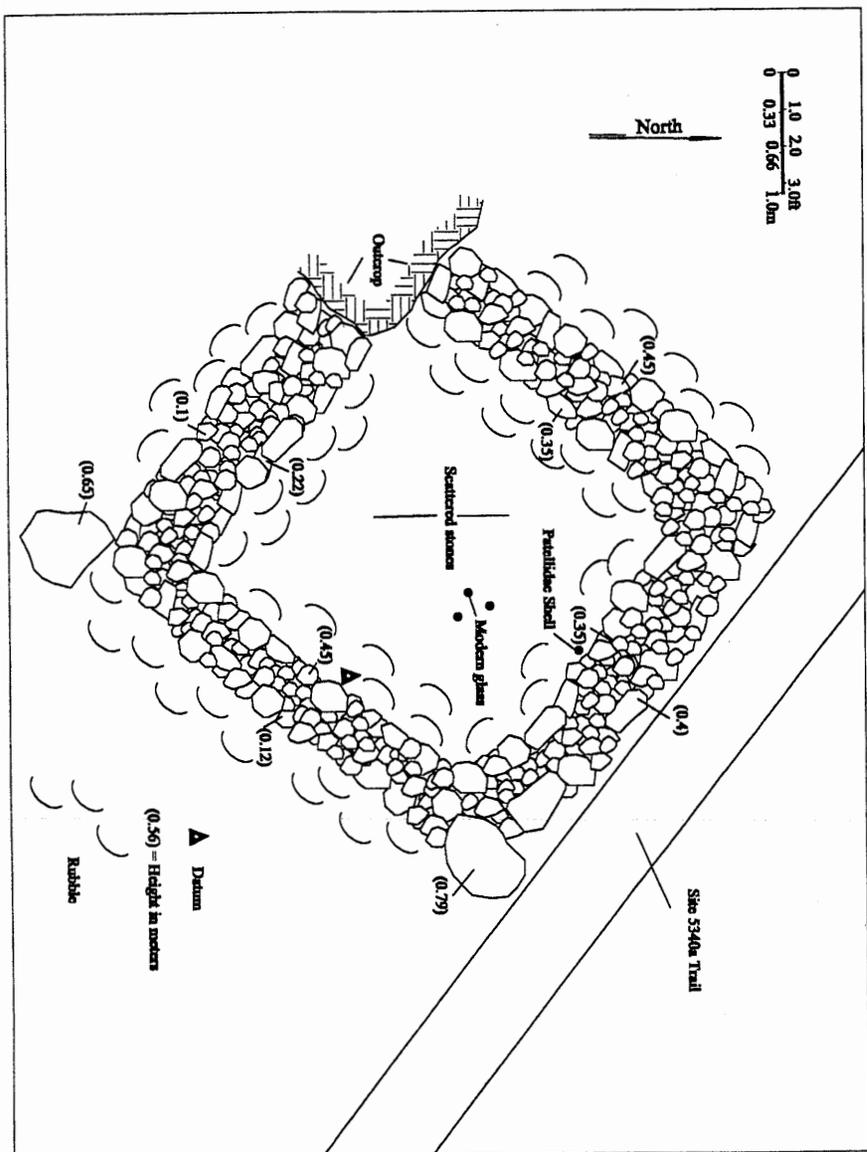


Figure 23. Site 5347 Cairn, view to northwest

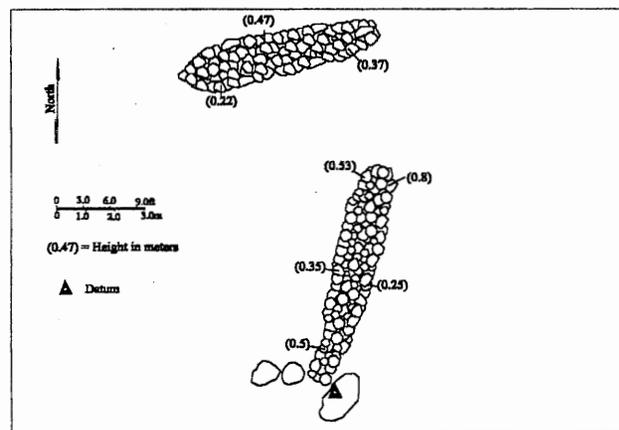


Figure 24. Site 5348 Plan Map

**Site 5348**

Site 5348 consists of two roughly perpendicular wall segments located in an area of uneven a'a lava north of a c. 5.0 m high ridge, in a dense pandanus and Christmas berry grove. The site is situated well inland of the Site 5340a trail and 60.0 m west of Site 5347. The two walls are constructed of piled cobbles and small boulders. The first wall is oriented in an approximately north-south direction, and is 7.8 m long, 0.92 to 1.5 m wide, and 0.25 to 0.8 m in height (Figure 24). Several small a'a boulders are located adjacent to the southern end of this wall.

The second wall is located 4.3 m north of the northern end of the first wall. It is 7.0 m in length (east-northeast by west-southwest) 0.87 to 1.65 m wide, and 0.22 to 0.47 m in height. The area between the two walls is comprised of uneven lava with no cultural remains present. Site 5348 is assigned an indeterminate function. It is possible that the site may represent the disturbed remnants of a habitation site, although no cultural remains were observed. The site appears unaltered and is in fair condition.

**Site 5349**

Site 5349 is a complex of four features located seaward of the Site 5340a trail in an area of bare coastal lava. The features are comprised of an L-shaped wall (Feature A), two short sections of wall (Features B and C) and a small U-shaped enclosure (Feature D; Figure 25). The site is altered but in fair condition.

Feature A is a large L-shaped wall with overall dimensions of 14.05 m north-northeast by west-southwest and 4.0 m northwest by southeast. The southwestern end of the feature is located adjacent to the Site 5340a trail. The wall is built of stacked a'a cobbles and small boulders, ranging in width from 0.98 to 2.4 m and in height from 0.3 to 1.2 m. Portions of the wall have faced sides while others are comprised of collapsed stones. The area on the northwestern side of the wall has been cleared of surface stones, with no cultural remains observed. An oval-shaped possible pavement of small a'a cobbles is located 2.2 m to the northwest of the wall, measuring 2.2 m long (northwest by southeast), and 1.0 m wide. Feature A is interpreted as a permanent habitation structure that potentially served as the foundation for a roofed structure. This is based on its area (56.2 sq m) and substantial construction (faced walls, pavement).

Feature B is a linear section of wall located 3.0 m east of the northern end of Feature A. It is 2.15 m long (north-south), 1.1 m wide and 0.65 to 0.8 m in height. It is constructed of stacked and piled a'a cobbles and small boulders. A waterworn basalt cobble is located adjacent to the northwestern corner of the wall. No cultural remains were noted. Feature B is interpreted as an ancillary feature associated with the permanent habitation of the site based on its proximity to Feature A. The feature may have served as site furniture such as a drying rack.

Feature C is a second section of wall located 7.0 m west-northwest of Feature A. This wall is 2.5 m long (northeast by southwest), 0.65 m wide and 0.45 to 0.9 m in height. No cultural remains were present. Feature C is also assigned a permanent habitation, ancillary feature function due to its proximity to Feature A. It is possible that this wall may have also served as site furniture, or potentially as a northwestern boundary for the Feature A L-shape.

Feature D is a low, informally constructed U-shaped enclosure situated 4.9 m northwest of Feature C. It is constructed against the southeastern side of a low a'a outcrop. Feature D is 3.8 m long (northeast by southwest) 2.1 m wide and 0.4 m in height. It is built of stacked and piled a'a cobbles and boulders. The interior, enclosed space is 2.7 m long and 1.15 m wide and has a soil floor. No cultural remains were present. Feature D is interpreted as ancillary feature associated with the permanent habitation of the site based on its proximity to Feature A. This small enclosure may have served as a small storage area used by the site occupants.

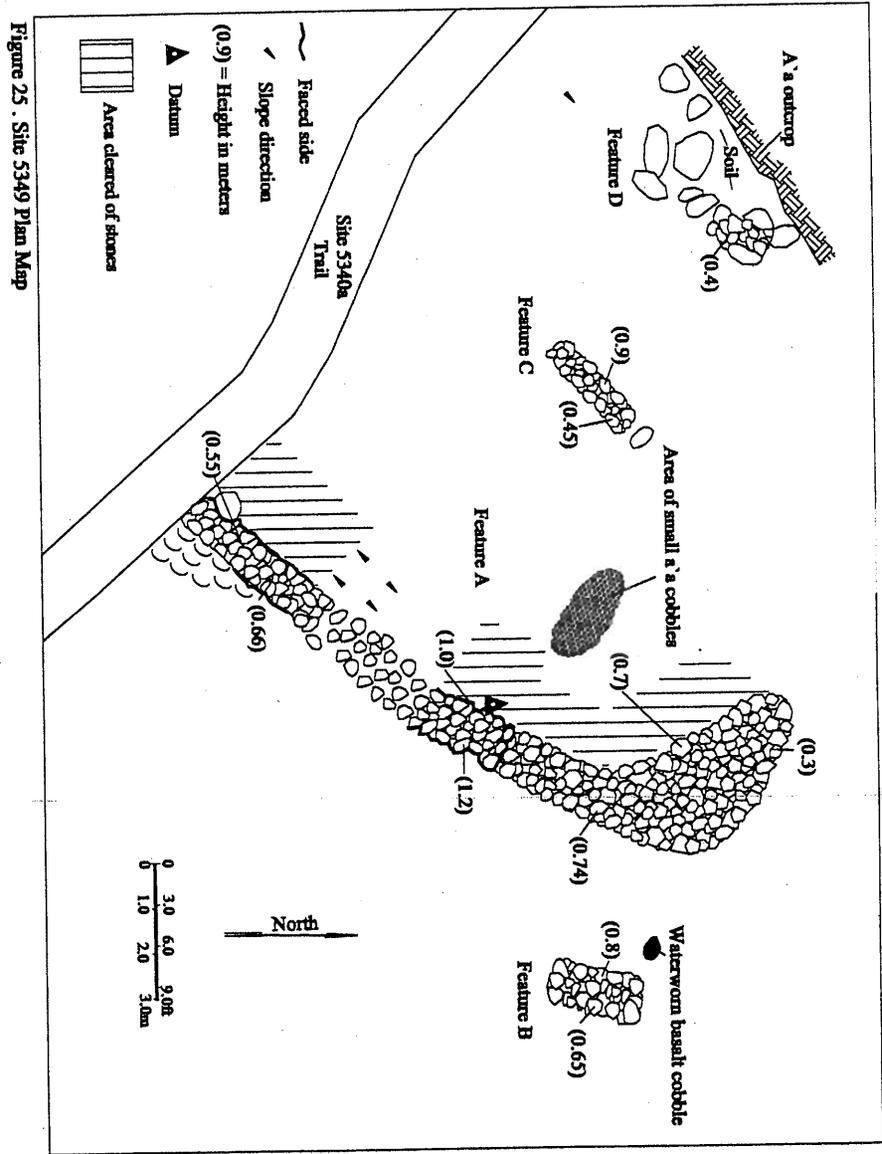


Figure 25. Site 5349 Plan Map

### Site 5350

Site 5350 is a U-shaped enclosure located 5.25 m southwest of the Site 5340a trail and 43.0 m northwest of Site 5349. The enclosure is open to the southwest and is situated in an area of uneven a'a lava. It measures 5.9 m long (northwest by southeast) and from 3.4 to 4.45 m wide (Figure 26). The walls vary in width from 1.05 to 1.45 m and in height from 0.6 to 1.0 m. The walls are built stacked cobbles and small boulders, with faced sides and a core-filled interior. A large boulder (1.75 m long, 0.95 m wide and 1.3 m in height) is incorporated into the wall at the northern end.

The interior of the enclosure is level and is roughly paved with small cobbles and pebbles. A single *Cypraea* (cowrie) shell was noted on the surface of the pavement at the southern end. Site 5350 is interpreted as a permanent habitation structure based on its formal type, substantial construction (faced walls, pavement) and area (24.8 sq m). The site is unaltered and in fair condition.

### Site 5351

Site 5351 is a cairn located 11.5 m northwest of Site 5350 and 9.5 m southwest of the Site 5340a trail. The site is situated in an area of uneven a'a lava covered in *naupaka*. The cairn is roughly oval in shape and is 2.95 m long (northeast by southwest) and 2.35 m wide at the base, 0.68 m long by 0.63 m wide at the top, and 1.05 m in height (Figure 27). A basalt slab is leaning against the northern side of the cairn, creating a small enclosed space that is 1.2 m long (east-west), 0.4 m wide and 0.55 m in height. No cultural remains were found in association with the site.

A small blister cave is situated 2.0 m to the southeast of the cairn. The entrance consists of a vertical hole that is 1.35 m long (east-west), 1.15 m wide and 0.89 m in depth. A small oval-shaped chamber extends to the south from the opening, measuring 2.05 m long (northwest by southeast), 1.6 m wide with a 0.4 m tall ceiling. The interior floor of the chamber is comprised of bare lava with no cultural remains present.

The location of Site 5351 roughly corresponds to the Feature 7 cairn previously identified by Pearson (1970:17). The Site 5351 cairn is assigned a marker function based on its formal type. No evidence was found to indicate that the small cave has been utilized. The site is unaltered and in fair condition.

### Site 5352

Site 5352 is a domed stone mound located on a bare a'a flow between the coastal cliffs and the Site 5340a trail. The mound is oval-shaped and is 3.08 m long (northeast by southwest) by 2.7 m wide (Figure 28). The sides of the mound slope downward from the upper portion of the mound, which is 0.85 m long by 0.75 m wide. The mound ranges in height from 0.49 to 0.85 m. It is constructed of stacked a'a cobbles and small boulders. Several *Cellana* shells were noted on the ground surface surrounding the site.

There is an oval-shaped depression on the top of the mound that is 0.8 m long (east-west) by 0.65 m wide and 0.6 m in depth. It is possible that this depression may have once held an upright stone, suggesting that Site 5352 may have functioned as a ceremonial feature. Site 5352 is unaltered and in fair condition.

### Site 5353

Site 5353 consists of a large waterworn basalt cobble positioned vertically on an a'a outcrop in an area of uneven a'a lava, seaward of the Site 5340a trail. The cobble is 0.51 m long, 0.24 m wide and 0.19 m in thickness (Figure 29). The outcrop on which the cobble rests is 0.8 m long, 0.5 m wide and 0.94 m in height above the surface of the lava flow. Several small a'a cobbles have been placed at the base of the cobble to support it. Site 5353 is interpreted as a ceremonial upright (*pōhaku a kane*) based on its formal type. The site is unaltered and in good condition.

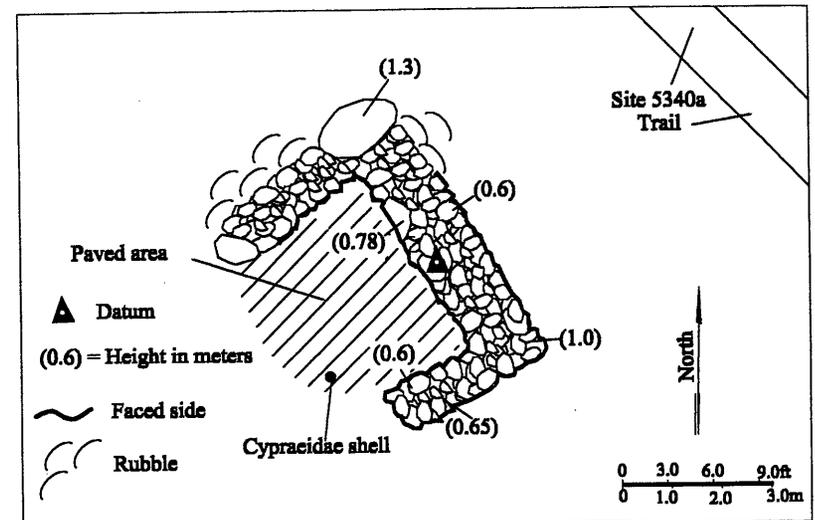


Figure 26. Site 5350 Plan Map

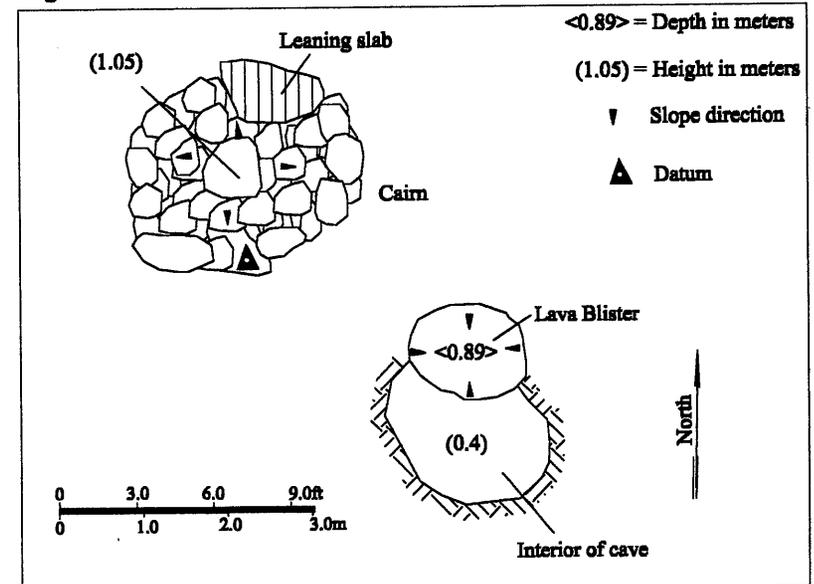


Figure 27. Site 5351 Plan Map

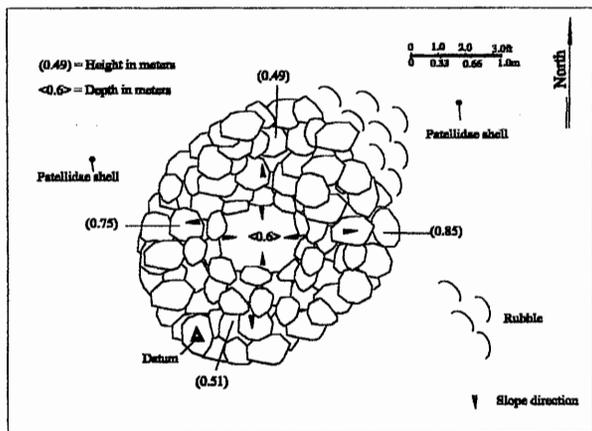


Figure 28. Site 5352 Plan Map

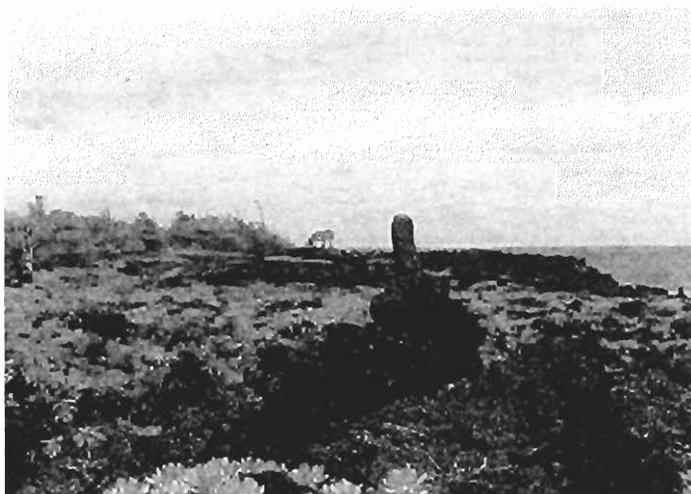


Figure 29. Site 5353 Shrine, view to northeast

### Site 5354

Site 5354 is an irregularly-shaped cairn located in an area of uneven a'a lava between the coastal cliff and the Site 5340a trail, 13.0 m east of Site 5353. The location of this cairn roughly corresponds to the Feature 2 cairn previously identified by Pearson (1970:17). Site 5354 is built of stacked a'a cobbles and small boulders and is 1.15 m long (east-northeast by west-southwest) by 0.97 m wide at the base, 0.68 m long by 0.45 m wide at the top and 0.85 m in height. No cultural remains were noted. Site 5354 is interpreted as a marker based on its formal type. The site is unaltered and in fair condition.

### Site 5355

Site 5355 is a complex of two features located inland of the Site 5340a trail and south of the dirt road leading to the school. The site is comprised of an enclosure (Feature A) and an overhang (Feature B; Figure 30). The location of this site appears to correspond to Pearson's (1970) Feature 6, which is interpreted as a wall segment. However, the description of the site states it is only 10-15 m inland from the coast, so it is likely that Feature 6 was mis-plotted by Pearson (1970:20). The features are unaltered and in fair condition.

Feature A is a U-shaped enclosure located on top of a level knoll. The surface of the knoll is level and is 8.8 m long (north-northwest by south-southeast) and 6.0 m wide. The enclosure is open to the northeast, with overall dimensions of 5.2 m long (north-northwest by south-southeast) and from 2.9 to 4.3 m wide. The walls are built of stacked a'a cobbles and small boulders, with a core-filled interior and faced sides. The walls range in width from 0.7 to 1.05 m and in height from 0.35 to 0.9 m. The walls have collapsed to the interior on the north and west sides of the enclosure.

The interior of the enclosure is comprised of a level soil deposit with scattered surface stones. Several pieces of sun-bleached cowrie shells were noted inside the enclosure and on top of the western wall. No other cultural remains were present. Feature A is interpreted as a permanent habitation based on substantial construction (faced walls) and its area (22.4 sq m).

Feature B is an overhang located below the Feature A knoll to the east. The entrance to the overhang faces the north and is 3.9 m long (east-northeast by west-southwest) and from 1.2 to 1.3 m in height. A large pandanus tree is growing at the western side of the entrance. The interior of the overhang is roughly oval in shape and is 4.6 m long and from 2.0 to 3.2 m wide. The interior ceiling heights vary from 0.35 to 0.7 m. The interior floor of the overhang consists of a level soil deposit with scattered marine shell (*Nerita*, *Littorinidae*, *Cellana*) and small pieces of waterworn coral. Two plastic bottles are situated inside the entrance, east of the pandanus tree. Feature B is interpreted as a permanent habitation based on its association with Feature A. The presence of the plastic bottles indicates its recent use.

### Site 5356

Site 5356 is a complex of four features located adjacent to the Site 5340a trail to the east, and south of the dirt road leading to the school, in an area of uneven a'a lava. The features consist of two U-shapes (Features A and B), an enclosure (Feature C), and a pavement (Feature D; Figure 31). Portions of the site were previously identified by Pearson (1970). The site is unaltered and in good condition.

Feature A is a well-built U-shaped enclosure located 3.5 m east of the Site 5340a trail on top of a low knoll (Figure 32). It was previously identified by Pearson as Feature 8 (1970:18-19). The enclosure is open to the southwest, with overall dimensions of 5.9 m long (northeast by southwest) and from 5.3 to 6.1 m wide. The walls are built of stacked a'a cobbles and small boulders, ranging in width from 1.2 to 1.3 m. The walls are faced and the interior is core-filled with small cobbles. The height of the walls range from 0.75 to 1.0 m on the inside and 1.05 to 1.3 m on the outside.

The interior of the enclosure is comprised predominately of scattered surface stones over a soil deposit. An oval-shaped area from which the stones have been cleared is present in the seaward half of the

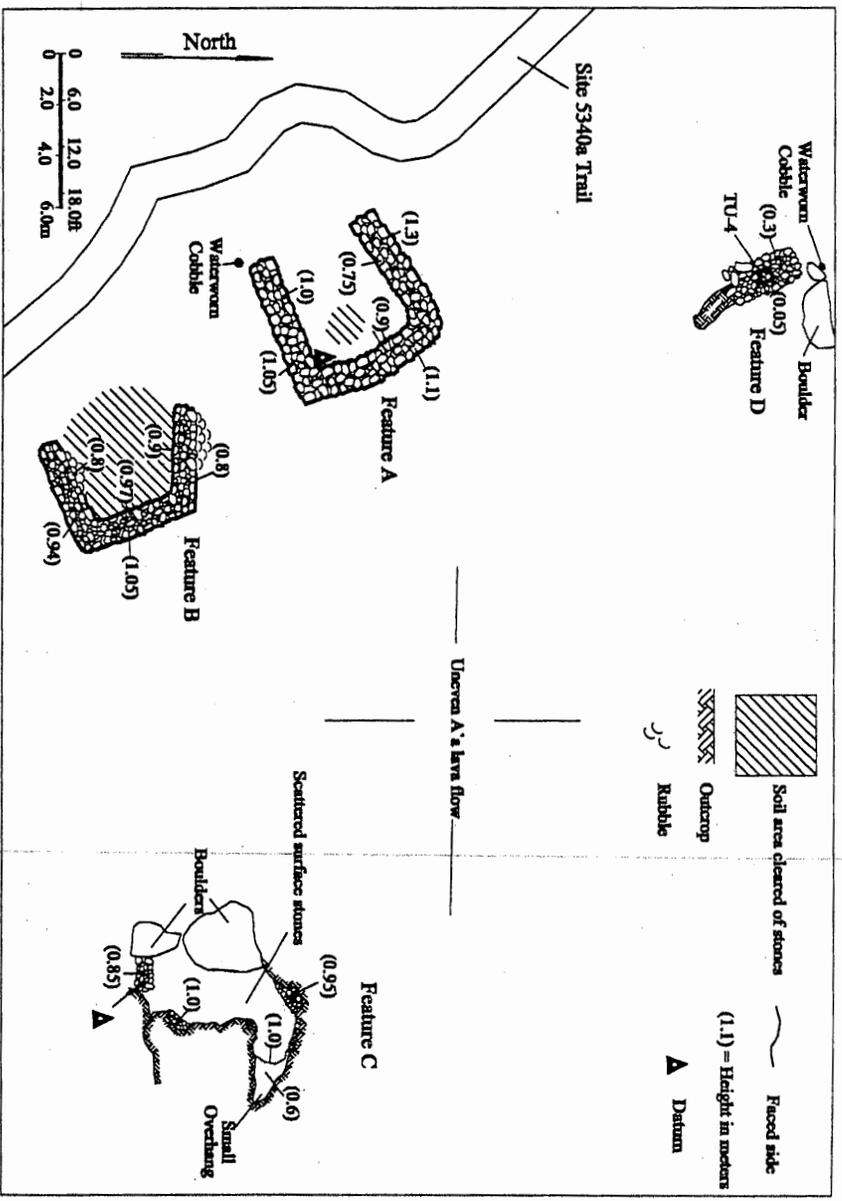


Figure 31. Site 5356 Plan Map

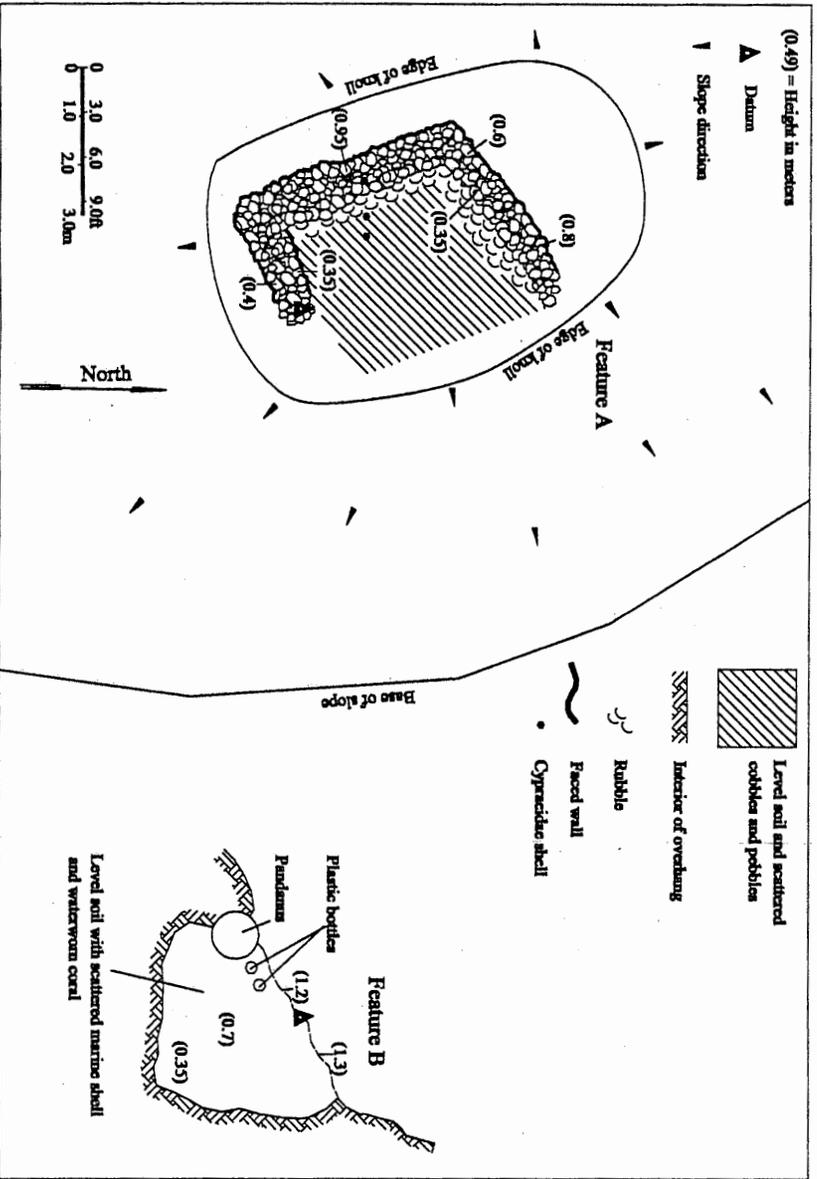


Figure 30. Site 5355 Plan Map



Figure 32. Site 5356, Feature A Enclosure, view to south



Figure 33. Site 5356, Feature B Enclosure, view to south

interior, measuring 1.3 m long by 1.0 m wide. A waterworn basalt cobble was observed outside the enclosure, adjacent to the southwestern corner. Feature A is interpreted as a permanent habitation based on its area (35.0 sq m) and substantial construction (faced walls).

Feature B is a second U-shaped enclosure, situated 4.4 m south-southeast of Feature A. This feature corresponds to Pearson's Feature 5 (1970:18-19). The enclosure is open to the west and is 4.75 to 6.3 m long (north-south) and 4.7 m in width (Figure 33). The faced walls are constructed of stacked a'a cobbles and small boulders with a core-filled interior. The walls range in thickness from 0.9 to 1.0 m and in height from 0.8 to 1.05 m. The walls have collapsed along the north and south sides of the feature.

The interior of the enclosure consists of a level soil deposit that has been cleared of stones. No cultural remains were found in association with Feature B. This enclosure is also interpreted as a permanent habitation structure based on the presence of substantial construction (faced sides) and its area (28.3 sq m).

Feature C consists of an irregularly-shaped enclosure that was identified during the current study. The feature is situated 16.0 m east of Feature B in an area of uneven a'a lava. The feature consists of a naturally enclosed space between two large boulders along the west side and a'a outcrops along the north, east and southeast sides. The interior of the enclosure is 5.5 m long (north-south) and from 1.8 to 3.5 m wide. A stacked cobble and small boulder wall extends between the southernmost boulder and an outcrop, enclosing the feature. This wall is 1.35 m long (east-west), 0.75 m wide and 0.85 m in height. Cobbles have been piled on top of the outcrop at the southeastern end and at the northern end.

The interior of the enclosure is comprised of scattered surface stones over bedrock. No cultural remains were present. There is a small overhang located at the northeastern end of the enclosure, with an entrance that is 1.3 m wide and 1.0 m in height. The interior is irregularly-shaped and is 1.6 m long (east-west), 0.4 to 1.3 m wide and 0.6 m in height. The floor of the overhang is bare lava.

Feature C is interpreted as an ancillary feature associated with the permanent habitation of Site 5356, based primarily on its close proximity to the Feature A and B permanent habitation enclosures. The features formal type suggests it may have functioned as an animal pen or possible storage feature.

Feature D is a low pavement located 12.3 m north of Feature A. The pavement is roughly rectangular in shape and is 2.65 m long (north-northwest by south-southeast), 1.3 m wide and 0.05 to 0.3 m in height above the surrounding ground surface (Figure 34). The feature is constructed on top of a low outcrop, visible at the southern end, and two a'a boulders are present adjacent to the pavement at the northern end. The surface of the feature is level and is comprised of tightly packed a'a cobbles and pebbles. A waterworn basalt cobble is located adjacent to the westernmost boulder at the northern end of Feature D.

A 0.5 by 0.5 m test unit (TU-4) was excavated into the center of the pavement during the project. The excavation revealed a stone architectural layer (Layer I), over a soil deposit (Layer II; Figure 35). Layer I consisted of 0.29 to 0.3 m of tightly packed a'a cobbles and pebbles with no cultural remains present. The base of Layer I intruded slightly into the Layer II soil deposit and no evidence was found to indicate that the architectural layer had been built during more than a single construction episode. Layer II was comprised of 0.26 to 0.28 m of a very dark grayish brown (10YR 3/2) silt loam with 50% pebble inclusions. No cultural remains were present in Layer II. The excavation of TU-4 was terminated on bedrock.

Feature D is also interpreted as an ancillary feature associated with the permanent habitation of Site 5356. This is based on the nature of the feature and its close proximity to the Feature A and B enclosures. The small size of this structure and absence of cultural remains suggests that Feature D may have functioned as site furniture.

### Site 5357

Site 5357 is a small cupboard located on a level soil area inland from the coastal cliffs, seaward of the Site 5340a trail, and south of the dirt road leading to the school. This site may potentially correspond to Pearson's Site 3 based on its location. The site consists of a small mound of stacked a'a cobbles, with

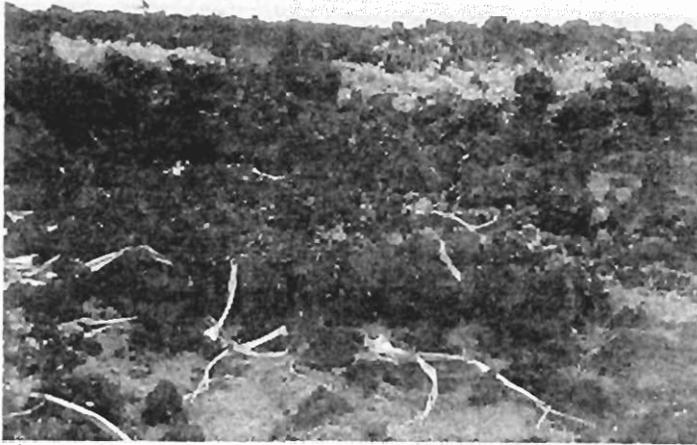


Figure 34. Site 5356, Feature D Pavement, view to northeast

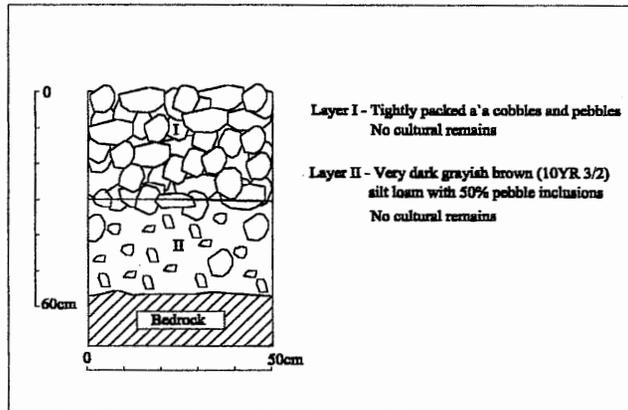


Figure 35. Site 5356, Feature B, TU-4 East Face Profile

overall dimensions of 0.58 m long (east-west), 0.49 m wide and 0.3 to 0.32 m in height. A small enclosed space, open at the eastern side, has been formed into the mound (Figure 36). This space is 0.4 m long (east-west), 0.35 m wide and 0.24 m in height. No cultural remains were found in association with the cupboard. Site 5357 is interpreted as a possible storage feature based on its formal type. It is possible that this small structure may be of recent origin, although no modern debris was present. Site 5357 is unaltered and in good condition.

#### Site 5358

Site 5358 is an L-shaped enclosure located in a level soil area, surrounded by a'a lava, 27.0 m north-northeast of Site 5357. This wall potentially corresponds to Pearson's Feature 4 based on its location. The L-shape is 3.2 m long (north-northwest by south-southeast) along one leg and 2.2 m long along the other (Figure 37). The walls are constructed of stacked a'a cobbles and small boulders, ranging in width from 0.56 to 1.05 m and in height from 0.65 to 1.02 m. A small boulder is located at the northern end of the structure, oriented perpendicularly to the long axis of the structure.

The interior of the enclosure faces the west and is comprised of a level soil area free of surface stones. Several *Nerita* shells were present on the surface of the soil deposit. Site 5358 is interpreted as a temporary habitation based on its formal type, lack of substantial construction, and area (6.8 sq m). The site is unaltered and in fair condition.

#### Site 5359

Site 5359 is a complex of two small cairns located on the bare coastal a'a flow, 60 m north-northwest of Site 5358. The two cairns are constructed of stacked and piled a'a cobbles, and both are domed-shaped. Feature A is situated at the western end of the site (Figure 38). It is 2.0 m long (north-south) by 1.9 m wide at the base, tapering to 0.35 m long by 0.3 m wide at the top. The feature is 0.85 m in height. Feature B is situated 2.85 m to the east of Feature A. This cairn is 0.95 m long (north-south) by 0.83 m wide at the base, 0.25 m long by 0.2 m wide at the top and 0.6 m in height. No cultural remains were present at the site. The Site 5359 cairns are interpreted as markers based on their formal type. The site is unaltered and in good condition.

#### Site 5360

Site 5360 is an L-shaped enclosure located adjacent to the Site 5340a trail to the east, northwest of the dirt road leading to the school. This site potentially corresponds to Pearson's Site 11 based on its location. It is situated in an area of level a'a lava. The L-shape measures 5.5 m long (northeast by southwest) along one leg and 2.8 m long (northwest by southeast) along the other (Figure 39). The walls are built of stacked a'a cobbles and small boulders, ranging in width from 0.73 to 1.3 m and in height from 0.65 to 1.4 m. The interior sides of the walls are faced and have a narrow, core-filled interior. The interior, inland side of the L-shape is comprised of a level soil area that has been cleared of stones. No cultural remains were present. Site 5360 is interpreted as a temporary habitation based on its formal type and area (15.4 sq m). It is unaltered and in fair condition.

#### Site 5361

Site 5361 is an informally constructed terrace located in a dense pandanus grove, inland of the Site 5340a trail and north of the dirt road leading to the school. The terrace is built on the side of a slope that angles down to the east (Figure 40). It is roughly rectangular in shape and is 2.85 to 6.1 m in length (northeast by southwest) and 5.6 m in width. A piled cobble and small boulder retaining wall is situated at the northeastern, downslope side of the site, ranging in height from 0.42 to 0.5 m. The surface of the terrace is uneven and slopes down to the northeast. No cultural remains were found in association with the site. Although the area of Site 5361, c. 28 sq m, is larger than Cordy's (1981) temporary habitations, its isolated location and lack of substantial construction suggest that it is a temporary habitation feature. It is unaltered and in fair condition.



Figure 36. Site 5357 Cupboard, view to west

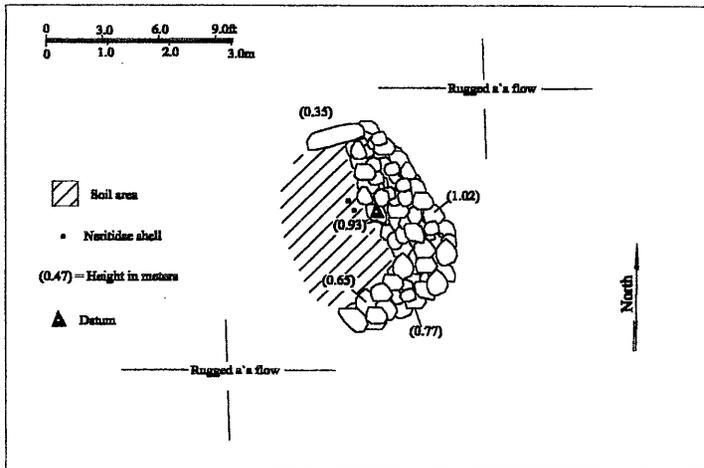


Figure 37. Site 5358 Plan Map

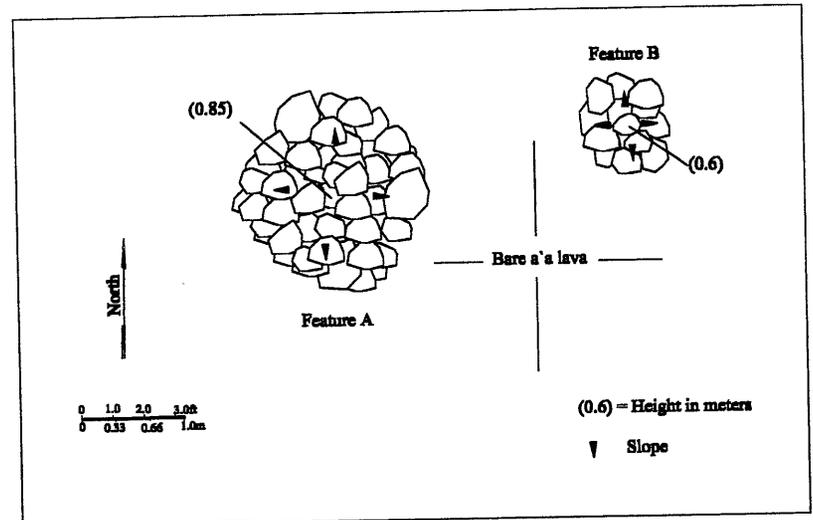


Figure 38. Site 5359 Plan Map

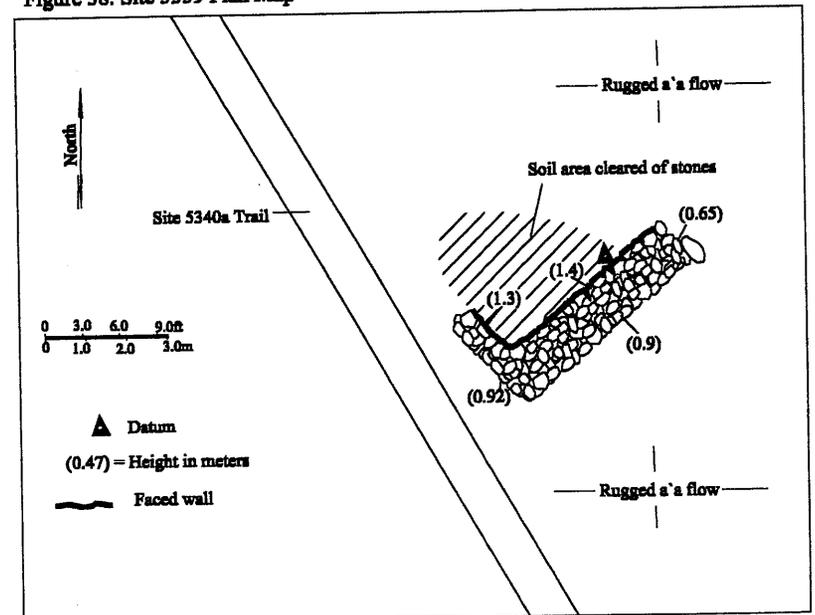


Figure 39. Site 5360 Plan Map

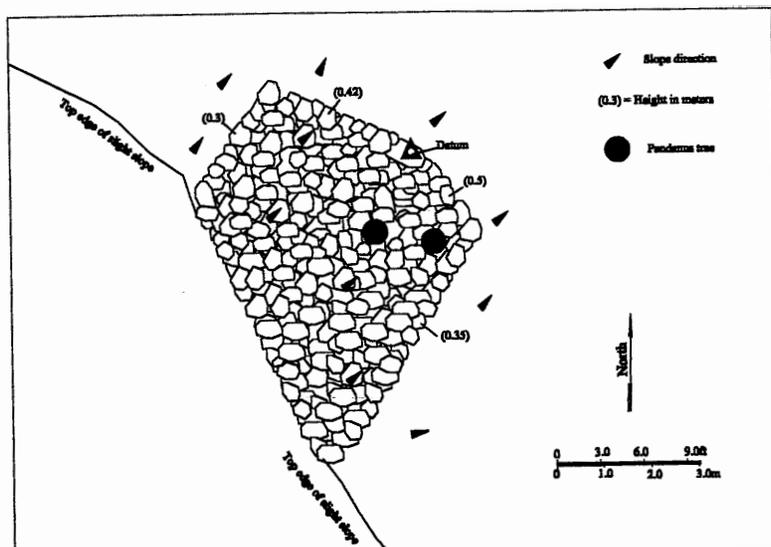


Figure 40. Site 5361 Plan Map

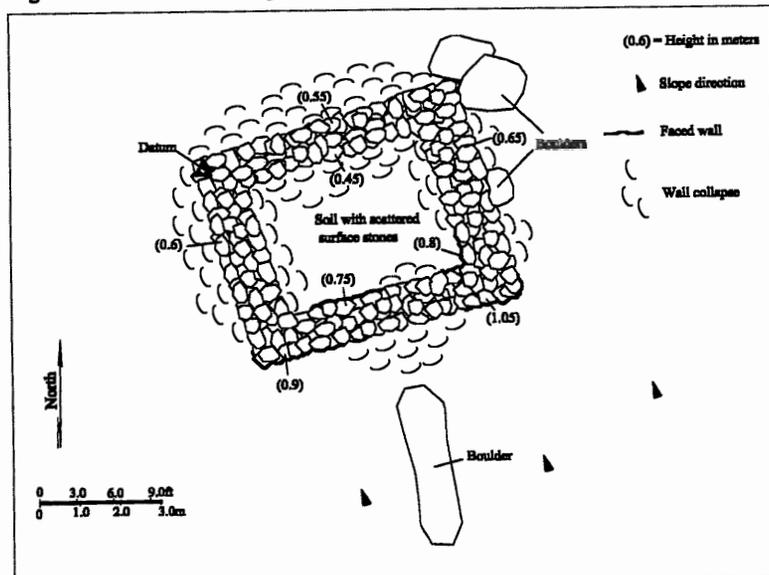


Figure 41. Site 5362 Plan Map

### Site 5362

Site 5362 is rectangular enclosure located in a level pandanus grove, inland of the Site 5340a trail and north of the Site 5364 heiau complex (discussed below). The enclosure is predominately collapsed although intact sections are still present. It is 6.85 m long (east-northeast by west-southwest) and 5.45 m wide, with no apparent entrance (Figure 41). The walls are constructed of stacked a'a cobbles and small boulders, with a core-filled interior of small cobbles. Portions of the southern wall, on both the inside and outside are intact and faced. These intact sections range in width from 1.0 to 1.05 m and in height from 0.75 to 1.05 m. The remainder of the enclosure walls have collapsed to the inside and outside, varying in width from 1.0 to 1.2 m and in height from 0.45 to 0.65 m. The interior of the enclosure is comprised of level soil covered with scattered surface stones. No cultural remains were present. Site 5362 is interpreted as a permanent habitation structure based on its formal type, substantial construction and area (37.3 sq m). It is unaltered and in poor to fair condition.

### Site 5363

Site 5363 is a complex of two features located in a dense hau thicket, inland of the Site 5364 heiau complex, and south of the Site 5367 wall (discussed below). The features consist of an enclosure (Feature A) and a terrace (Feature B; Figure 42). Feature A is roughly oval in shape, and is 7.35 m long (north-northwest by south-southeast) and 4.5 m wide. The eastern side of the enclosure appears to have been disturbed, although no obvious mechanical disturbance has occurred in the area. The north, south and west walls have collapsed, ranging in width from 0.55 to 0.9 m and in height from 0.28 to 0.6 m. These walls are built of stacked and piled cobbles and small boulders. The interior of the enclosure is comprised of a level soil deposit with scattered surface stones. A waterworn basalt cobble is present inside the enclosure in the southwestern corner.

The Feature B terrace is located 2.25 m north of Feature A. It consists of a stacked cobble and boulder retaining wall that has been constructed along the base of slope that angles to the south. The wall is faced and is 0.75 to 0.9 m wide and 0.82 to 1.2 m in height. There is a level, roughly rectangular soil area on the upslope side of the retaining wall that is 10.0 m long (east-west) and 5.1 m wide. No cultural remains were observed. Site 5363 is interpreted as a permanent habitation complex, based on the features' formal type, and the area of the individual features (Feature A = 28.1 sq m, Feature B = 52.6 sq m). The faced retaining wall at Feature B also suggests a permanent habitation function. The level surface of the Feature B terrace and enclosure may have functioned as foundations for a pole and thatch structures. The site is altered and in fair condition.

### Site 5364

Site 5364 is a complex of 15 features located inland of the Site 5340a trail and south of the Site 5367 wall (discussed below). The site was initially documented by Pearson (1970) as Feature 1, consisting of an Ohala Heiau and surrounding features. The 15 features identified during the current survey consist of four platforms (Features A, B, D and G), four upright stones (Features C, I, J and K), two pavements (Features L and O), two alignments (Features F and M), a terrace (Feature E), an L-shape (Feature H) and a trail (Feature N). The distribution of the Site 5364 features is presented in Figure 43.

Feature A consists of a large rectangular platform that represents the main heiau structure. A metal sign located along a worn path that leads from the Site 5340a trail to the platform identifies the site as Ohala Heiau (Figure 44). The north and portions of the western sides of the platform have collapsed, although the east and southern sides are relatively intact. The structure appears to have originally measured 20.9 to 23.3 m in length (north-northwest by south-southeast) and 12.8 to 15.7 m wide. The intact walls are constructed of stacked cobbles and small boulders, with faced sides. Boulders have been incorporated into the basal course of the intact walls (Figure 45). The exterior height of the intact walls range from 0.5 to 1.2 m, with the interior height, above the surface of the platform varying from 0.1 to 0.3 m. The collapsed sides of the platform slope outward, ranging in height from 1.2 to 1.3 m.

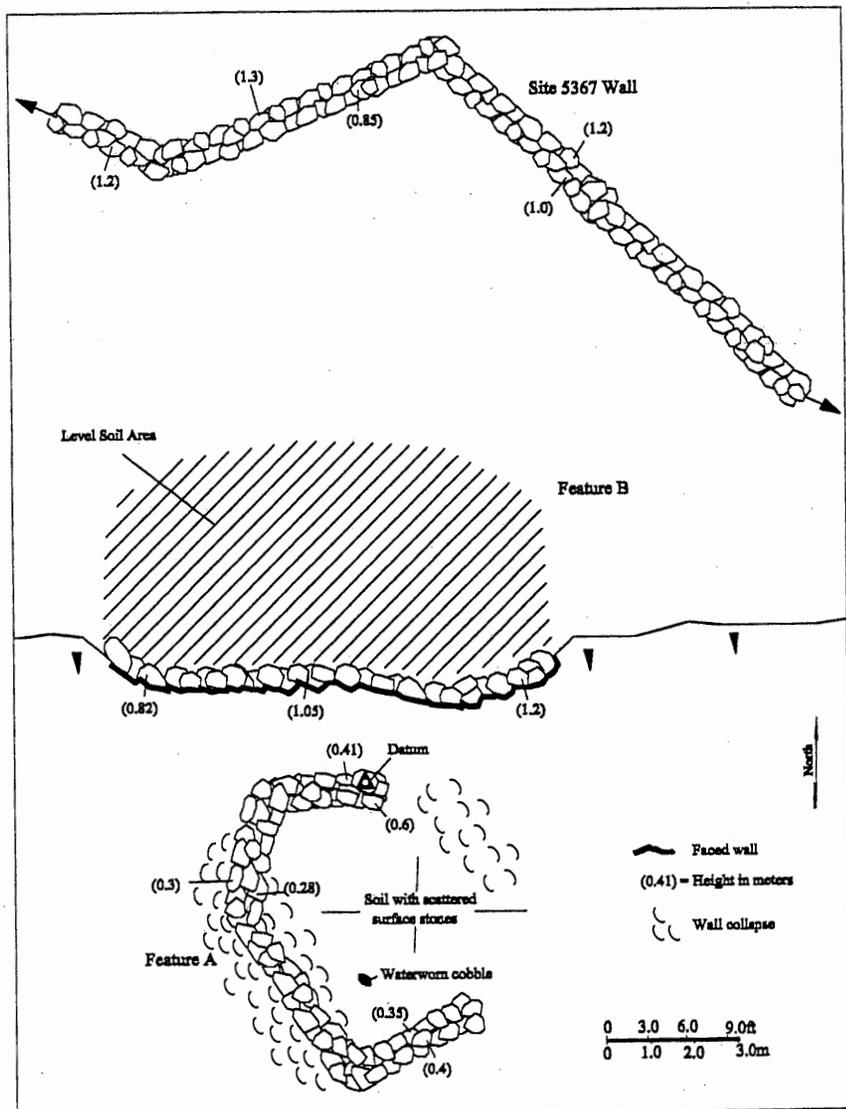


Figure 42. Site 5363 Plan Map showing Site 5367 wall

Figure 43. Site 5364 Plan Map showing Site 5340a Trail and Site 5367 Wall

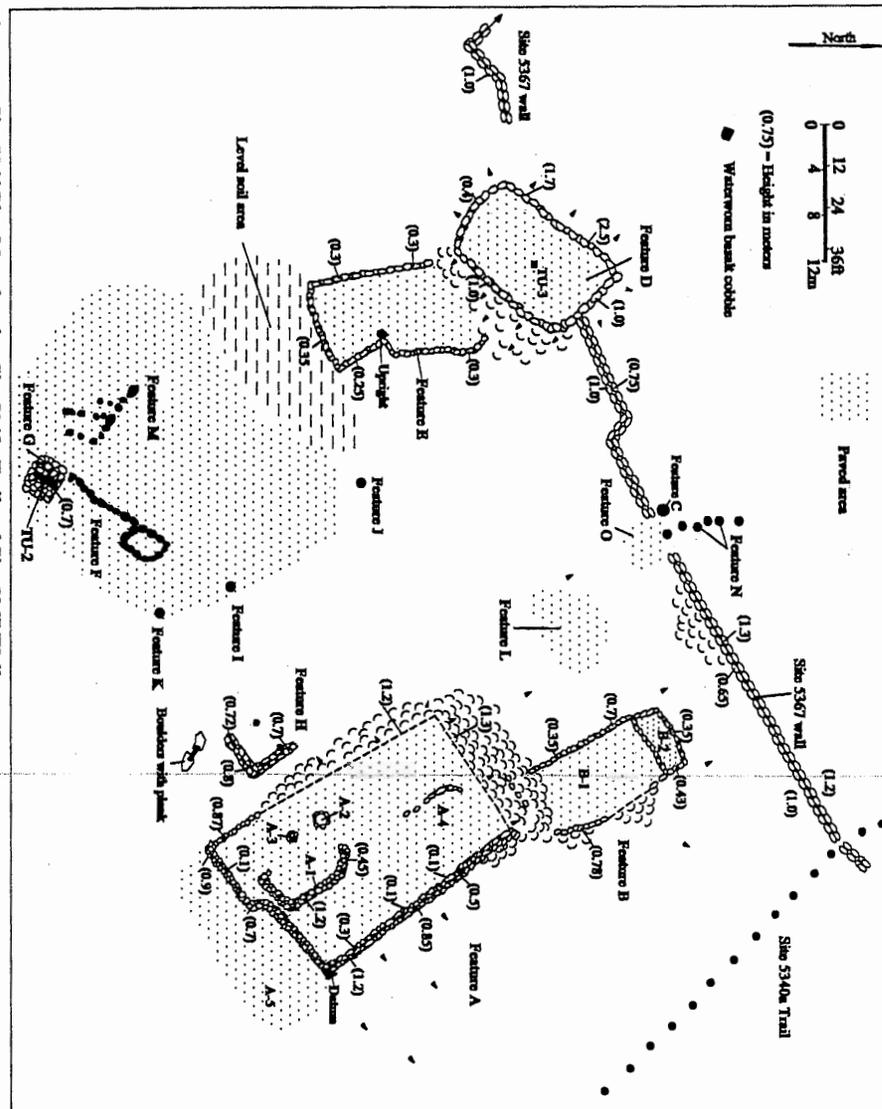




Figure 44. Site 5364, Feature A Platform, view to southwest



Figure 45. Site 5364, Feature A Platform, view to north-northwest

The surface of the platform is level and is paved with small cobbles. Scattered sun-bleached marine shells and waterworn coral pebbles were noted on the surface of the platform. Pearson identified the main platform surface as Platform B (1970:11). Several internal structures are located on top of the platform. Sub-feature A-1 (see Figure 43) consists of a roughly U-shaped enclosure that is open to the east, situated at the southeastern end of the Feature A platform. The enclosure is 7.8 m long (north-northwest by south-southeast) and 4.3 m wide, with walls built of stacked cobbles and small boulders (Figure 46). This enclosure corresponds to Pearson's Platform A (1970:11) although the interior is clearly not raised above the surface of the main platform. The walls of the enclosure are 0.7 to 0.8 m wide and 0.45 to 1.2 m in height.

Sub-feature A-2 consists of an oval-shaped depression located on the surface of Feature A, 3.0 m west of the northwestern end of Sub-feature A-1. The pit is 1.2 m long (east-west), 0.95 m wide, and 0.14 m in depth below the surface of the main platform (Figure 47). A second pit (Sub-feature A-3) is located 3.3 m south-southeast of Sub-feature A-1. This pit is 0.7 m in diameter and 0.2 m depth. These pits potentially supported wooden idols.

Sub-feature A-4 is a linear, single course alignment of cobbles and small boulders located at the northern end of Feature A. The alignment is 5.2 m in length, 0.25 to 0.4 m wide and 0.09 to 0.2 m in height. This alignment appears to have functioned to subdivide the main platform surface.

Sub-feature A-5 is a crudely paved area located adjacent to Feature A to the southeast. This pavement is comprised of loosely packed cobbles, encompassing an area 17.4 m long (north-east by southwest) by 4.1 to 6.9 m wide. Pearson (1970:11) identified this portion of the feature as Platform C, although the pavement is clearly not raised above the surrounding ground surface. Scattered marine shells were noted on the surface of the pavement. Feature A is interpreted as a large ceremonial structure based on its formal type and traditional name. The feature is unaltered and in fair condition.

Feature B consists of a large, low platform with an adjoining terrace, which is located to the north of Feature A. This feature was apparently not identified by Pearson (1970), likely due to its location within a thick stand of *naupaka*. The main platform (Sub-Feature B-1) is rectangular in shape and is 10.4 m long (north-northwest by south-southeast) and 7.0 m wide, bordered by one to two courses of waterworn basalt cobbles and boulders (Figure 48). The sides of the platform vary in height from 0.35 to 0.78 m. The southern end of the platform appears to have been buried beneath wall collapse from the northern end of the Feature A platform. The surface of the platform is comprised of tightly packed cobbles and pebbles with scattered sun-bleached marine shells and waterworn coral.

A terrace is situated at the northern end of the platform (Sub-feature B-2). The terrace is rectangular in shape and is 6.1 m long (northeast by southwest) and 2.2 m wide, with a level, roughly paved surface of cobbles. A low retaining wall extends along the northern side of the terrace, built of stacked cobbles and small boulders. The wall is 0.35 m in height and the surface of the terrace consists of a rough pavement of cobbles and pebbles. No cultural remains were observed on the terrace. Feature B is also assigned a ceremonial function based on its spatial relationship to Feature A. It is unaltered and in fair condition.

Feature C is an upright waterworn basalt stone located on the northern side of the Site 5367 wall (discussed below). A section of steppingstone trail (Feature N) is situated to the east of the upright. This upright was noted by Pearson, although his map indicates it was situated on the southern side of the wall. The upright is 0.3 m by 0.22 m at the base, 0.26 by 0.19 m at the top and 0.74 m in height (Figure 49). Its location at a break in the Site 5367 wall, adjacent to a trail leading into the heiau complex indicates a ceremonial function. Feature C is unaltered and in good condition.

Feature D is a large rectangular platform located on a *naupaka* covered natural knoll, 19.5 m west-southwest of Feature C. The Site 5367 wall abuts the seaward side of the platform, then continues on the inland side. Pearson identified this platform but did not assign it a feature designation (1970:11). The platform is 13.95 m long (northeast by southwest) and 7.8 to 8.7 m wide. The northwest side of the platform is built on a vertical outcrop that is 1.7 to 2.5 m above the surrounding ground surface. The northeast, southeast and southwest sides are comprised of stacked cobbles and small boulders that range in height from 0.4



Figure 46. Site 5364, Sub-Feature A-1 U-shaped Enclosure, view toward west-southwest

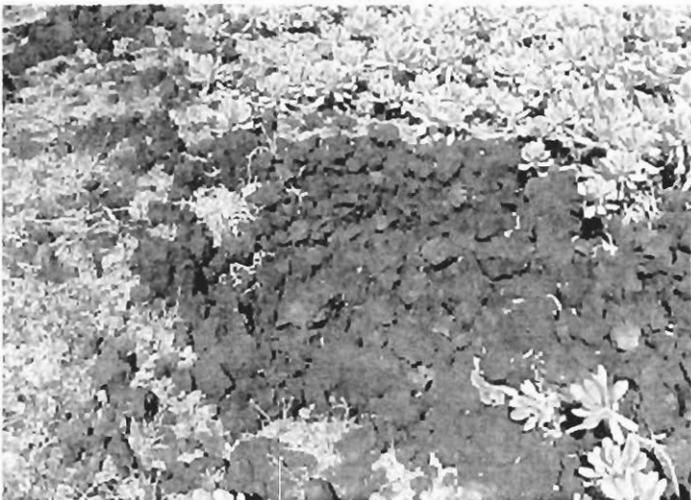


Figure 47. Site 5364, Sub-feature A-2 Pit, view to north



Figure 48. Site 5364, Feature B Platform, view to east



Figure 49. Site 5364, Feature C Upright, view to south

to 1.0 m. The southeast side of the structure is collapsed outward (Figure 50). The surface of the feature is comprised of level pavement of waterworn pebbles and a'a cobbles and pebbles. No cultural remains were observed.

A 0.5 by 0.5 m test unit (TU-3) was excavated into the surface of the platform (see Figure 43). This excavation revealed a stone architectural layer (Layer I) over two soil deposits (Layers II and III; Figure 51). Layer I consisted of 0.03 to 0.04 m of tightly packed waterworn pebbles, with no cultural remains. The base of Layer I intruded slightly into the Layer II soil deposit. Layer II was comprised of 0.03 to 0.12 m of a black (10YR2/1) silty loam with 30-50% pebble and cobble inclusions. No cultural remains were present in Layer II.

Layer III consisted of a very dark grayish brown (10YR 3/2) silt with 50-75% cobble and pebble inclusion. No cultural remains were present. The excavation of TU-3 was terminated 0.46 to 0.53 m into the Layer III deposit. Feature D is interpreted as a possible ceremonial structure based on its large size and close proximity to the Feature A platform. The absence of habitation debris in TU-3 supports this interpretation. Feature D is unaltered and in fair condition.

Feature E is a terrace located below Feature D to the south. The northern side of the terrace appears to have been buried beneath collapse from the Feature D platform. There are low stacked cobble and small boulder retaining walls located along the south, west and east sides of the terrace, ranging in height from 0.25 to 0.35 m (Figure 52). The surface of the terrace is relatively level and is paved with small a'a cobbles and pebbles with scattered waterworn basalt and coral pebbles. There is an upright basalt cobble located on top of the terrace, along the seaward side. The cobble is 0.2 m in diameter and 0.35 m in height. An area of level soil is situated to the south of the terrace. Feature E is interpreted as a ceremonial feature based on its proximity to the other Site 5364 features and the presence of the upright. Feature E is unaltered and in fair condition.

Feature F is a single course alignment of waterworn basalt cobbles, located in the southwestern portion of the site. 27.0 m south-southeast of Feature E. This alignment, along with Features G, I, K and N (discussed below) are located on a level grassy area that appears to be roughly paved with small a'a cobbles (see Figure 43), but could be natural. This area is 29.5 m long (northeast by southwest) 20.5 m wide. Feature F is comprised of rectangular-shaped alignment, with a linear alignment of cobbles that extends to the south-southwest to Feature G (discussed below). The rectangular alignment is 3.4 m long (northeast by southwest) and 2.6 m wide. The linear alignment is 7.2 m long. Feature F is assigned a ceremonial function based on its close proximity to the other components of the site. The feature may have been used to delineate the boundaries of an activity area used in conjunction with the ritual activities at the site. Feature F is unaltered and in fair condition.

Feature G is a rectangular platform located to the southwest of Feature F, and east of thick pandanus thicket. It is 3.7 m long (northwest by southeast) and 3.05 m wide, built of waterworn basalt cobbles and small boulders (Figure 53). The surface of the platform is slightly domed-shaped, ranging in height from 0.5 to 0.7 m above the surrounding ground surface. No cultural remains were present on the surface of the structure.

A 2.0 by 0.5 m test unit (TU-2) was excavated through the center of the platform in a northeast by southwest direction (see Figure 43). This excavation revealed a stone architectural layers (Layer I), over three soil deposits (Figure 54). Layer I consisted of 0.2 to 0.22 m of tightly packed a'a and waterworn cobbles and decomposing organic material. The base of Layer I intruded slightly into the Layer II soil deposit. No cultural remains were present in Layer I.

Layer II was comprised of 0.19 to 0.32 m of a dark reddish brown (5YR 3/2) silty loam with 75% a'a and waterworn cobbles. The base of Layer II intruded into the Layer III deposit. Cultural remains present in this deposit consisted of 149.4 grams of marine shell (*Cypraea*, *Cellana*, *Drupa*), a single fish bone (*Scaridae*, 1.8 grams), an unidentified bird bone fragment (0.5 grams), two *kukui* nut shells (0.5 grams), a basalt flake (2.35 cm long, 1.45 cm wide, 0.5 cm thick, 2.1 grams), a basalt chopper (7.6 cm long, 7.1 cm wide, 2.6 cm thick, 215 grams), and a piece of basalt flake shatter (3.2 cm long, 2.6 cm wide, 0.45 cm



Figure 50. Site 5364, Feature D Platform, view to northwest

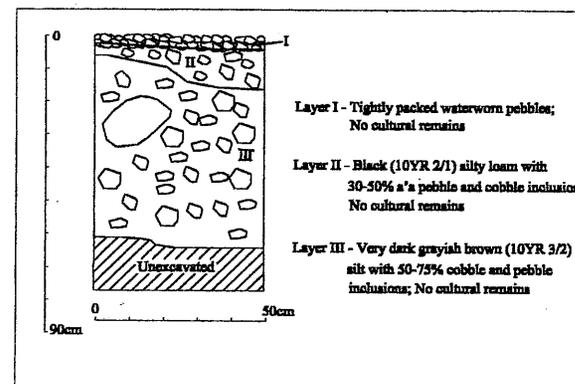


Figure 51. Site 5364, Feature D, TU-3 North Face Profile



Figure 52. Site 5364, Feature E Terrace, view to southwest



Figure 53. Site 5364, Feature G Platform, view to southwest

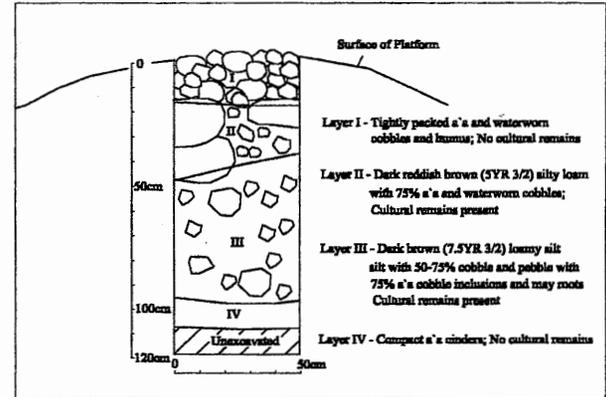


Figure 54. Site 5364, Feature G, TU-2 Southwest Face Profile



Figure 55. Site 5364, Feature H L-shape, view to northwest

thick, 6.1 grams). This deposit appears to represent an earlier period of use, with Layer I representing a subsequent construction episode.

Layer III was comprised of 0.49 to 0.6 m of a dark brown (7.5YR 3/2) loamy silt with 75% a'a cobbles and pebble inclusions. Cultural remains from Layer III consisted of 12.7 grams of marine shell (*Cypraea*, *Cellana*, *Drupa*) and 0.1 grams of charcoal. Layer IV consisted of a layer of compact a'a cinders which likely represents the original ground surface prior to the construction of the feature. No cultural remains were recovered from Layer IV. The excavation of TU-2 was terminated 0.11 to 0.13 m into the Layer IV deposit.

The results of the subsurface examination of Feature G indicate three apparent periods of use, with Layer III representing the initial episode, and Layers I and II representing subsequent phases. The proximity of this platform to the other components of Site 5364 suggests that Feature G may have functioned as a ceremonial component of the site. However the cultural remains recovered from TU-2 indicates a habitation function. Feature G is unaltered and in fair condition.

Feature H is an L-shaped wall located adjacent to the Feature A platform to the west. A pandanus tree is growing inside the L-shape. The walls measure 5.0 m northwest by southeast and 4.6 m northeast by southwest. The walls are built of stacked a'a cobbles and small boulders, ranging in width from 0.7 to 0.85 m and in height from 0.7 to 0.8 m (Figure 55). The interior, inland side of the L-shape consists of a level soil deposit. A waterworn basalt cobble was noted inside the L-shape, with a second cobble located on top of the northwest by southeast wall. There are two a'a boulders situated to the south of Feature H, with a wooden plank spanning between them. This plank appears to serve as a modern bench for visitors to the site. The proximity of Feature H to the Feature A platform suggests this L-shape may have functioned as a component of the ceremonial site. Feature H is unaltered and in fair condition.

Feature I is an upright waterworn basalt cobble located along the edge of the paved area to the northwest of Feature H. The cobble is set vertically in the ground and is 0.25 m wide, 0.2 m in thickness and 0.6 m in height (Figure 56). No cultural remains were found in association with the upright. Feature I is interpreted as a ceremonial feature based on its formal type. It is unaltered and in good condition.

Feature J is an upright waterworn cobble located north of the paved area containing Features F, G, I, K and N and 10.9 m east of the southeastern corner of the Feature E terrace. The upright is 0.3 m wide, 0.16 m in thickness and 0.36 m in height (Figure 57). It is unaltered and in good condition. Feature J is also assigned a ceremonial function due to its formal type.

Feature K is an upright waterworn basalt cobble located along the southeastern edge of the pavement that contains Features F, G, I, and N. The cobble is set vertically in the ground and is 0.24 m wide, 0.17 m in thickness, and 0.39 m in height (Figure 58). No cultural remains were found in association with the upright. Feature K is interpreted as a ceremonial feature based on its formal type. It is unaltered and in good condition.

Feature L is a pavement of waterworn and a'a cobbles and pebbles, located in an area that slopes slightly to the north-northwest, 8.7 m east of the Feature B platform. The pavement corresponds to Pavement D previously noted by Pearson (1970:11). It is 7.8 m long (northeast by southwest) and 5.45 m wide. Scattered sun-bleached marine shells were observed on its surface. Pearson (1970:9) noted the presence of *kukusi* nut shells on the pavement, but these were not observed during the current study. Feature L is interpreted as a ceremonial feature based on its association with the other ritual features of the site. Feature L is unaltered and in fair condition.

Feature M is an irregularly-shaped single course alignment of waterworn cobbles and small boulders, located on the paved area 6.5 m to the northwest of the Feature G platform. The feature is comprised of one alignment oriented in a northwest by southeast direction, and three additional alignments that extend perpendicularly to the south (see Figure 43). The northwest by southeast alignment is 6.75 m long, and the perpendicular alignments vary in length from 1.5 to 4.15 m. No cultural remains were found in association with the alignment. Feature M is interpreted as a ceremonial feature based primarily on its close proximity



Figure 56. Site 5364, Feature I upright, view to east



Figure 57. Site 5364, Feature J Upright, view to east



Figure 58. Site 5364, Feature K Upright, view to southeast

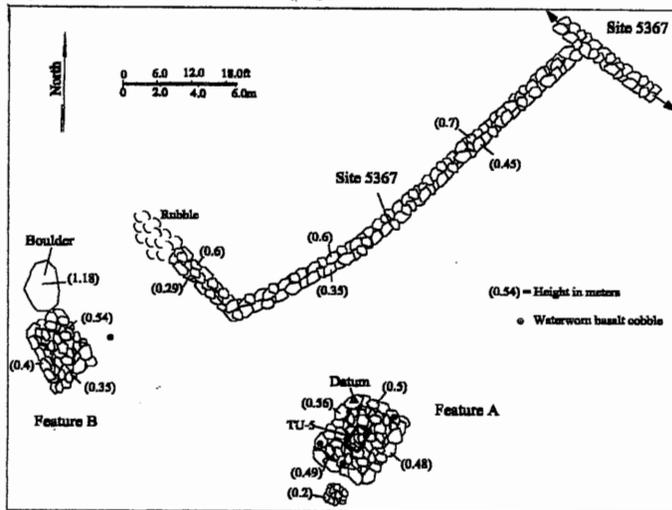


Figure 59. Site 5366 Plan Map showing Site 5367

to other ritual features of the site. The feature may have been used to delineate the boundaries of an activity area used in conjunction with the ritual activities at the site. Feature M is unaltered and in fair condition.

Feature N is a steppingstone trail located on the north side of the Site 5367 wall, adjacent to the Feature C upright to the east. The trail is comprised of a series of six flat waterworn cobbles set in the ground and spaced 1.05 to 1.5 m intervals. It originates at a break in the Site 5367 wall and extends 7.4 m to the north. It is possible that this trail once connected with the Site 5340a trail to the north of the site. Its location at a break in the wall leading to the ritual complex suggests that it functioned as a transportation feature used to gain access to the *heiau*. Feature N is altered and in fair condition.

Feature O is a level pavement of waterworn cobbles located along the south side of the Site 5367 wall, and adjacent to the Feature C upright. This pavement is situated at the break in the wall, and abuts the southern end of the Feature N trail discussed above. The feature corresponds to Pavement E previously identified by Pearson (1970:11). It is 3.5 m long (east-west) and 3.1 m wide, with no associated cultural remains. The location of this pavement suggests it may have served as a floor at the entryway into the *heiau* complex. It is unaltered and in fair condition.

### Site 5365

Site 5365 is a collapsed wall remnant located in a level pandanus grove, 35.0 m north of Site 5362. The wall is 17.7 m in length (northeast by southwest), 2.0 to 2.1 m in width and 0.2 to 0.4 m in height. It is built of piled a'a cobbles and small boulders with no cultural remains present. It is altered and in poor condition. This wall may have originally functioned as a component of a larger enclosure, potentially associated with wall Site 5367; however, no evidence of mechanical disturbance was observed either inland or seaward of this wall.

### Site 5366

Site 5366 is a complex of two platforms located on the inland side of the Site 5367 wall, 62.0 m west of Site 5363. A perpendicular section of the Site 5367 wall network extends from the main wall to the southwest, terminating between the two platforms (Figure 59). Both platforms are rectangular in shape and are bordered by small a'a boulders set on edge. Feature A is 4.4 m long (north-northeast by west-southwest) and 3.6 m wide. The sides of the platform range in height from 0.48 to 0.56 m. The surface of the platform is level but unpaved. Several waterworn basalt cobbles are present on the surface. A small mound (1.3 m diameter by 0.2 m in height), built of piled cobbles is located adjacent to the southwestern corner of the platform.

A 1.25 by 0.75 m test unit (TU-5) was excavated into the surface of Feature A, perpendicular to the long axis of the platform. This excavation revealed an architectural layer (Layer I) over three deposits (Layers II-IV; Figure 60). Layer I consisted of 0.68 to 0.75 m of tightly a'a cobbles and pebbles. Cultural remains from Layer I consisted of several waterworn basalt cobbles and pebbles. The base of Layer I intruded slightly into the Layer II deposit and no evidence was found to indicate that Layer I had been built during more than a single construction episode.

Layer II was comprised of 0.15 to 0.24 m of a black loamy clay with 50% a'a cobble and pebble inclusions. Cultural remains from this deposit consisted of two fragments of unidentified marine shell (1.8 grams), fish bone (2.2 grams), charcoal (29.3 grams) and waterworn basalt pebbles. Most of the charcoal consists of burned *Pandanus* keys. A sample of charred *Pandanus* from the interface between Layers II and III produced a two sigma calibrated age range of AD 1415 to 1640 (Beta Sample 171428, Appendix A).

Layer III consisted of 0.22 to 0.24 m of a dark yellowish brown (10YR 4/4) silty loam with 20% cobble and pebble inclusions. No cultural remains were present. Layer IV was comprised of decomposing cinders in a light yellowish brown (10YR 6/4) silt matrix with no cultural remains present. The excavation of TU-5 was terminated 0.19 m into Layer IV.

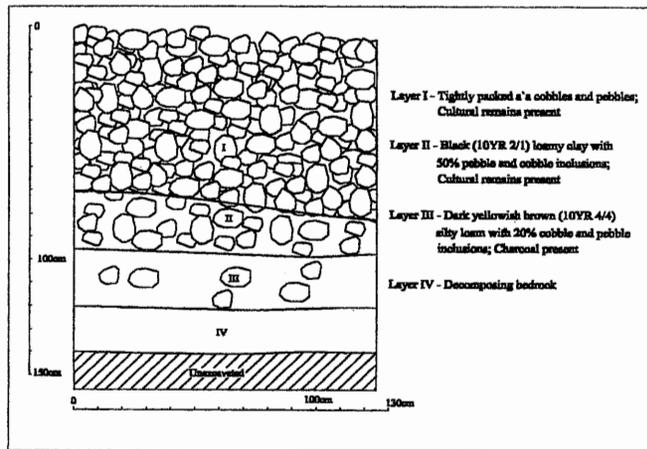


Figure 60. Site 5366, Feature A, TU-5 Northwest Face Profile



Figure 61. Site 5367 Wall, view to northwest

Two potential periods of occupation were identified during the excavation of TU-5. The Layer II deposit potentially represents the initial period of use, with the Layer I stone layer representing a subsequent building episode. Feature A is interpreted as a temporary habitation structure based on the lack of substantial construction and its small area (15.8 sq m). It is unaltered and in fair condition.

Feature B is located 16.5 m west-northwest of Feature A. A large boulder measuring 2.7 m long (north-south), 1.8 m wide and 1.18 m in height is located adjacent to the platform to the north. The platform is 3.75 m long (north-northwest by south-southeast) and 2.85 m wide. The surface of the feature is uneven cobbles and small boulders, sloping to the southwest. No cultural remains were identified on the surface of the structure, though a waterworn basalt cobble was observed on the ground surface adjacent to the platform to the east. Feature B is also assigned a temporary habitation function based on the lack of substantial construction and area (10.7 sq m). It is unaltered and in fair condition.

### Site 5367

Site 5367 is a network of stacked stones walls located north of the Site 5364 *heiau* complex. The walls were observed and roughly mapped by Pearson but were not assigned a feature designation (1970:33). The extent of the wall network as documented during the current study is illustrated in *Figure 12*. The wall originates on the seaward side of the Site 5340a trail, and extends 55.0 m to the southwest, forming the northern boundary of the Site 5364 *heiau* complex (see *Figure 43*). This section of wall terminates at the seaward side of the Feature D platform of Site 5364. The wall continues on the inland side of the platform, extending 10.0 m to the southwest, then angling in a roughly west-northwesterly direction for 59.0 m, where it meets an intersection. The Site 5363 complex is located to the south of this section (see *Figure 42*).

At the intersection, the wall splits, with one section extending to the southwest, and another continuing in a roughly north-northwesterly direction. The section to the southwest extends 23.5 m in this direction, then angles to the northwest before terminating. Site 5366 is located to the south and southwest of this wall section (see *Figure 59*).

The wall that extends to the north-northwest from the intersection continues in this direction for 16.8 m where a prepared opening is present. Site 5368 (discussed below) is located on the seaward side of this 1.5 m wide opening. The wall continues on the northern side of the opening for 30.5 m to where it abuts a second intersection. One section extends to the southeast from this intersection, and the other continues to the northwest. The southeastern section extends 13.0 m in this direction, terminating above the inland end of the Site 5372 cave system (discussed below). The northwestern section extends 43.2 m in this direction, where it intersects a perpendicularly oriented wall. The Site 5374 complex (discussed below) is located on the seaward side of this wall section (see *Figure 79*) and the Site 5371 (discussed below) enclosure is located on the inland side.

The wall continues past the perpendicular wall intersection for 15.5 m where it terminates. The perpendicular wall extends to the southwest and northeast from the intersection. The southwestern section extends in this direction for 132.0 m where it exits the project area. The wall continues in this direction outside of the parcel an undetermined distance. The northeastern portion of the perpendicular wall extends for 58.0 m, terminating 15.0 m inland of the Site 5340a trail and the Site 5375 overhang (discussed below).

This network of walls appears to have formed several large enclosures. The first enclosure is potentially delineated by Site 5367 to the west and south, and by the Site 5365 wall to the northwest. This possible enclosure may have encompassed an area of as much as 5,250 sq m. The Site 5362 habitation enclosure is situated within this larger enclosure.

A second enclosure formed by the Site 5367 walls contains the Site 5371 enclosure (discussed below). The portion of this possible enclosed area within the project area may have measured 6,990 sq m, continuing out of the parcel to the southwest. A final enclosure potentially formed by the Site 5367 walls may have contained Sites 5368, 5369, and 5372-5374 (discussed below). Site 5367 may have formed the

northwest and southwest sides of this enclosure, with Site 5365 forming the southeastern side. This potential enclosure may have measured as much as 6,395 sq m in area.

The Site 5367 walls are relatively uniformly constructed, built of stacked a'a cobbles and small boulders. Large sections of the walls have collapsed, although intact sections vary in width from 1.0 to 1.3 m at the base, 0.7 to 0.9 m wide at the top and from 0.75 to 1.3 m in height. The interior of the intact wall sections are generally core-filled with small cobbles, and are faced. Examples of the Site 5367 wall segments are illustrated in *Figures 61* and *62*. The walls are altered and in poor to good condition.

The wall complex probably functioned to control cattle based on the wall heights and construction. The three large enclosures probably served to keep cattle out of habitation areas. This would potentially date habitation use to the early 1800s when free-ranging cattle became a problem.

### Site 5368

Site 5368 is a sparse pavement of small waterworn pebbles located on the seaward side of a 1.5 m wide break in the Site 5367 wall (discussed above), and 68 m west-southwest of Site 5365. The pavement encompasses an area 4.1 m long (north-south) by 3.0 m wide (*Figure 63*). No other cultural remains were present. Site 5366 potentially represents the remnants of a habitation site.

### Site 5369

Site 5369 is a pavement located in a pandanus grove, 22.0 m east-northeast of Site 5370 (discussed below). The southern wall of the Site 5372 cave is located 4.0 m to the north of the pavement. The pavement is rectangular in shape and is 3.75 m long (northeast by southwest) and 1.4 m wide. It is comprised of flat waterworn basalt cobbles (*Figures 64* and *65*). The cobbles are set in the ground, ranging in height from 0.06 to 0.1 m. A large waterworn cobble is located 1.15 m to the southwest from the pavement. A possible grinding slick is present on the top of the cobble, measuring 0.17 m long, 0.1 wide and 0.03 m deep (*Figure 66*).

A linear alignment of waterworn cobbles is present 2.8 m to the north of the pavement. This alignment is 5.25 m long and is oriented parallel to the pavement. These cobbles are also set into the ground (0.08 to 0.1 m in height) and are spaced 0.26 to 0.65 m apart. The area between the pavement and the alignment is a level, dark loamy soil. No cultural remains were observed.

Site 5369 is interpreted as a permanent habitation. The pavement itself is smaller than a typical permanent habitation (5.25 sq m). However it is likely that this pavement may have served as a lanai for a pole and thatch structure situated to the north. The alignment of cobbles may have formed the northern boundary of this structure, which indicates an overall area for the site of 21.2 sq m. The pavement itself suggests substantial construction, which is another indicator of permanent habitation. The site is unaltered and in fair condition.

### Site 5370

Site 5370 is a collapsed section of wall located above the inland end of the Site 5372 cave (discussed below) and seaward of the Site 5367 wall. The wall is situated in an area of dense pandanus and is built of piled a'a cobbles and small boulders. It is 7.6 m long (north-northeast by south-southwest), 1.0 to 1.3 m wide and 0.3 to 0.45 m in height (*Figure 67*). It is possible that this wall originally extended further to the southwest, connecting to the northern side of the Site 5367, though this area does not appear to have been disturbed. The feature is altered and in fair condition.

### Site 5371

Site 5371 is a large U-shaped enclosure located between several sections of the Site 5367 wall network, 36.0 m west of Site 5369. The enclosure is open at the north-northeast end, although it may have originally extended further in this direction, connecting to Site 5367 (see *Figure 12*). The enclosure is 19.2 to 23.4 m long (north-northeast by west-southwest) and 14.6 m wide. The northern wall is relatively intact,



Figure 62. Site 5367 Wall, view to northwest



Figure 63. Site 5368 Sparse Pavement, view to northwest

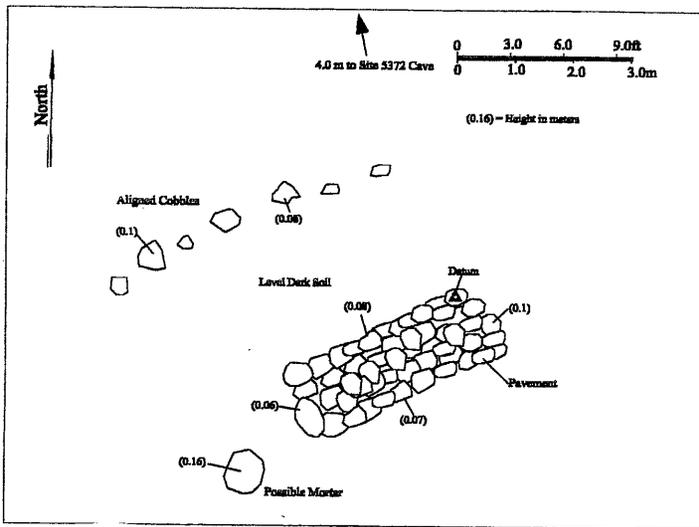


Figure 64. Site 5369 Plan Map



Figure 65. Site 5369 Pavement, view to northeast



Figure 66. Site 5369 Possible Mortar, view to southwest



Figure 67. Site 5370 Wall, view to northeast

built of stacked a'a cobbles and small boulders, with faced sides and a narrow core-filled interior of small cobbles. This wall ranges in height from 0.6 to 0.85 m. The west and south walls are collapsed, and vary in width from 1.0 to 1.4 m and in height from 0.3 to 0.5 m. It is possible that stones from the structure were taken to build the Site 5367 wall. No cultural remains were identified. Site 5371 is interpreted as a permanent habitation based on the substantial construction of the walls (faced sides). It potentially functioned to enclose a yard for a pole and thatch roofed structure. Site 5371 is altered and in poor to fair condition.

## Site 5372

Site 5372 is a large cave complex located in an area of vertical basalt cliffs, inland of the Site 5340a trail. The site was previously identified by Pearson as Feature 21 (1970:13-14). The site consists of a collapsed, open lava tube that originates along the coastal cliffs and extends 40 m to the west, where a large cave is located (Figure 68). The sides of the collapsed tube consist of vertical basalt faces that range in height from 2.2 to 3.6 m above the floor. There are six features associated with the site, consisting of three walls that extend across the collapsed, open tube (Features A, B and E), two small caves located on the south (Feature C) and north (Feature D) sides of the tube, and the main cave at the west end of the tube (Feature F). The site is unaltered and in relatively good condition.

Feature A is a linear wall that originates at the southern side of the collapsed tube and which extends 5.25 m to the north-northeast to where it encounters an a'a boulder. The wall then angles to the north-northwest for 3.8 m (Figure 69). The area to the north consists of scattered cobbles, which extend from the intact wall to the northern side of the tube. The wall is built of stacked and piled a'a cobbles and small boulders, ranging in width from 1.0 to 1.2 m and in height from 0.4 to 0.8 m. Feature A may have functioned as a defensive feature in conjunction with the Feature B and E walls, or may have served to keep livestock out of the cave.

Feature B is a second wall, located 13.2 m west of Feature A. This wall extends across the open tube, from the northern cliff face 7.3 m, terminating at the dripline for the Feature C cave. Feature B is collapsed throughout most of its length. It is 2.0 to 2.7 m wide and 0.35 to 0.7 m in height (Figure 70).

Feature C is low cave located along the southern side of the open tube. 12.0 m long (west-northwest by east-southeast) with dripline heights that range from 1.0 to 1.1 m (Figure 71). The interior of the cave is roughly oval-shaped and is 11.9 m long (east-west) 1.4 to 4.6 m wide. The interior ceiling heights vary from 1.1 to 1.6 m. There is a rough pavement of a'a pebbles located on the floor of the cave, encompassing an area 4.5 m long (east-west) by 1.75 m. Several *Nerita* shells were scattered over the surface of the pavement. Cobbles and small boulders are scattered on the remainder of the cave floor, with several waterworn basalt cobbles present.

There is a raised shelf at the southeastern end of the chamber, measuring 2.4 m long, 1.0 m wide and 0.7 m in height above the floor. A large *Cellana (opihii)* shell rests on the surface of the shelf. A small passage is located at the southwestern end of the main chamber. This passage is 1.45 m long (northeast by southwest), 0.65 m wide and 1.1 m in height. Two human teeth were observed within this chamber in a small niche. The presence of the cultural remains and pavement within Feature C indicate that it was utilized for habitation. In addition, the human teeth indicate a possible burial function.

Feature D is a small cave located along the northern side of the open tube, inland of the Feature B wall and seaward of Feature E. The entrance to the cave consists of an opening at the base of the vertical basalt face that is 1.8 m wide and 0.75 m in height (Figure 72). The entrance opens onto a chamber that slopes down to the north, which is 4.3 m long (north-south) and 2.6 to 4.1 m wide. The interior ceiling height averages 0.7 m. The floor of the chamber is comprised of a level soil deposit with four waterworn basalt pebbles, a *kukui* nut shell, and two *Cellana* shells. The presence of cultural remains within the cave indicates a habitation function.

Feature E is a well-built stacked cobble and small boulder wall located 6.4 m west of the Feature B wall. The wall originates against the northern side of the open tube and extends 3.5 m to the south. This portion of the wall is 1.0 m wide and 0.7 to 0.9 m in height. There is a 1.5 m wide faced opening in the wall

Figure 68. Site 5372 Plan Map

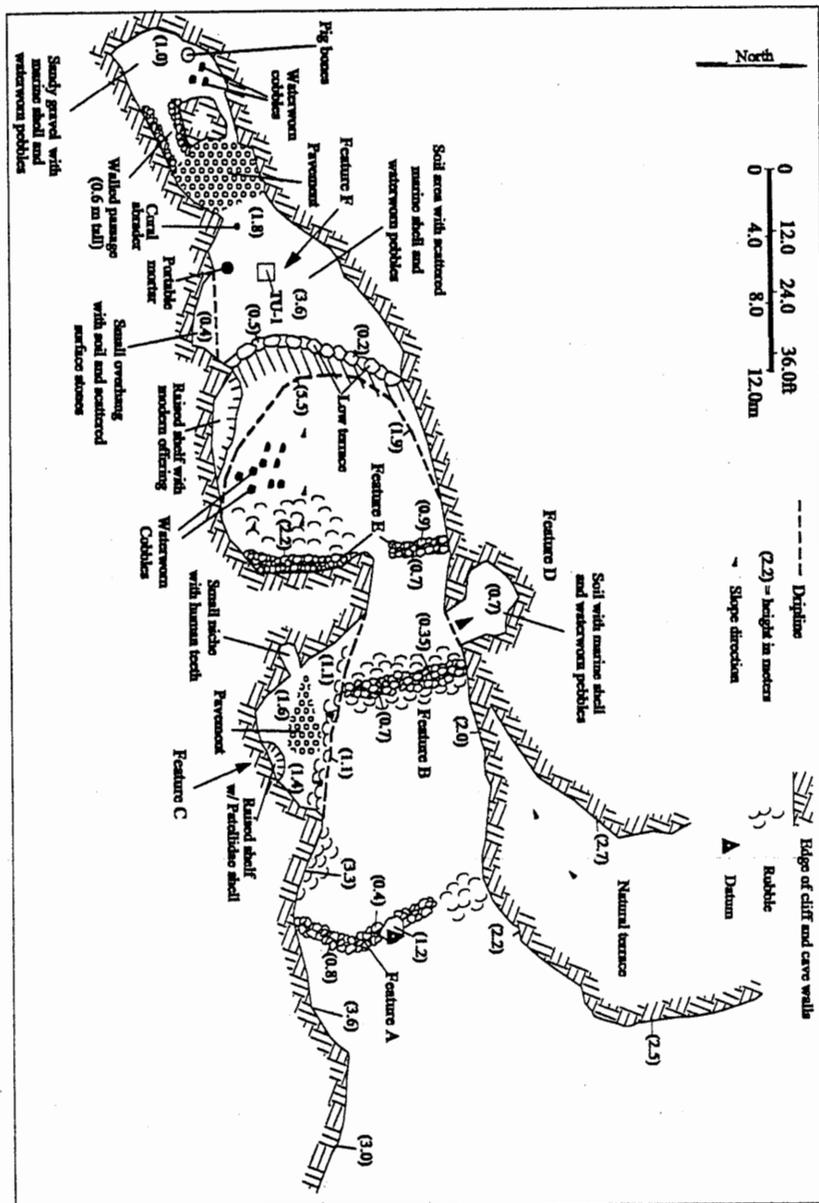




Figure 69. Site 5372, Feature A Wall, view to south



Figure 70. Site 5372, Feature B wall, view to south



Figure 71. Site 5372, Feature C Cave, view to west



Figure 72. Site 5372, Feature D Cave, view to northwest

at the southern end of the first section. The wall continues 7.3 m to the south from the southern side of the opening. This portion of the wall has been constructed against the western side of a vertical outcrop. It varies in width from 0.6 to 1.0 m and in height from 1.4 to 2.2 m (Figure 73). The narrow, restricted opening in the wall, which leads to the Feature F main cave, may indicate a defensive function because it would have limited access to one person at a time.

Feature F is the main cave located at the western end of the collapsed, open tube. The area outside of the cave entrance, west of the Feature E wall, slopes slightly to the west. A scatter of waterworn basalt cobbles is located at the southern end of this area. The entrance into the cave is U-shaped, measuring 12.8 m wide and 1.9 to 5.5 m in height. The entrance opens onto a large, irregularly-shaped chamber that is 18.5 m long (east-northeast by west-southwest) 11.1 m wide with ceiling heights ranging from 1.8 to 3.6 m (Figure 74).

There is a low terrace extending across the floor of the chamber at the seaward end, 1.5 to 3.8 m west of the dripline. The terrace retaining wall is located along the western side, ranging in height from 0.9 to 0.5 m above the main cave floor. It is built of one to two courses of cobbles and small boulders. The surface of the terrace is level soil. A raised shelf formed by a natural outcrop is situated at the southern end of the terrace. The shelf is 2.2 m in height and contains a small waterworn cobble set upright.

The floor of the cave, inland from the terrace consists of a level soil deposit with scattered marine shells (*Cellana*, *Cypraea*, *Drupa*), waterworn basalt pebbles, and a coral abrader. A small overhang extends to the south, along the southern side of the main chamber. The overhang is 6.4 m wide and 0.4 m in height, with soil and scattered surface stones. A basalt mortar is situated to the north of the entrance to this overhang. Pearson identified this mortar as a whetstone (1970:13). The mortar consists of waterworn basalt boulder that is 0.55 m long, 0.48 m wide and 0.24 m in thickness (Figure 75). There are two bowl-shaped grinding facets on the surface of the boulder. The larger facet is 0.33 m in diameter and 0.07 to 0.08 m in depth. The second facet is 0.23 m long, 0.1 m wide and 0.02 m in depth. A third, slight facet abuts the second, measuring 0.1 m in diameter by 0.01 m in depth. The first two facets each contained a waterworn cobble; however, these cobbles were not present during Pearson's (1970) examination and presumably are recent additions.

There is a pavement of a'a and waterworn cobbles and pebbles located at the western end of the main chamber. This pavement is 4.4 m long (north-south), 4.1 m wide, and extends across the entire chamber in this area. Scattered *Cellana* and *Cypraea* shells were present on the surface of the pavement.

There is a narrow, walled passage at the southwestern end of the main chamber that extends 5.15 m to the west-southwest (Figure 76). This passage is 0.8 to 1.0 m wide, 0.6 m in height, with stacked a'a cobbles and small boulders along each side. The passage opens onto a chamber that is 4.1 m long (north-south), 3.45 m wide and 1.0 m in height. The floor of this chamber is a black sandy gravel with scattered waterworn basalt pebbles and *Cellana* shells. Several larger waterworn cobbles and scattered pig bones are present at the northern end of the chamber. A narrow passageway extends from the northeastern corner of this chamber 2.9 m to the east, opening back onto the main Feature F cave. The passage is 0.5 m wide and 0.35 m in height.

Subsurface testing was undertaken within the Feature F cave during the study. A 1.0 by 1.0 m test unit (TU-1) was excavated into the soil area north of the basalt mortar. This excavation revealed a deposit of a black (10YR 2/1) loamy sand (Layer I) over a deposit of tightly packed cobbles (Layer II), over bedrock (Figure 77). Layer I ranged in depth from 0.61 to 0.83 m. Three pockets of a very pale brown (10YR 8/3) fine ash were encountered within the Layer I deposit. These pockets appear to represent subsurface hearth features. The first deposit was situated in the southwestern corner of the unit at 0.13 to 0.18 m below surface. It measured 0.11 m long, 0.1 m wide and 0.05 m in thickness. The second pocket was observed in the northwestern corner of the unit, at depths of 0.12 to 0.19 m below surface. It was 0.29 m long, 0.25 m wide and 0.07 m in thickness. The final ash deposit extended across the base of the unit 0.73 to 0.82 m below the surface. This deposit was situated directly on the surface of the Layer II stone deposit.



Figure 73. Site 5372, Feature E Wall, view to east



Figure 74. Site 5372, Feature F Cave, view to east

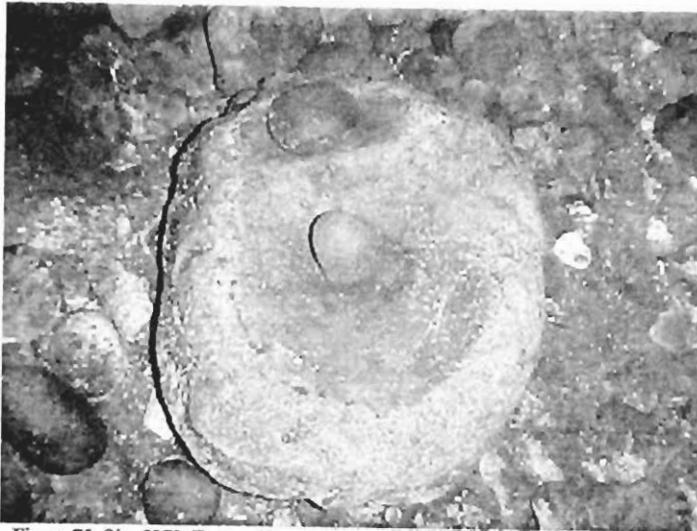


Figure 75. Site 5372, Feature F, Basalt Mortar, view to east

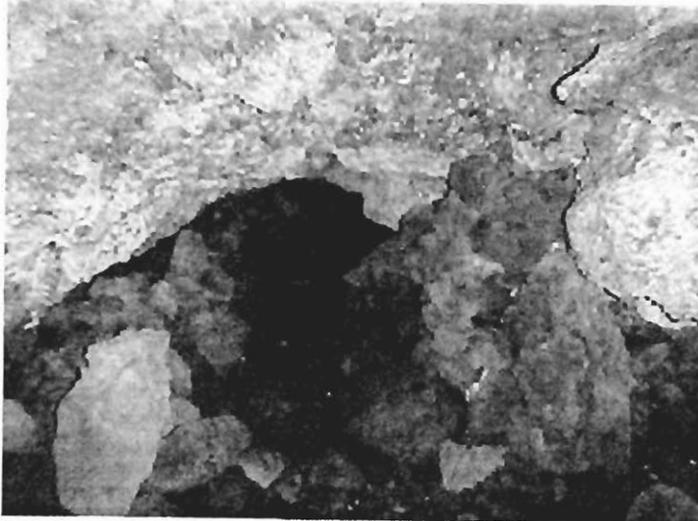


Figure 76. Site 5372, Feature F, Walled Entrance to Rear Chamber, view to east

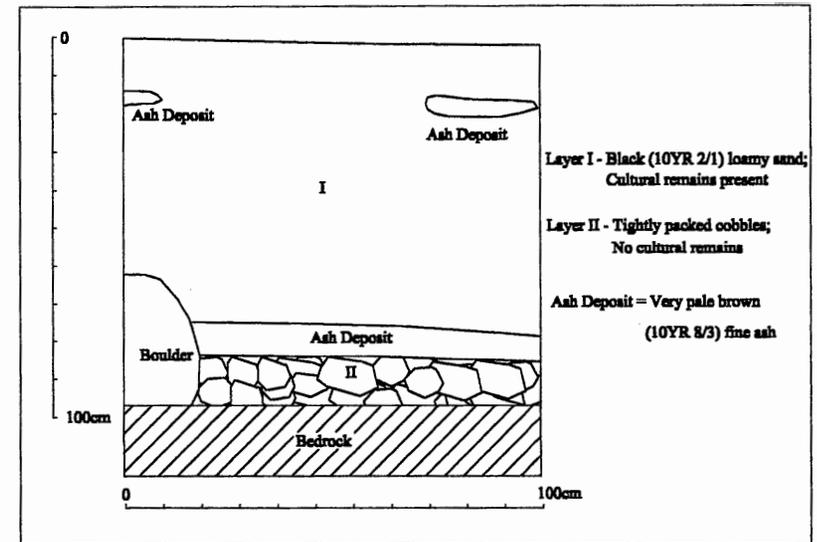


Figure 77. Site 5372, Feature F, TU-1 West Face Profile

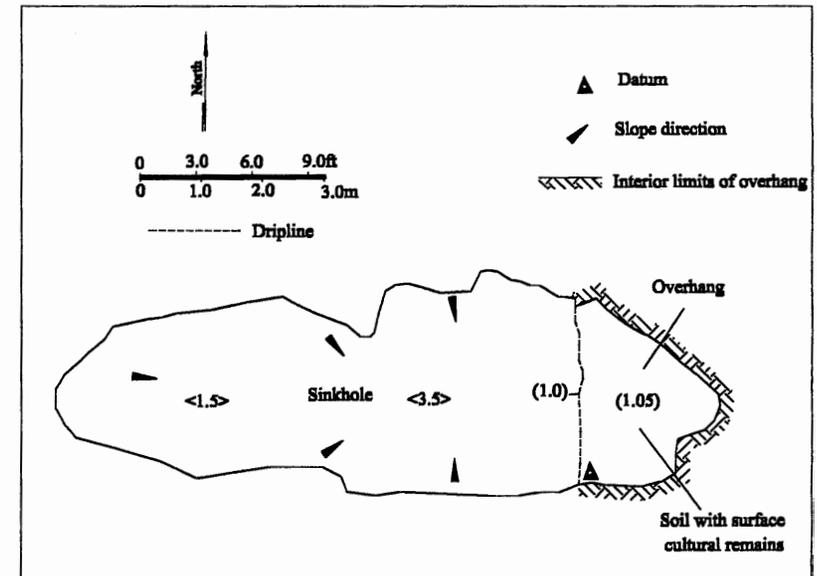


Figure 78. Site 5373 Plan Map

A variety of cultural remains were recovered from the Layer I deposit. A total of 1,588.1 grams of food shell remains were collected (Table 4). These remains were comprised of a variety of marine shell and sea urchin. Additional cultural remains recovered from Layer I consisted of mammal bone (dog teeth, n=2, 2.9 grams, unidentified mammal bone, n=1, 0.4 grams, and charred mammal bone, n=1, 0.8 grams), fish bone (*Scaridae*, n=3, 4.1 grams, and unidentified bone, n=8, 15 grams), and five unidentified bird bone fragments (3.3 grams). A total of 55.4 grams of charcoal were recovered. A piece of charred *Pandanus* key from the deepest ash deposit was submitted for radiometric age determination, yielding a two-sigma calibrated age range of AD 1285-1405 (Beta No. 171429, Appendix A).

A variety of artifacts were also collected from Layer I (Table 5). These artifacts consists of six basalt flakes, two basalt cores, two basalt adze flakes, six pieces of basalt shatter, a piece of polished basalt, a volcanic glass core, three volcanic glass flakes, a shell fishhook perform fragment, a *Conus* shell adze, a coral abrader, four coral file tips, two modified dog teeth, three pieces of modified bone, eight bone picks, and a fragment of cut wood.

The Layer II stone deposit consisted of 0.12 to 0.15 m of tightly packed cobbles directly over bedrock. These stones appear to have been naturally deposited. No cultural remains were present.

Caves are generally classified as temporary habitations; however, the numerous modifications noted at the site (walls, pavements) and the variety of cultural remains observed may indicate that more permanent occupation. It is also possible that Site 5372 may also have been utilized as a defensive or refuge position. The three walls that extend across the open tube (Features A, B and E) may have fortified the cave and protected the main Feature F chamber. The small rear chamber at Feature F evidenced a walled, restricted entrance typical of refuge fortifications. A possible burial was also observed at the site, evidenced by the human teeth noted in Feature C.

### Site 5373

Site 5373 is an overhang located within a collapsed sinkhole north of the Site 5372 complex and south of a Site 5367 wall segment. The location of this site appears to correspond to Pearson's Feature 22 (1970). The sinkhole is roughly oval in shape and is 8.5 m long (east-west), 2.5 to 3.65 m in width and 1.5 to 3.5 m in depth below the surrounding ground surface (Figure 78).

The overhang is located at the eastern end of the sinkhole. The entrance into the overhang is 2.9 m wide and 1.0 m in height. The interior is irregularly-shaped and is 2.9 m long (north-south), 2.3 m wide and 1.05 m in height. The floor inside the overhang consists of a level soil deposit with scattered marine shell (*Cypraea*, *Nerita*, and *Cellana*), waterworn basalt pebbles, and a fish vertebrae. Site 5373 is interpreted as a temporary habitation based on its formal type and the presence of cultural remains. The site is unaltered and in good condition.

### Site 5374

Site 5374 is a complex of four features located on a gentle slope that angles to the northwest, adjacent to the Site 5372 cave complex to the north. The site is comprised of three low terraces (Features A, B and C) and an alignment of waterworn cobbles (Feature D) situated in a pandanus grove inland of the Site 5340a trail. The four features are unaltered and in fair condition.

Feature A is a rectangular terrace located at the northern end of the site (Figure 79). It is 10.6 to 11.5 m in length (northeast by southwest) and 6.45 m wide. The northeast and northwest sides of the feature are bordered by stacked a'a cobble and small boulder retaining walls that vary in height from 0.22 to 0.46 m in height. The southwestern side of Feature A is bordered by the Feature D alignment and the southeastern side is bordered by the Feature B terrace and the base of a natural slope.

The surface of Feature A consists of a level pavement of a'a cobbles and pebbles. No cultural remains were observed. A 0.5 by 0.5 m test unit (TU-6) was excavated into the surface of Feature A in its southwest corner. This excavation revealed a single deposit of loosely packed a'a cobbles and pebbles

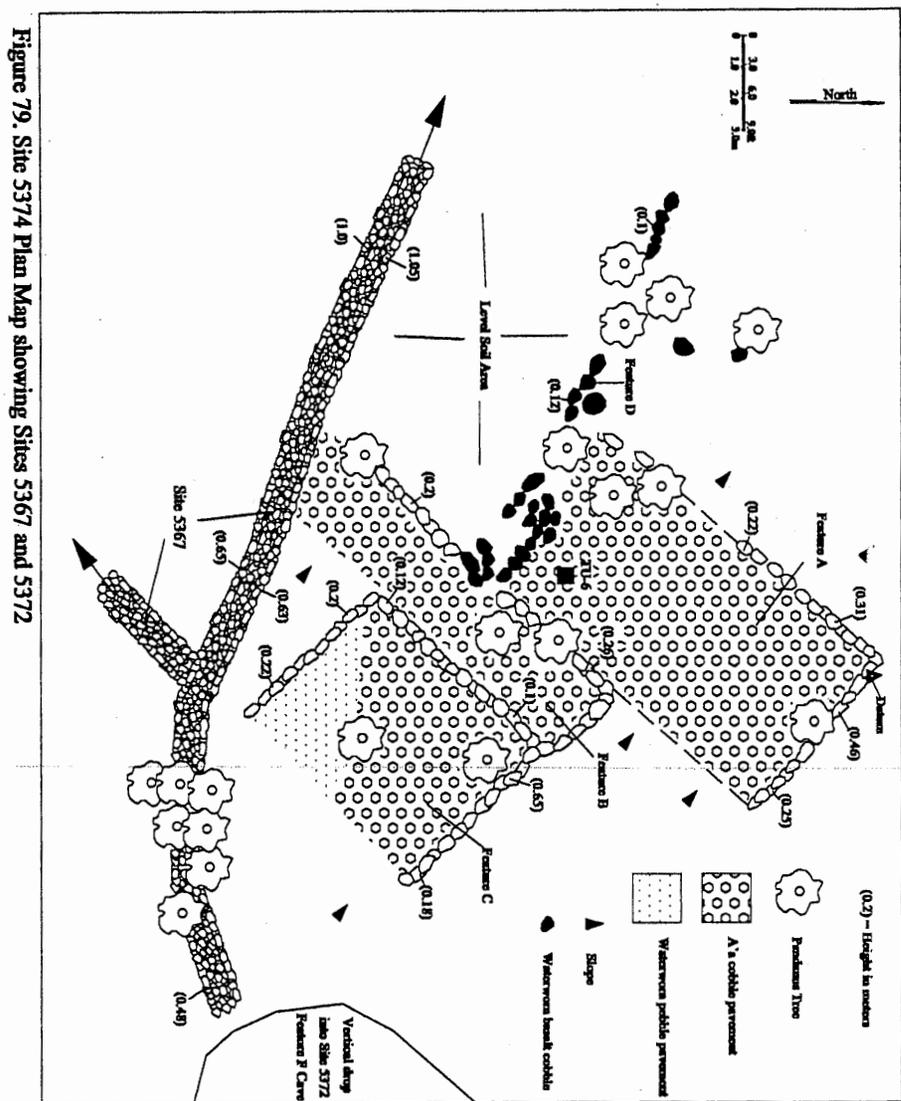
Table 4. Marine Invertebrates from Site 5372, Feature F, TU-1

Taxon	Layer-Level Depth (cm)	I-1 surface	I-2 10-20	I-3 20-30	I-4 30-40	I-5 40-50	I-6 50-60	I-7 60-70	I-8 70-80	I-9 85-95	I-9 95-100
<b>Pelecypoda</b>											
<b>Arcidae</b>											
<i>Arca</i> sp.							2.1			3.5	
<b>Isognomonidae</b>											
<i>I. Californicum</i>		0.2	0.4		0.1			0.2	0.6	0.3	
<i>I. Pena Linnaeus</i>		0.4					0.3				0.5
<b>Pteridae</b>											
<i>Pinctada margaritifera</i>		4.0									
<b>Tellinidae</b>											
<i>Tellina palatam</i>											
<b>Gastropoda</b>											
<b>Chamidae</b>											
<i>Chama iostoma</i>									1.4		
<b>Conidae</b>											
<i>Conus</i> sp.		7.2				3.5	20.3		2.3	4.4	
<b>Cypraeidae</b>											
<i>C. caputserpens</i>		19.2					4.9		4.8	3.8	
<i>C. chnesis amiges</i>			2.2								
<i>C. helvola</i>		7.8	1.8		3.3	3.4					
<i>C. maculifera</i>		2.2									
<i>C. scura</i>						0.6					
<i>Cypraea</i> sp.		11.2	19.2	2.7	29.6	3.8	3.0	6.3	34.6	6.1	
<b>Littorinidae</b>											
<i>Littoraria pinctada</i>	1.1	10.5	1.8	0.9	5.1	3.8			2.6		0.5
<i>Nodilittorina picta</i>				0.2	0.3			0.2			
<b>Melampidae</b>											
<i>Castaneus</i> sp.		0.5	0.1	0.2	0.1	0.2					0.3
<b>Mytilidae</b>											
<i>Brachidontes crebristratus</i>				0.1							
<b>Neritidae</b>											
<i>Nerita picea</i>	4.2	99.7	6.4	7.3	18.0	21.5	1.7	5.7	9.8	3.1	
<b>Patellidae</b>											
<i>Cellana</i> sp.		78.5	47.1		16.8	21.7					
<i>Cellana melanostoma</i>		10.7	0.8		11.2						
<i>Cellana exarata</i>								0.3			
<i>Cellana sandwicensis</i>	80.7	234.9	109.0	25.1	39.9	92.3	19.8	37.8	21.9	19.6	
<i>Cellana talcosa</i>	5.8	20.8	3.7	4.5	6.1	5.5	0.3	4.6	5.3	3.1	
<b>Planaxidae</b>											
<i>Planaxis labiosa</i>	1.1	27.5	0.9	15.0	11.3	10.0	1.5	3.6	0.6		
<b>Ranellidae</b>											
<i>Cymatium hepaticum</i>				4.0							
<b>Thaididae</b>											
<i>Drupa</i> sp.		10.0	7.9	5.1	4.6	3.3	3.1	2.8	1.7		
<i>Drupa rubusidaeus</i>	2.4	7.8			3.7		2.0	8.3			
<i>Drupa morum</i>		2.5	10.4						1.9		
<i>Morula ricina</i>	2.3	10.6	1.7	0.5	1.0	5.6		0.5	1.7		
<i>Purpura aperta</i>			2.3	0.3	0.1	1.3		0.4			
<b>Trochidae</b>											
<i>Trochus intextus</i>										1.1	
Unidentified	3.0	7.7	1.8	3.3	11.3	2.0					3.5
Echinoidea Shell		0.5			0.3			0.4	1.7		
Echinoidea Spine		3.6		0.4	1.2	3.6	0.3	2.3	2.8	1.0	
<b>Total</b>		<b>100.6</b>	<b>578.0</b>	<b>217.5</b>	<b>69.6</b>	<b>167.5</b>	<b>206.0</b>	<b>31.9</b>	<b>84.9</b>	<b>95.1</b>	<b>37.7</b>

Table 5. Artifacts from Site 5372, Feature F, TU-1

Layer I level	Depth (*)	Material	Description	Weight	Length	Width	Thickness
0	surface	basalt	shatter	29.5	5.6	3.5	1.1
1	10-20	dog tooth	modified	1.1	2.3	0.8	0.5
1	10-20	bone	modified	1.9	4.3	1.0	0.5
1	10-20	bone	pick	0.5	4.6	0.5	0.5
1	10-20	bone	pick	0.2	3.1	0.2	0.2
1	10-20	wood	cut piece	0.9	3.0	2.5	0.3
1	10-20	basalt	shatter	9.5	3.6	2.9	1.0
1	10-20	basalt	flake	9.4	4.9	2.4	1.9
1	10-20	basalt	core	25.6	4.0	3.1	1.8
2	20-30	bone	cut piece	2.8	0.6	0.3	0.6
2	20-30	shell	fishhook	1.6	0.8	0.2	0.4
2	20-30	coral	file tip	0.3	1.3	0.9	0.5
2	20-30	coral	file tip	1.1	1.4	1.5	0.9
2	20-30	coral	file tip	0.2	0.8	0.7	0.7
2	20-30	coral	file tip	2.4	1.9	2.1	1.2
3	30-40	vol. glass	flake	1.2	0.7	0.3	0.3
4	40-50	bone	modified	2.8	1.0	0.3	1.0
4	40-50	vol. Glass	core	0.7	1.1	1.0	0.5
4	40-50	vol. glass	flake	0.4	0.9	0.5	0.1
5	50-60	dog tooth	cut piece	0.3	1.5	0.4	0.4
5	50-60	bone	pick	3	2.5	0.3	0.3
5	50-60	bone	pick	0.1	2.7	0.1	0.1
5	50-60	vol. glass	flake	0.9	1.5	1.0	0.3
6	60-70	bone	pick	0.1	2.5	0.2	0.2
6	60-70	basalt	flake	8.2	4.0	2.9	0.7
7	70-85	shell	adze	4.1	2.7	1.5	0.5
7	70-85	coral	abrader	46.1	5.5	3.7	3.4
8	85-95	basalt	flake	21.6	4.4	4.1	0.9
8	85-95	basalt	shatter	11.1	4.2	3.7	0.7
8	85-95	basalt	flake	2.8	3.8	1.7	0.4
8	85-95	basalt	shatter	4.7	3.7	1.8	0.5
8	85-95	basalt	core	91.2	5.8	4.6	2.4
8	85-95	basalt	pecking stone	177.4	6.4	4.5	3.3
8	85-95	basalt	modified	28.1	3.7	2.0	0.9
8	85-95	basalt	flake	35.1	7.7	5.1	0.8
8	85-95	basalt	flake	2.5	2.8	1.3	0.5
8	85-95	basalt	adze flake	2.1	2.2	1.5	1.6
8	85-95	basalt	adze flake	2.2	2.7	1.7	0.3
8	85-95	basalt	polished pc.	0.9	2.2	1.0	0.2
8	85-95	bone	pick	0.2	2.8	0.4	0.4
8	85-95	bone	pick	0.2	3.0	0.3	0.3
8	85-95	bone	pick	0.3	2.5	0.4	0.4
9	95-100	basalt	shatter	4.6	3.9	1.1	0.8
9	95-100	basalt	shatter	1.9	3.0	1.9	0.3

\*centimeters below datum



within a black (10YR 2/1) loamy sand soil matrix (Figure 80). This deposit extended from the surface of the terrace to depths of 0.39 to 0.42 m below surface. Cultural remains from this deposit consisted of 17.3 grams of fragmented *Celana* shell, 2.5 grams of charcoal, a basalt flake (3.45 cm long, 2.5 cm wide, 1.1 cm thick, 10.2 grams), and approximately 100 small waterworn pebbles. Nine small metal grommets were also recovered from the upper 0.05 m of the test unit. The grommets measure 0.9 cm in diameter. The excavation of TU-6 was terminated on the bedrock substrate.

Feature A is interpreted as a permanent habitation based on its area (71.2 sq m) and substantial construction (paved surface). It is possible that this terrace may have functioned as a men's house based on its large area following Cordy (1981).

Feature B is situated adjacent to the upslope (southeastern) side of Feature A. A low a'a cobble and small boulder retaining wall extends along the northeast and northwest side of the terrace, ranging in height from 0.2 to 0.26 m. Several waterworn basalt cobbles associated with the Feature D alignment are incorporated into the northwestern retaining wall. The southwestern side of the terrace abuts the northern side of a section of the Site 5367 wall network. The southeastern side abuts the Feature C terrace and the base of a slight slope.

Feature B is rectangular in shape and is 12.15 m long (northeast by southwest) 2.85 m wide. The surface is roughly paved with a'a cobbles and pebbles. No cultural remains were observed. Feature B is also interpreted as a permanent habitation based on its substantial construction (paved surface) and area (34.6 sq m). This terrace may have functioned as an open lanai area between Features A and C.

Feature C is a rectangular terrace located upslope of Feature B to the southeast. Retaining walls extend along the northwest, northeast and southwest sides of the feature, ranging in height from 0.1 to 0.65 m. The upslope, southeastern side of the feature abuts the side of a natural slope. The terrace is 7.65 m long (northeast by southwest) and 5.85 m wide. The surface throughout the majority of the terrace is comprised of a pavement of level a'a cobbles and pebbles; however, the southwestern corner of the structure is comprised of a pavement of waterworn basalt pebbles. No cultural remains were present on the surface of Feature C. This terrace is interpreted as a permanent habitation based on its substantial construction (paved surface) and area (44.7 sq m).

Feature D consists of a roughly linear alignment of waterworn basalt cobbles located to the southwest of Feature A and to the northwest of Feature B. The alignment extends from Feature B 13.9 m to the northwest, with the stones placed one to four courses in width. The area to the southwest of the alignment is comprised of level soil and it is possible that Feature D may have been forming a border for this soil area. No cultural remains were present. Feature D is interpreted as an ancillary feature of undetermined function, based on its association with the terrace features.

### Site 5375

Site 5375 is an overhang situated along the coastline adjacent to a set of stone stairs that extends down a vertical basalt face. The overhang was previously identified by Pearson as Feature 16 (1970). The main entrance into the overhang is 6.05 m long (northeast by southwest) and from 1.7 to 2.2 m in height (Figure 81). A large floor to ceiling outcrop is located at the northeastern end of the main entrance, with a second, small entrance located above the stone steps. This small entrance is 0.25 to 0.5 m wide and 0.4 m in height. The interior of the overhang is irregularly-shaped and is 8.75 m long (northeast by southwest) and 0.5 to 3.0 m wide, with interior ceiling heights ranging from 0.65 to 1.4 m. There is a low bedrock outcrop located in the approximate center of the overhang, which divides the interior into an upper and lower compartments.

The floor of the overhang is comprised of a thin soil deposit over bedrock. Modern debris (aluminum cans, plastic bottles), marine shell (*Nerita*, *Celana*, *Cypraea*), and waterworn pebbles are scattered throughout the floor of the overhang. A modern firepit with partially burnt wood and ash is located at the southwestern end of the overhang and a concentration of glass bottles and ceramic fragments are situated adjacent to the firepit to the west. Site 5375 is interpreted as a temporary habitation based on its formal type

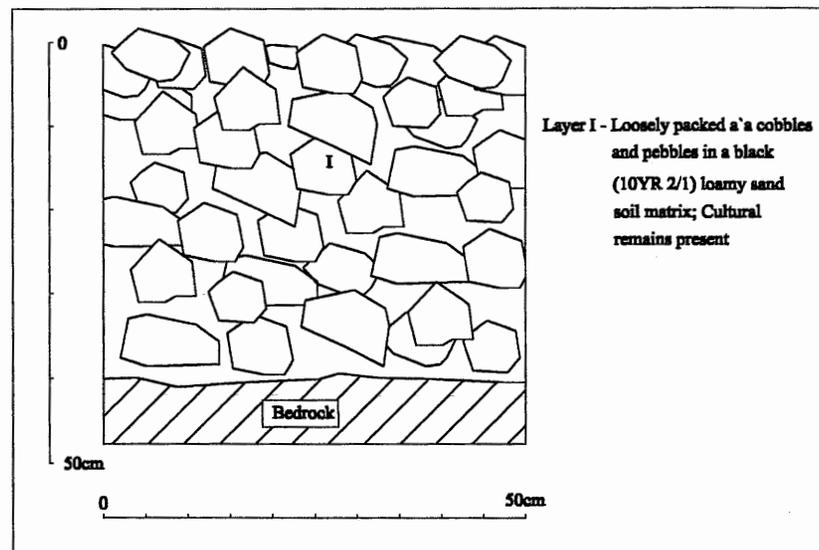


Figure 80. Site 5374, Feature A, TU-6 North Face Profile

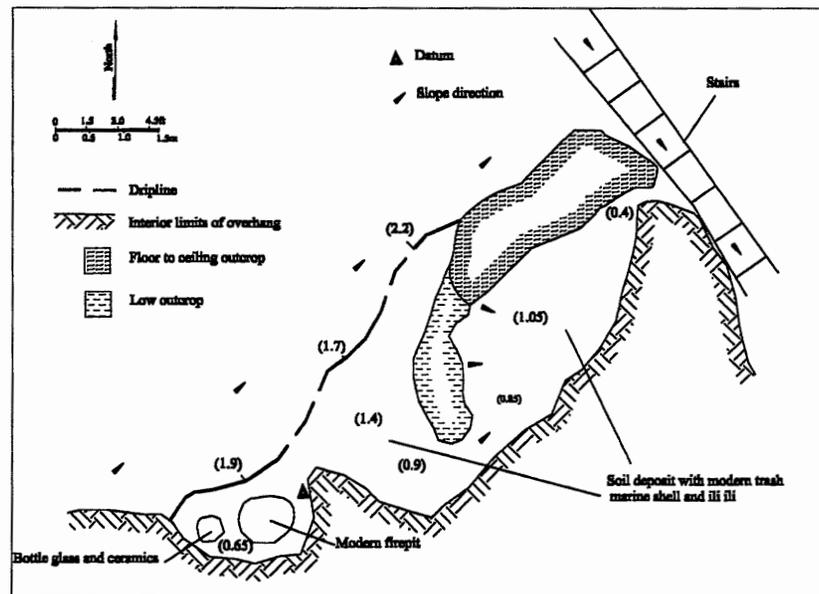


Figure 81. Site 5375 Plan Map

ence of marine shells. The modern debris and the firepit indicates that the overhang is still in use. The site is unaltered and in fair condition.

### Site 5376

Site 5376 consists of two examples of rock art located on a coastal, vertical basalt face, in the vicinity of the stone stairs. Feature A of this site is comprised of a pictograph made of red ocher, located 15.2 m southeast of the base of the stairs, on a basalt cliff face that faces the west. This feature was previously noted by Pearson as Feature 23 (1970). The image is located 1.12 m above ground surface and is comprised of an anthropomorphic figure that is 12 cm in height and 4.5 to 8 cm wide (Figures 82 and 83). One arm of the image is angled upwards and the other is angled down. Both legs are present. The image is unaltered and in good condition.

Feature B was identified during the current project. It consists of a petroglyph that has been pecked into a vertical basalt cliff, 3.2 m north-northeast of the base of the stairs. It is also an anthropomorphic image that is situated 1.45 m above the surrounding ground surface. The image is 17 cm in height and 9 to 12 cm wide (Figures 82 and 84). It consists of a complete torso with arms, legs and a head. Feature B is also unaltered and in good condition. The Site 5376 features are interpreted as rock art based on their formal types. While many petroglyphs have been documented throughout the Hawaiian Islands, pictographs are quite rare.

### Site 5377

Site 5377 consists of the disturbed remnant of an enclosure located adjacent to dirt, loop road to the southwest. The site is situated on a slight knoll that angles down to the southwest. The location of this enclosure roughly corresponds to Pearson's enclosure Feature 31, although Pearson indicates that it was located within the loop (1970). The enclosure has been disturbed since the time of the earlier survey, likely by road maintenance activity (Figure 85). Pearson (1970) indicates that the enclosure was originally rectangular in shape, with no apparent entrance. It appears that that the northwest, southwest and portions of the northeastern enclosure walls have been destroyed. The southwestern wall and a section of the northeastern wall are relatively intact. It is built of stacked a'a cobbles and small boulders, measuring is 7.6 m long (northeast by southwest), 0.8 to 1.25 m wide and 0.35 to 1.15 m in height. A portion of the interior side of this wall is faced. An a'a boulder is situated to the north of the southwestern end of this wall.

The truncated northeastern wall is collapsed, ranging in width from 0.95 to 1.1 m wide and 0.35 m in height. A crude alignment of five small a'a boulders is located 1.8 m to the northeast, measuring 2.9 m in length (northeast by southwest).

There is an oval-shaped pushpile of stones and soil located between the intact wall sections and the loop road. It is 6.0 m long (northeast by southwest), 1.35 m wide and 0.4 to 0.6 m in height. A clear glass Coca-cola bottle is present on top of the pushpile. The area between the pushpile and the intact walls is comprised of a level soil deposit with scattered surface stones. No cultural remains were observed.

Pearson indicates that the maximum length of the enclosure was 5.6 m, although no width is given (1970:22). The discrepancy in the length of the feature is likely the result of the disturbance to the site. Site 5377 is interpreted as a permanent habitation based on its formal type and substantial construction (faced wall). The original size of the structure is difficult to determine due to its current condition, although it is likely that it was at 20.0 sq m in area based on Pearson's description. The site is altered and in poor condition.

### Site 5378

Site 5378 is a complex of four features located in a dense pandanus grove 75.0 m south of the southwestern-most cabin at the park. The features are comprised of two enclosures (Features A and C), a modified outcrop (Feature B) and a mound (Feature D). The features are illustrated in Figure 86 and are described below. Site 5378 is unaltered and in poor to fair condition.

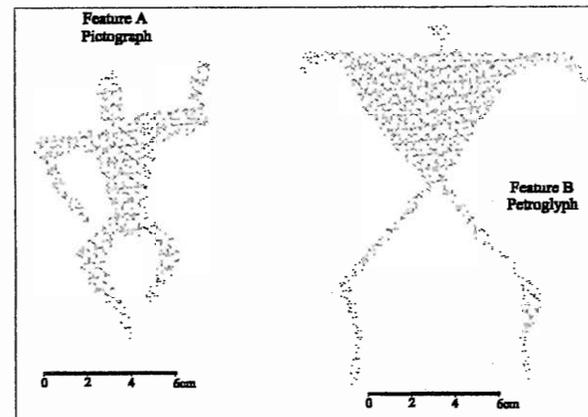


Figure 82. Site 5376 Pictograph and Petroglyph

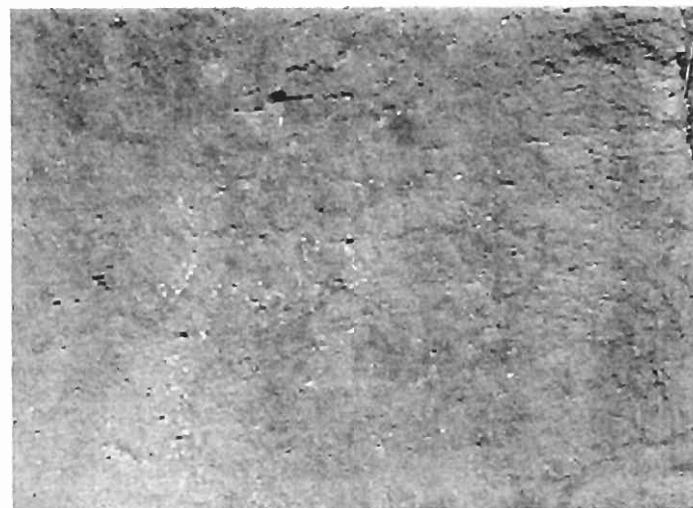


Figure 83. Site 5376, Feature A Pictograph, view to west

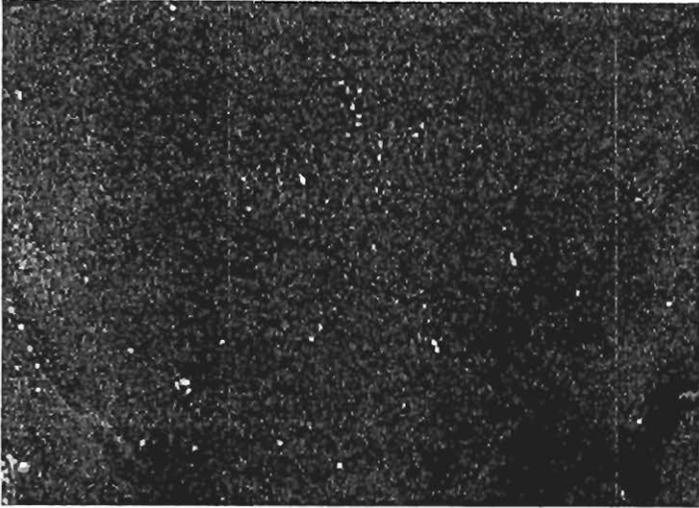


Figure 84. Site 5376, Feature B Petroglyph, view to west-southwest

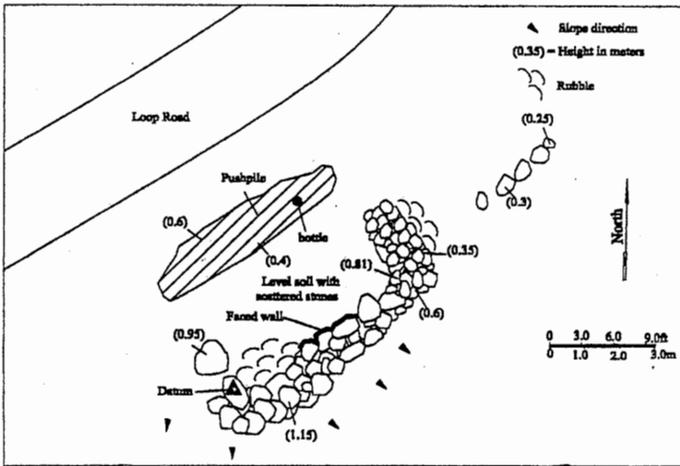


Figure 85. Site 5377 Plan Map

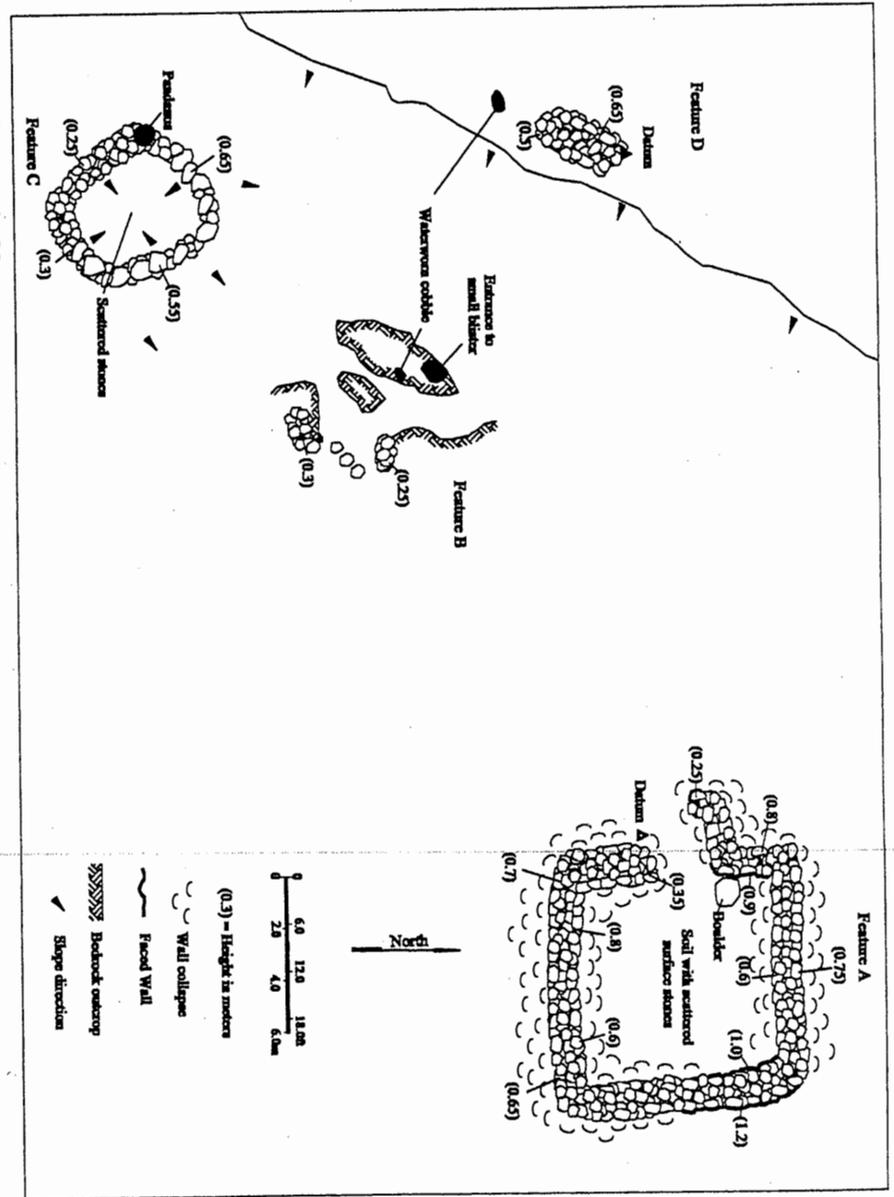


Figure 86. Site 5378 Plan Map

Feature A is a roughly square enclosure located at the northeastern end of the site. It is 10.6 m in length (east-west) and 9.8 m wide with walls built of stacked a'a cobbles and small boulders. There is a 2.1 m wide opening in the center of the western wall, with an L-shaped wall extension along the northern side. The extension wall is 2.1 m long (east-west) and 0.95 m wide. The majority of the enclosure walls have collapsed to the inside and outside, although intact sections are present, one at the northeastern end, and another along the interior side at the northwestern corner. The intact walls range in width from 1.3 to 1.4 m wide and 0.9 to 1.2 m in height. The collapsed walls are 1.5 to 2.0 m wide and 0.6 to 0.8 m in height. A large boulder is located inside the enclosure at the northern side of the entrance. The interior floor of the feature is comprised of a level soil deposit with scattered surface stones. No cultural remains were observed. Feature A is interpreted as a permanent habitation structure based on its formal type, substantial construction (faced walls) and area (103.8 sq m). It is likely that a pole and thatch roofed structure once existed within the enclosure, which defined a yard.

Feature B is an irregularly-shaped modified outcrop located 19.5 m to the southwest of Feature A. It consists of two piles of a'a cobbles and small boulders located on low outcrops. The first pile is 1.35 m long (east-west), 0.75 m wide and 0.25 m in height. The second is situated 3.05 m to the south. It is 1.95 m long (east-west), 0.95 m wide and 0.3 m in height. Scattered a'a cobbles are located on the ground surface between the two outcrops. An outcrop situated 2.85 m to the west of the modifications contains a small blister cave at the northern end, and a waterworn basalt cobble located on its surface. The entrance to the blister is 0.42 m long by 0.35 m wide with an internal space that is 0.95 m long (north-south), 0.72 m wide and 0.65 m in height. Soil is present inside the blister but no cultural remains were present. Feature B is interpreted as an agricultural planting feature based on its formal type and informal construction. The small blister may have been used as a storage feature.

Feature C is a crudely constructed oval-shaped enclosure located 10.5 m to the southwest of Feature B. It is 6.1 m long (northwest by southeast) and 5.2 m wide with walls comprised of aligned a'a boulders and piled cobbles. The walls range in width from 0.7 to 1.35 m and in height from 0.25 to 0.65 m. A large pandanus tree is growing in the northwestern corner. The interior of the enclosure slopes inward from the sides and contains scattered surface stones with no cultural remains present. Feature C is assigned an agricultural function based on its informal construction and absence of habitation debris. The feature may have been utilized as a planting enclosure designed to keep animals out.

Feature D is an oval-shaped mound situated on a low rise 10.5 m to the northwest of Feature B. The mound is 3.7 m long (north-northeast by west-southwest), 1.5 m wide, and 0.5 to 0.65 m in height. It is constructed of piled a'a cobbles and small boulders. A large waterworn basalt cobble is present 1.5 m to the southwest of the mound. No other cultural remains were present. Feature D is interpreted as an agricultural planting feature based on its formal type and informal construction.

### Site 5379

Site 5379 is a low stone mound located in a dense *hau* thicket, 55 m southeast of the Site 5380 wall (discussed below). The mound is irregularly-shaped and is 2.2 m long (northeast by southwest), 1.8 m wide, and 0.4 m in height. It is constructed of piled a'a cobbles and small boulders. No cultural remains were found in association with the mound. Site 5379 is interpreted as an agricultural feature based on its formal type and informal construction. The mound is unaltered and in fair condition.

### Site 5380

Site 5380 is a wall located to the northwest of the cabin area. This wall corresponds to Pearson's Feature 32 (1970). The wall originates 7.0 m inland of the Site 5340a trail to the south. It extends 72.0 m in a roughly southerly direction, to where it encounters the northern side of the paved access road leading to the cabin area. A 12.0 m wide section of the wall has been destroyed by the construction of the road. The wall continues on the southern side of the road, extending 140.0 m to the southwest where it exits the project area. The wall continues in this direction an undetermined distance. Site 5380 is constructed of stacked a'a cobbles and small boulders, ranging in width at the base from 0.9 to 1.1 m, at the top from 0.65 to 0.8 m, and in height from 0.6 to 1.4 m (Figure 87). The interior of the wall is narrowly core-filled with



Figure 87. Site 5380 Wall, view to southwest

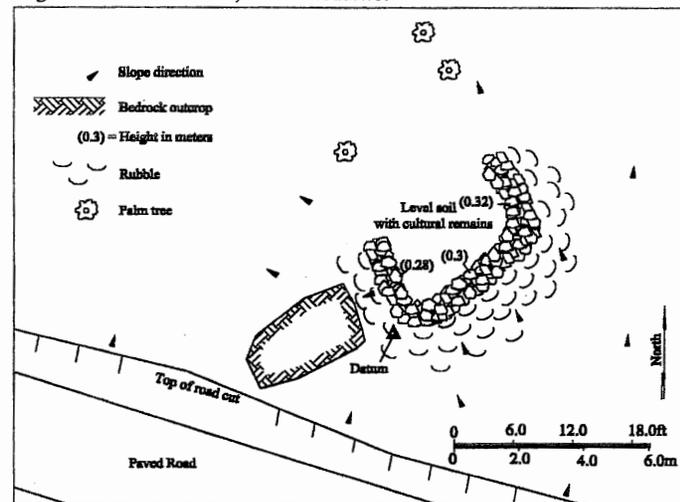


Figure 88. Site 5381 Plan Map

small cobbles. No cultural remains were found in association with the wall. Site 5380 is interpreted as a livestock control feature based on its height and method of construction. This wall, the Site 5387 wall and the inland wall of the Site 5388 enclosure (discussed below) potentially formed a large enclosure that contains Sites 5383-5386 (discussed below). This enclosure may have measured as much as 20,592 sq m in area. Site 5380 is altered and in fair to good condition.

### Site 5381

Site 5381 is the disturbed remnant of an enclosure located in a loop between the paved access road and the gravel roads leading to the cabins. This area appears to have been grubbed, evidenced by an adjacent road cut. The enclosure currently consists of a U-shaped wall that is 5.3 m long (northeast by southwest) and 3.4 m wide (Figure 88). The enclosure is open to the northwest. The walls are comprised of piled a'a cobbles and small boulders that vary in width from 0.85 to 0.95 m and in height from 0.28 to 0.32 m. The walls have collapsed to the outside. The interior of the enclosure contains a level soil deposit of a black loamy sand with scattered waterworn basalt pebbles and several sun-bleached marine shell fragments. Site 5381 is interpreted as the disturbed remnant of a permanent habitation structure based primarily on its area (18.0 sq m). Although no evidence of substantial construction was observed, the presence of the waterworn pebbles may indicate that an interior paving once existed. The site is altered and in poor condition.

### Site 5382

Site 5382 is a level, natural terrace located adjacent to the Site 5380 wall to the east and inland of Site 5340a trail. The terrace is formed by a low (0.38 to 0.4 m high) outcrop along the northern side, and the base of a natural slope to the south (Figure 89). A sparse pavement of waterworn basalt pebbles is located on the surface of the terrace, in an area 12.0 m long (east-west) by 9.1 m wide. No cultural remains were observed. Site 5382 is interpreted as a permanent habitation based on the presence of the pavement (substantial construction) and its area (109.7 sq m). It is possible that a pole and thatch roofed structure once existed on the pavement. The site has been potentially impacted by the construction of the cabins located to the southeast. The site is altered and in fair condition.

### Site 5383

Site 5383 is a small mound located north of the Site 5380 wall and inland of the paved access road. It is constructed of piled a'a cobbles and small boulders and is 1.3 m long (north-south), 1.0 m wide and 0.55 to 0.6 m in height (Figure 90). No cultural remains were present. Site 5383 is interpreted as an agricultural feature based on its formal type and informal construction. It is unaltered and in fair condition.

### Site 5384

Site 5384 is a complex of two adjacent enclosures located on the inland side of the paved road leading to the cabin area, on the northern side of an access road that leads to a warehouse. The site was previously documented by Pearson as Feature 33 (1970). The features are unaltered and in poor to fair condition.

Feature A is a roughly square-shaped enclosure situated 1.5 m northwest of the unpaved access road leading to a warehouse (Figure 91). It is 7.5 m in length (northwest by southeast) and from 6.3 to 7.6 m in width. There is no entrance into the interior. The walls are built of stacked a'a cobbles and small boulders with a core-filled interior. The walls of the enclosure are partially collapsed, though intact sections are present, ranging in width at the base from 0.9 to 1.1 m, at the top from 0.65 to 0.75 m and in height from 0.8 to 1.05 m. Portions of the interior walls along the southeast and northeast sides are faced. The interior of the enclosure is comprised of a level soil deposit with scattered surface stones. No cultural remains were observed.

A low terrace is constructed along the northeastern, exterior side of the feature, adjacent to the paved road to the southwest. The terrace appears to be modern and was likely built to prevent the enclosure wall from collapsing into the road. Feature A is interpreted as a permanent habitation based on its formal

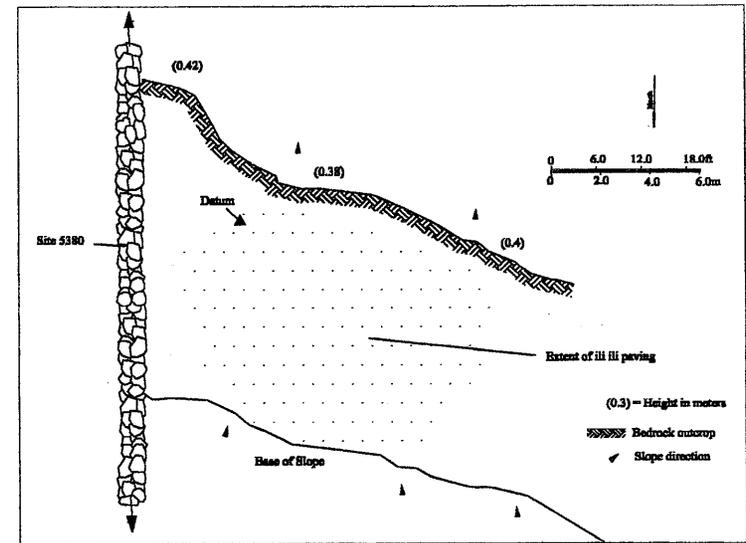


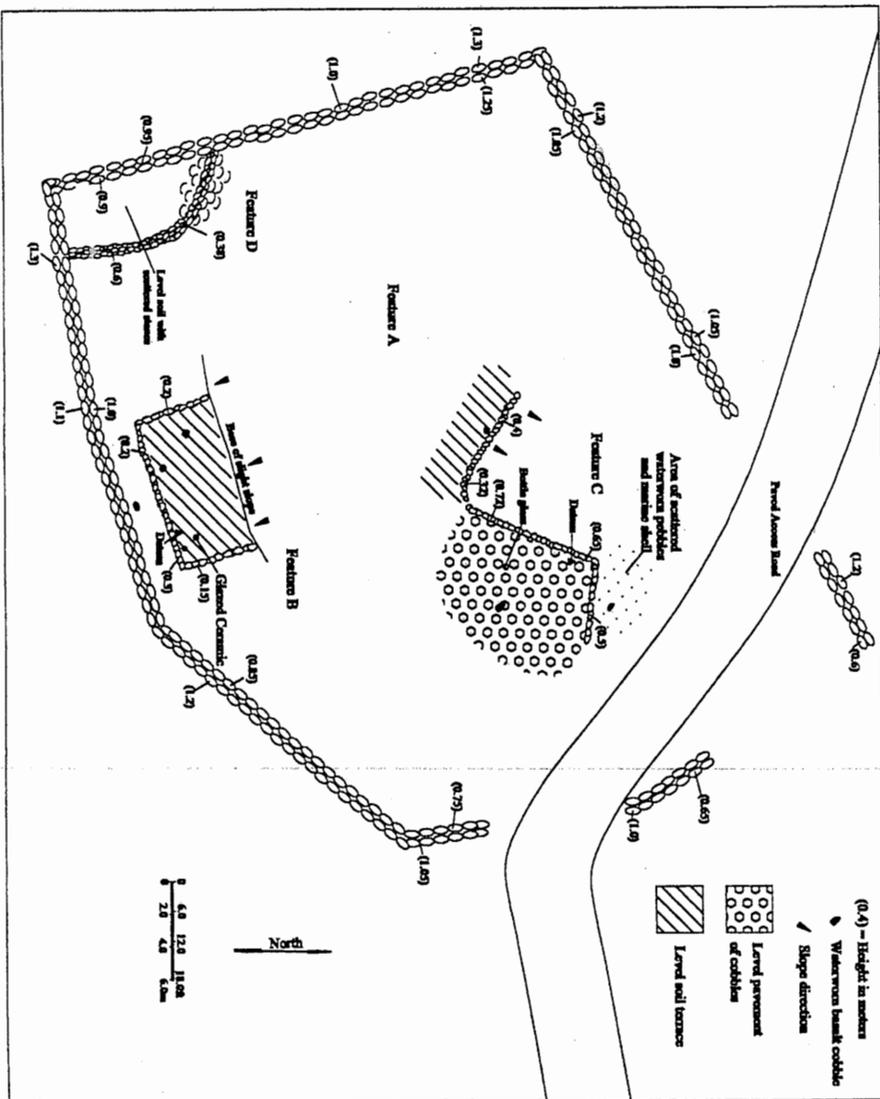
Figure 89. Site 5382 Plan Map



Figure 90. Site 5383 Mound, view to south



Figure 92. Site 5385 Plan Map



Feature C is interpreted as a permanent habitation structure based on its formal type, substantial construction (faced sides, paved surface) and its area (71.1 sq m). It is likely that this terrace served as the foundation for a pole and thatch roofed structure. The adjacent soil terrace may have functioned as an associated work or living area.

Feature D is a roughly rectangular enclosure located in the interior of the Feature A enclosure at the southwest corner. The west and south sides of Feature D are formed by the Feature A walls, varying in height from 0.9 to 1.3 m. The north and east sides consists of piled a'a cobbles and small boulder walls that range in width from 0.6 to 0.7 m and in height from 0.38 to 0.6 m. The northern end of the structure has collapsed to the inside and outside. The enclosure has no entrance and is 7.3 to 9.6 m long (north-south) and 4.6 m wide. The interior is comprised of a level soil deposit with scattered surface stones. No cultural remains were noted. Feature D is interpreted as an ancillary feature associated with the permanent habitation of Site 5385. The nature of the enclosure and the absence of an entrance may indicate that it functioned as an animal pen.

### Site 5386

Site 5386 is a complex of two features located in a wooded area 85 m south-southwest of Site 5385. The site is situated in a level area, above a slope that angles down to the west. The site is comprised of an enclosure (Feature A) and a terrace (Feature B; Figure 93). Feature A is a disturbed rectangular enclosure that is 7.8 to 8.8 m long (northeast by southwest) and 7.5 m in width. The walls are collapsed and consist of linear mounds of a'a cobbles and small boulders that range in width from 1.3 to 1.8 m and in height from 0.1 to 0.3 m. The interior is comprised of scattered surface stones. Several waterworn basalt cobbles were observed within and adjacent to the structure. Feature A is interpreted as the remnant of a permanent habitation enclosure based primarily on its size (57.6 sq m). No substantial construction was observed; however, this may be the result of disturbance to the site. It is altered and in poor condition.

Feature B is a terrace located adjacent to Feature A to the west. There is a stacked and piled a'a cobbles and small boulder retaining wall located along the western side of the terrace, above a slope that angles down to the west. The retaining wall is 0.5 to 0.7 m in width and 0.42 to 0.55 m in height. There is a level soil area on the upslope side of the retaining wall that is 8.3 m long (north-south) and 2.0 to 4.6 m wide, which abuts the inland side of the Feature A enclosure. A fragment of fine-grained basalt was observed on the surface of the terrace. No other cultural remains were present. Feature B is interpreted as an ancillary feature associated with the permanent habitation of the site, potentially functioning as a lanai area for the Feature A structure. Feature B is altered and in poor condition.

### Site 5387

Site 5387 is a stone wall located to the west of Site 5386, inland from the paved access road. The portion of the wall within the project area is 126.0 m in length, oriented in a north-northwest by south-southeasterly direction. The wall extends to the south-south west out of the parcel for 14.0 m where it has been bulldozed. It is likely that this wall once extended further in this direction, intersecting the Site 5380 wall. These walls and the inland wall of the Site 5388 enclosure (discussed below) appear to have formed a large enclosure that measured as much as 20,592 sq m in area. Site 5384-5386 are located within this large enclosed area. The wall also extends to the northwest out of the project area for 22.5 m where it also has been bulldozed. It is possible that the wall in this area may have formed the inland boundary of the Site 5389 enclosure (discussed below).

The wall is constructed of stacked a'a cobbles and small boulders, with a narrow core-filled interior of small cobbles. It is 1.0 to 1.4 m wide at the base, 0.75 to 0.95 m wide at the top, and 0.75 to 1.2 m in height (Figure 94). The wall is altered and in fair condition. No cultural remains were found in association with the wall. Site 5387 is interpreted as a livestock control feature likely designed to restrict the movement of cattle based on its height and method of construction.

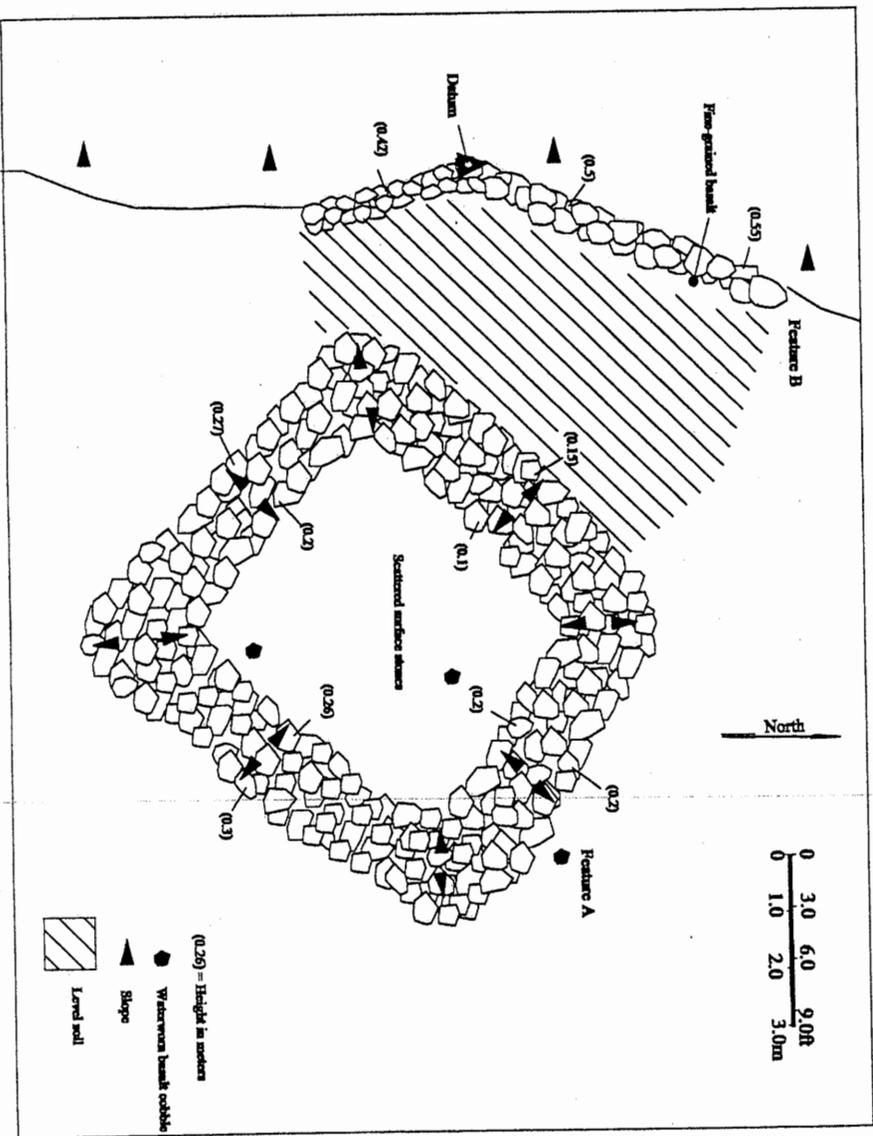


Figure 94. Site 5387 Wall, view to west



Figure 95. Site 5388, Feature A Enclosure Wall, view to south

## Sit 5388

Site 5388 is a complex comprised of a large enclosure (Feature A) with a smaller, internal enclosure (Feature B). The site is situated in a level, open pandanus grove, seaward of the paved access road, and inland of the Site 5340a trail. Pearson identified the north and south walls of this enclosure, designating them Features 26 and 27 (1970). The extent of the site is presented in *Figure 12*. The Feature A enclosure is open along the seaward side, inland of the Site 5340a trail. The northern wall of the enclosure originates seaward of the Site 5340a trail on the coastal escarpment. It extends 97.5 m to the southwest, where it intersects the inland, southwestern wall of the enclosure. The wall continues to the southwest from this intersection for 19.5 m to the seaward side of the paved access road. This wall likely once extended further inland, forming the northern boundary of the large enclosure discussed above.

The southwestern wall of Feature A extends to the southwest from the intersection for 13.0 m to where a 2.5 m wide prepared opening is encountered. The wall continues in this direction passed the opening for 51.5 m to where it angles to the northeast. The Feature B enclosure (discussed below) is located on the seaward side of the enclosure in this area. The southeast side of the enclosure extends for 41.5 m to the northeast, terminating on the inland side of the Site 5340a trail.

The Feature A enclosure walls are well-built, consisting of stacked a'a cobbles and small boulders, with core-filled interiors and faced sides. The walls vary in width at the base from 0.9 to 1.3 m, at the top from 0.6 to 0.9 m and in height from 0.9 to 1.55 m. An example of a section of the Feature A enclosure is illustrated in *Figure 95*. Feature A is interpreted as a permanent habitation enclosure, which likely functioned to delineate the boundaries of a yard. This is based on its formal type and substantial construction (faced walls). Feature A encompasses an area of 4,312 sq m. It is altered and in good condition.

Feature B is a roughly rectangular-shaped enclosure located in the southern end of the Feature A enclosure (see *Figure 12*). The northwest and southeast sides of the enclosure are constructed of stacked a'a cobbles and small boulders, with the southwestern side formed by the Feature A wall. The enclosure is open to the northwest. It measures 7.5 m long (northwest by southeast) and 5.1 m wide. The walls range in width at the base from 0.9 to 1.0 m, at the top from 0.55 to 0.65 m and in height from 0.65 to 0.75 m (*Figure 96*). Portions of the wall are faced. The interior is comprised of a level soil deposit with scattered surface stones. Feature B is interpreted as a permanent habitation structure based on its formal type, substantial construction (faced walls), and area (38.2 sq m). The enclosure likely served as the foundation for a roofed structure. It is unaltered and in fair condition.

## Site 5389

Site 5389 consists of a large enclosure located inland of the paved access road leading to the cabins, northwest of the Site 5385 complex. The enclosure is formed by one stone wall paralleling the access road, and by a second, perpendicular wall that extends along the southwest side of the park entrance road. The remainder of the enclosure is situated outside of the park boundaries to the southwest. The walls are constructed of stacked a'a cobbles and small boulders with a narrow core-filled interior. The walls range in width at the base from 0.95 to 1.1 m, at the top from 0.55 to 0.7 m and from 0.55 to 1.1 m in height. A portion of the Site 5389 wall bordering the access road is presented in *Figure 97*.

This enclosure was potentially once bordered along the inland southwestern side by a northern extension of the Site 5387 wall, and along the southeastern side by an inland extension of the northern wall of the Site 5388 complex. This suggests that the enclosure may have originally measured 133.0 m in length (northwest by southeast) and 92.0 m in width, encompassing an overall area of 12,236 sq m. Site 5389 is interpreted as a livestock control feature likely used to restrict the movement of cattle, based on its height and method of construction. It is also possible that permanent habitation features are located within the enclosure, outside of the park boundaries. Site 5389 is altered and in fair condition.



Figure 96. Site 5388, Feature B Enclosure, view to west



Figure 97. Site 5389 Enclosure Wall, view to southwest

## Site 5390

Site 5390 is an historic cemetery located in a level grassy area to the northeast of the main park facilities. The site was previously identified by Pearson as Feature 30 (1970). The cemetery is surrounded by a stacked a'a cobbles and small boulder walled enclosure that is 56.2 m long (northeast by southwest) and 26.3 m wide (Figure 98). The walls range in width from 0.7 to 0.9 m at the base and 0.55 to 0.7 m wide at the top. The walls range in height on the exterior of the enclosure from 0.9 to 1.15 m and 0.1 to 0.9 m in height on the interior. There is a 2.4 m wide entrance into the cemetery at the southwestern corner of the enclosure (Figure 99).

There is a smaller adjoining enclosure adjacent to the southern end of the main enclosure. This enclosure is 11.8 m long (northeast by southwest) and 5.6 m wide, with stacked cobbles and small boulder walls that range in width from 0.9 to 1.0 m at the base, 0.6 to 0.75 m at the top and 0.75 to 1.0 m in height. No obvious graves were observed within this enclosure, although several waterworn basalt cobbles are present.

The interior of the cemetery enclosure is comprised of a maintained lawn (Figure 100). Twenty-six graves are present within the cemetery (Table 6). The majority of the graves are comprised of rectangular, single course alignments of a'a cobbles (n=23). Of these, six are filled with crushed a'a cinders (Graves 1-3, 7, 16 and 19), 16 are filled with small waterworn pebbles (Graves 4, 6, 8, 11-14, 17, 18, and 20-26) and one contains both cinders and pebbles (Grave 15). The three remaining graves consist of concrete crypts (Graves 5, 8 and 10).

Seven of the 26 graves contain plaques or inscriptions that date the graves from as early 1927 to as recent as 1997. The 17 remaining graves contain no marker. During the survey, local resident Mr. Jimmy Perry was consulted and he indicated that his father and grandfather are buried within the cemetery and that many of the unmarked graves are those of Philippine and Portuguese plantation workers (personal communication - Sept. 12, 2002). Many of the graves also contained glass and plastic vessels for holding flowers, and one grave contained shell leis, marine shells, and a tin of surf wax (Grave 17).

A small, oval alignment of cobbles is located along the southeastern wall (Grave 27). It is 0.8 m long by 0.7 m wide and is filled waterworn pebbles. A waterworn basalt cobble with the word "Remember" is present inside the alignment along with marine shells and pebbles of waterworn coral. Due to its small size, it is unclear if this alignment represents an actual grave or a memorial of some sort.

There is a pile of crushed a'a cinders located to the southwest of the inland-most grave. This cinder pile is likely used in conjunction with the maintenance of the graves. There is a low terrace located at the inland end of the enclosure, formed by a 0.3 m tall retaining wall. The terrace is 10.8 m long (northwest by southeast) and 8.6 m wide, extending from the retaining wall to the inland wall of the cemetery enclosure. The surface is comprised of level grass. No graves are present in this area, though several waterworn basalt cobbles are present. Mr. Perry indicated that no one was buried in this location.

Site 5390 is an historic cemetery, which continues in use. Both the unmarked and marked graves are well maintained. The site is unaltered and in good condition.

## Site 5391

Site 5391 is a complex of two caves located on the coastal cliffs to the north-northwest of Site 5390. The location of this site roughly corresponds to the Feature 28 cave previously identified by Pearson, although the description presented in his report is too brief to determine if Feature 28 corresponds to either Feature A or B identified during the current study. The caves are located to the northeast and southwest of a narrow sea channel that extends inland from the ocean. The features are unaltered and in good condition.

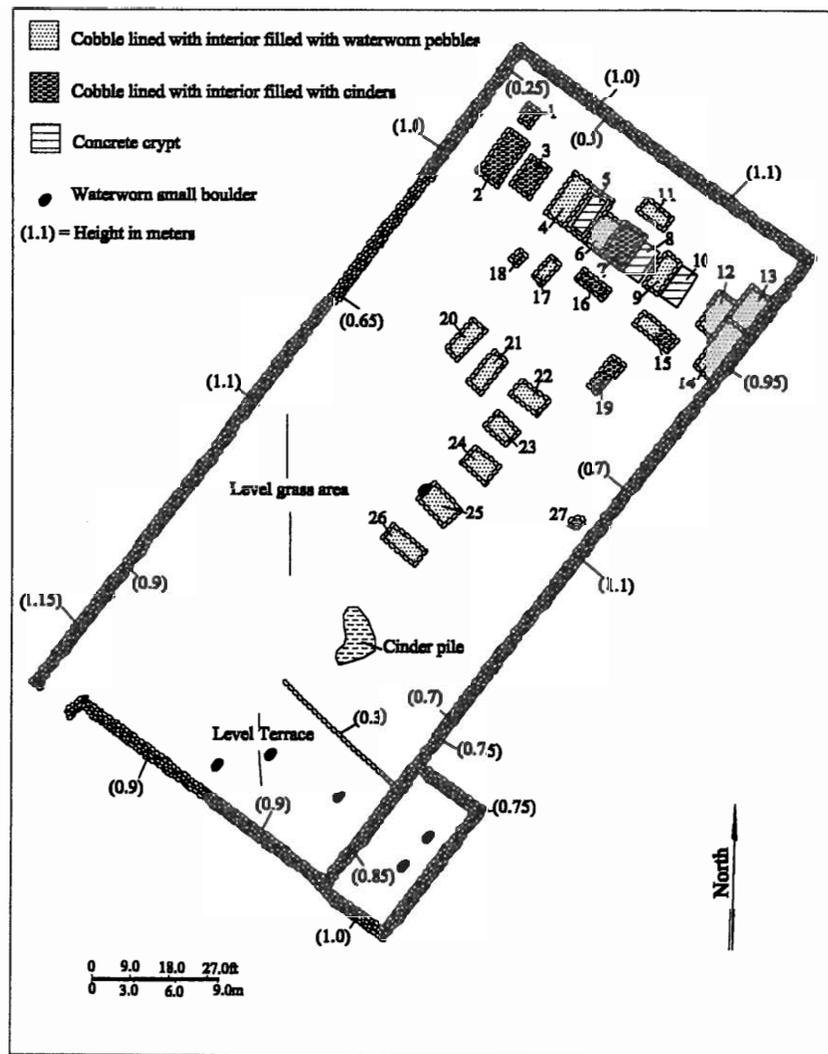


Figure 98. Site 5390 Historic Cemetery Plan Map

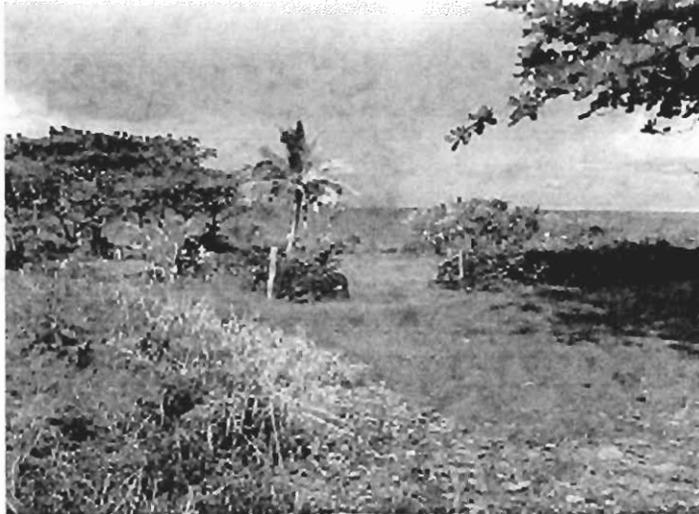


Figure 99. Entrance into Site 5390 Historic Cemetery, view to northeast



Figure 100. Interior of Site 5390 Historic Cemetery, view to northeast

Table 6. Summary of Site 5390 Cemetery Features

Grave No.	Construction	Comment
1	Rectangular alignment of a'a cobbles filled with cinders	Plaque with Inscription: "Jonnie May Milliani Librando - 3/17/92"
2	Rectangular alignment of a'a cobbles filled with cinders	Plaque with partially obscured Inscription: "Francis ? - 75 years old - 3/13/7"
3	Rectangular alignment of a'a cobbles filled with cinders	Plaque with Inscription: "Francis Kekaha Lono, Sr. - 9/26/07 - 04/25/90"
4	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
5	Rectangular alignment of a'a cobbles filled with waterworn pebbles with concrete crypt inside	Inscription on crypt: "Beloved Mother and Wife - Josephine Kaihukuani Kaihu Smith - 1871 - Nov 30 1946" - Plastic and glass jars present
6	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker - 3 glass jars present
7	Rectangular alignment of a'a cobbles filled with cinders	No marker - 1 glass jar present
8	Concrete crypt with rectangular base and raised pitched roof	Inscription on crypt: "Lindacy K. Makahilahila - B. Dec 11 1893 - D. July 21 1927"
9	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
10	2-tiered rectangular concrete crypt	No marker
11	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
12	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
13	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
14	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
15	Rectangular alignment of a'a cobbles filled with cinders and waterworn pebbles	No marker - glass jar present
16	Rectangular alignment of a'a cobbles filled with cinders	No marker - Plumeria tree planting - Glass jar present
17	Rectangular alignment of a'a cobbles filled with waterworn pebbles	White wooden cross with Inscription: "Benjamin Martin Perry - March 18, 1921 - May 18, 1995" Granite headstone at opposite end with photograph and Inscription: "Beloved Husband, Father and Papa - Forever in our Hearts" Marine shells, shell leis, surf wax and plastic and glass jars present
18	Rectangular alignment of a'a cobbles filled with waterworn pebbles	White wooden cross at one end - Granite headstone at opposite end with "Micah" spelled out in waterworn pebbles and Inscription: Micah Mateo Pu'uwai - March 11 1997 - March 18, 1997"
19	Rectangular alignment of a'a cobbles filled with cinders	No marker
20	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
21	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
22	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker - glass vase present
23	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
24	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
25	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker - Upright small waterworn boulder at northwest end
26	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
27	Small oval alignment of a'a cobbles filled with waterworn pebbles	Waterworn cobble with Inscription: "Remember" - Marine shell and waterworn coral present

Feature A is situated on the northeast side of the sea channel (Figure 101). The sea channel enters the cave at its southwestern end, and extends to the north-northeast through the eastern side of the chamber, exiting the cave at its northeastern end, and continuing below ground in this direction an undetermined distance. There is a raised shelf along the western side of the chamber that is 3.5 to 4.0 m in height above the water within the sea channel. An entrance into this portion of the cave is located at the southwestern end, consisting of an opening that is 4.0 m wide and 1.3 m in height (Figure 102). The shelf extends 8.9 m to the northeast and ranges in width from 1.15 to 5.4 m wide. A thin soil deposit with scattered waterworn pebbles and marine shell (*Cypraea*, *Drupa*, and *Conidae*) in the southwestern portion of the shelf, with a bare lava floor located at the northeastern end. A natural bridge extends 3.5 m to the southeast from the shelf, over the sea channel. Feature A is interpreted as a temporary habitation based on its formal type and the presence of cultural remains.

The Feature B cave is located 15.0 m north-northwest of Feature A, along the western side of the sea channel (Figure 103). The entrance into this cave is 6.0 m long (north-northwest by south-southeast and 1.5 to 1.8 m in height. The entrance opens onto a chamber that is 4.45 m long (east-west) and 2.3 to 2.8 m wide and 2.05 m in height (Figure 104). There is a thin soil deposit located on the floor in this area, containing scattered marine shell (*Cypraea*) and waterworn pebbles. There is a low ledge at the western end of this chamber that drops 0.45 m. Two passages extend from the western end of the entrance chamber. The first extends 9.5 m to the northwest where it ends at a small hole in the cliff face above the ocean. This chamber is 0.86 to 1.5 m wide and 0.5 to 1.3 m in height. The floor of this passage slopes down to towards the main entrance and is comprised of bare lava with no cultural remains.

The second passage extends to the west for 4.95 m to the ocean. The passage is 2.5 to 5.2 m wide and 1.4 m in height. The floor slopes down to the west and is covered with waterworn basalt cobbles and boulders. No cultural remains were observed. The opening onto the ocean at the western end is 5.7 m wide and 1.2 m in height. Feature B is also interpreted as a temporary habitation based on its formal type and the presence of cultural remains.

### Site 5392

Site 5392 is complex of interconnected walls located in the northwestern portion of the project area, in the area surrounding the main park facilities. These walls form a series of five enclosures (Figure 105). These walls were previously identified by Pearson (1970) but were not described or assigned feature designations. The extent of the walls as noted by Pearson (1970) is illustrated in Figure 11. Many of the wall sections have been destroyed by park construction activity since Pearson's (1970) study. The site is altered and in fair condition.

Feature A is the largest enclosure and contains Feature B, C and D. It is bordered by discontinuous walls along the northeast and southeast sides, and by a disturbed stone wall and the Feature D enclosure along the southwestern side. The Site 5397 cemetery (discussed below) is located at the northern end of the enclosure and the Feature E enclosure a wall along the northwest side. Feature A is 89.5 m long (northwest by southeast), 72.0 to 74.0 m wide, encompassing an overall area of 6,390 sq m. The walls are built of stacked a'a cobbles and small boulders, ranging in width from 0.9 to 1.1 m at the base, 0.65 to 0.9 m wide at the top and 0.55 to 1.05 m in height. The Feature A enclosure may have been further bisected by the low wall connecting Feature B and C (discussed below). The enclosure is interpreted as a permanent habitation, ancillary feature, which appears to have functioned as a yard surrounding other permanent habitation features at the site.

Feature B is a rectangular enclosure located within the large Feature A enclosure. The enclosure is 7.6 m long (northwest by southeast) and 5.4 m wide, with walls built of stacked a'a cobbles and small boulders. There is a 1.05 m wide gap in the enclosure at the southwestern corner, which may represent a prepared opening. The walls have collapsed to both the inside and outside of the enclosure, although intact sections are present. Several waterworn basalt cobbles have been incorporated into the walls, which range in width from 0.7 to 0.95 m and in height from 0.91 to 1.05 m on the outside and 0.55 to 0.7 m on the inside. The interior floor is comprised of a level soil deposit with *ti* plants and vines growing inside (Figure 106). No cultural remains were observed. Feature B is interpreted as a permanent habitation based on its

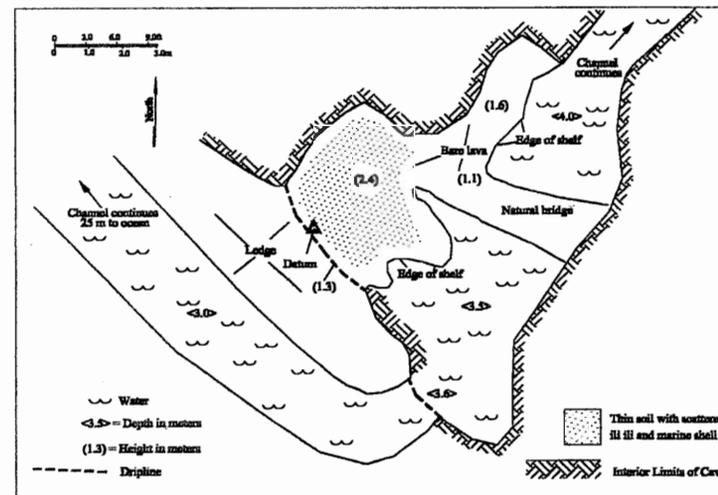


Figure 101. Site 5391, Feature A Plan Map

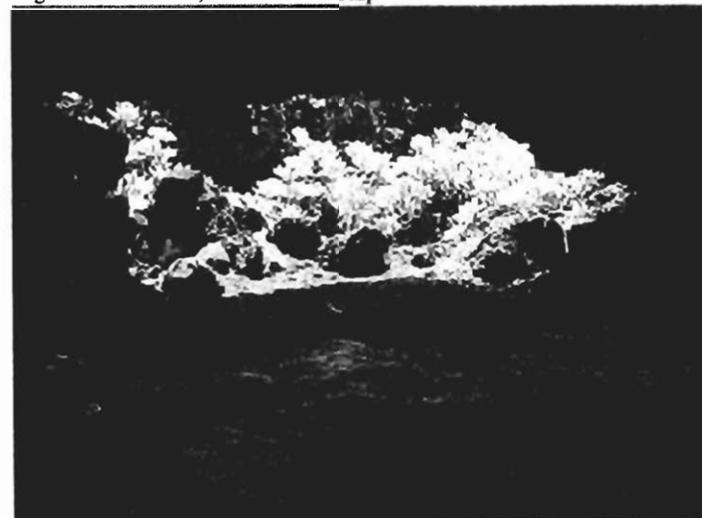


Figure 102. Site 5391, Feature A Cave, view to southwest

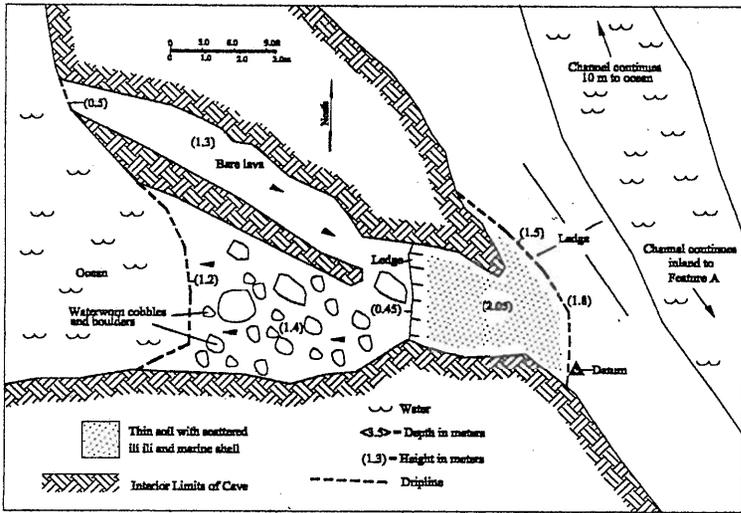


Figure 103. Site 5391, Feature B Plan Map



Figure 104. Site 5391, Feature B Cave, view to west

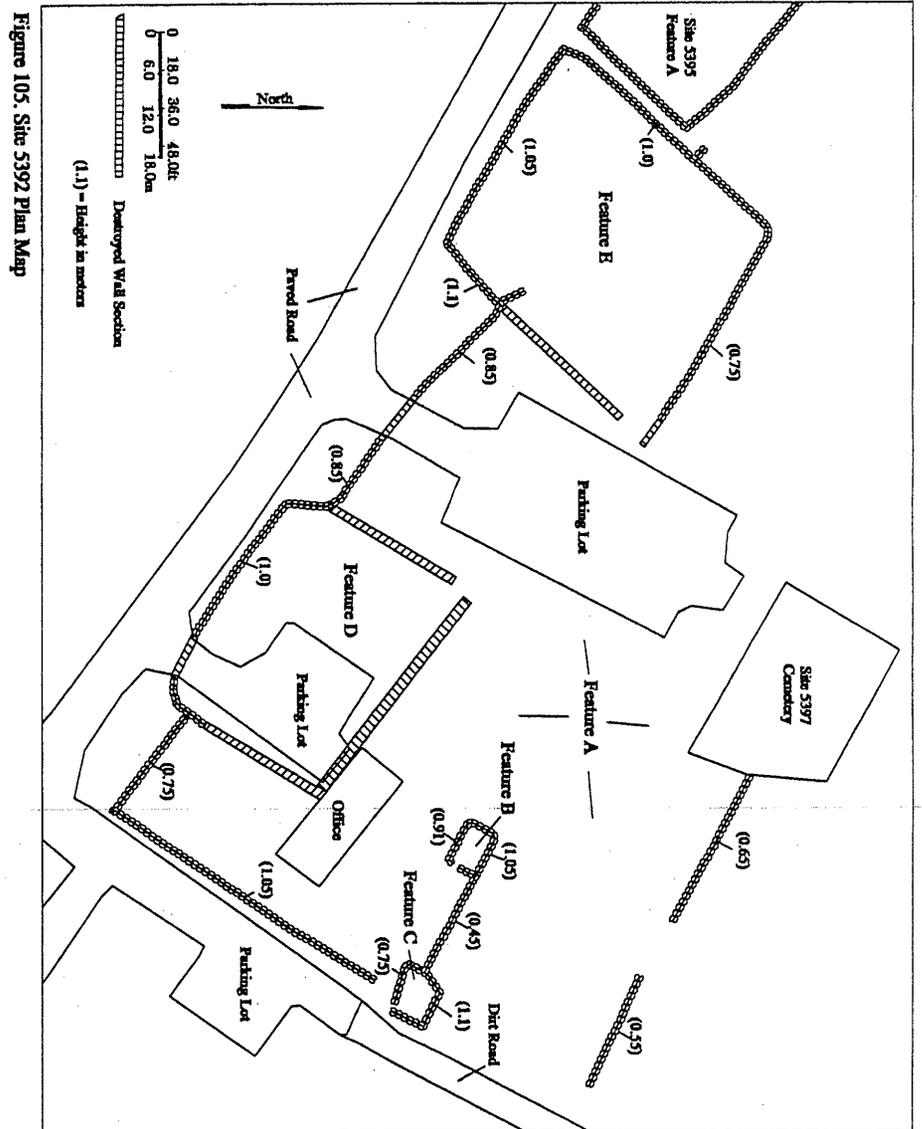


Figure 105. Site 5392 Plan Map



Figure 106. Site 5392, Feature B Enclosure, view to north



Figure 107. Site 5392, Feature C Enclosure, view to northwest

formal type and area (41.0 sq m). The lack of substantial construction may be the result of the collapsed nature of the enclosure.

Feature C is a roughly rectangular enclosure located 14.5 m southeast of Feature B. A low wall connects these two enclosures. Feature C is 6.8 to 8.3 m long (northeast by southwest) and 6.5 m wide. There is 0.75 m wide opening into the interior of the enclosure at the southern corner. The walls of the feature are generally collapsed to the interior and appear to have originally been constructed of stacked a'a cobbles and small boulders. Several waterworn basalt cobbles are incorporated into the walls. The walls range in width from 0.75 to 1.2 m, 0.65 to 1.1 m in height on the exterior side and 0.45 to 0.6 m in height on the interior (Figure 107). The interior of the feature is overgrown with *ti* plants and vines. A level soil deposit is present inside, with no cultural remains observed. Feature C is also interpreted as the foundation for a permanent habitation structure, based on its formal type and area (49.8 sq m).

Feature D consists of the disturbed remnant of a large enclosure located along the southwestern side of the Feature A enclosure, seaward of the paved access road. All that remains of this feature is the truncated southwestern wall, and the southern end of the southeastern wall. The remainder of the enclosure has been destroyed by construction of park facilities in the area. Pearson's map of the area, which has been overlain onto Figure 105 indicates that the enclosure originally measured 38.2 m long (northwest by southeast) and 28.8 to 30.9 m wide. The remaining walls range in width at the base from 0.9 to 1.1 m, at the top from 0.65 to 0.8 m and in height from 0.7 to 1.1 m (Figure 108). Feature D is interpreted as a probable permanent habitation, ancillary feature, a yard, that may have contained a pole and thatch roofed structure, based on its formal type, area (1,140) and proximity to other permanent habitation features.

The Feature E enclosure 37.5 m west-northwest of Feature D, on the western side of a paved parking lot. A portion of the eastern wall and the northeastern corner of the enclosure have been destroyed since Pearson's (1970) study. The enclosure is 41.7 m long (northeast by southwest) and 36.0 m wide, with collapsed walls built of stacked a'a cobbles and small boulders. The walls range in width from 0.9 to 1.1 m at the base, 0.7 to 0.9 m wide at the top and 0.75 to 1.05 m in height. The interior of the enclosure is comprised of level soil overgrown with grasses and weeds. No cultural remains were noted. Feature E is also interpreted as a probable permanent habitation, yard feature that may have contained a pole and thatch roofed structure, based on its formal type, area (1,501) and proximity to other permanent habitation features.

### Site 5393

Site 5393 is an enclosure located along to the southwest of the paved access road, and northwest of the paved road leading into the park. Only a small portion of the site is within the project area boundaries, with the majority of the structure located outside the park to the southwest (see Figure 12). This enclosure was previously noted by Pearson (1970) but was not described or assigned a feature designation (see Figure 11). The portion of the enclosure within the project area consists of the northeastern wall (59.5 m long), a portion of the southeastern wall (16.0 m long), and a portion of the northwestern wall (10.4 m long). The extent of the enclosure outside the parcel was not determined during the current study.

The walls of the enclosure are built of stacked a'a cobbles and small boulders. The portion bordering the paved access road is collapsed (Figure 109). The walls range in width from 0.7 to 1.3 m, and in height from 0.6 to 1.0 m. The interior of the enclosure is comprised of a level soil deposit. No cultural remains were noted.

Site 5393 is interpreted as a probable permanent habitation, ancillary feature that may have contained a pole and thatch roofed structure, based on its formal type and size. The portion of the enclosure in the park boundaries is 917.0 sq m, although it is likely that the entire enclosure is at least twice this size. Site 5393 is altered and in fair condition.



Figure 108. Site 5392, Feature D Enclosure, view to north



Figure 109. Site 5393 Enclosure Wall, view to northwest

### Site 5394

Site 5394 is rectangular enclosure located to the southwest of the paved access road in the north-west portion of the project area. As with Site 5393, only a portion of Site 5394 is situated within the project area, with the remainder located outside the park boundaries to the southwest (see *Figure 12*). The portion of the site in the project area consists of the northeastern wall (62.0 m long), a portion of the northwestern wall (8.0 m long) and a portion of the southeastern wall (9.0 m long). The northwest and southeast walls extend out of the project area an undetermined distance.

The walls of the enclosure are built of stacked a'a cobbles and small boulders though the portion bordering the paved access road is collapsed. The walls range in width from 0.65 to 1.2 m, and in height from 0.6 to 1.0 m. The interior of the enclosure is comprised of a level soil deposit. No cultural remains were noted.

Site 5394 is interpreted as a probable permanent habitation, ancillary feature that may have contained a pole and thatch roofed structure, based on its formal type and size. The portion of the enclosure in the park boundaries is 527.0 sq m, although it is likely that the entire enclosure is much larger. Site 5394 is altered and in fair condition.

### Site 5395

Site 5395 is a series of interconnected walls that form four enclosures, situated to the north and east of the paved road at the northwestern end of park. The features consist of two large enclosures (Features A and B) and two smaller, internal enclosures (Features C and D; *Figure 110*). Feature A is a large, roughly rectangular-shaped enclosure located to the northeast of the paved road and to the northwest of the Site 5392, Feature E enclosure. There is a 1.2 to 1.7 m wide gap between the northwestern wall of Site 5392, Feature E and the southwestern wall of Feature A of Site 5395. This gap appears to have functioned as a pathway between the enclosures. The surface of this pathway is level soil.

Feature A is 72.8 m long (northwest by southeast) and 22.8 to 38.4 m wide. The walls are built of stacked a'a cobbles and small boulders, and are 0.9 to 1.1 m wide at the base, 0.65 to 0.9 m wide at the top and 0.7 to 1.05 m in height. The majority of the walls have collapsed, although intact sections still remain. There are four breaks in the enclosure walls that contain wall rubble, and it is unclear which of them may have functioned as an entryway into the interior. The interior of the enclosure is comprised of level soil with no cultural remains observed. Large trees in the area have blanketed the surface with leaves. The Feature C enclosure (discussed below) is located within Feature A along the southwestern wall. Feature A is altered and in fair condition. Feature A is interpreted as a permanent habitation, ancillary feature that appears to have functioned as a yard surrounding the Feature C structure.

Feature B is a large irregularly-shaped enclosure located 18.5 m to the northwest of the northeastern corner of Feature A. A wall connects the two enclosures. Feature B is open along the northeastern side, although this may be the result of disturbance from park construction activities. The enclosure is 74.5 m long (northeast by southwest) and 40.0 to 64.5 m wide. The walls are built of stacked a'a cobbles and small boulders, ranging in width from 0.9 to 1.2 m at the base, 0.65 to 0.8 m at the top and 0.65 to 0.85 m in height. There are breaks along the southwestern side of the enclosure, though it is unclear if these represent entrances. The interior is comprised of a maintained lawn with picnic tables. The Feature D is situated within Feature B along the southeastern wall. Feature B is interpreted as a permanent habitation, ancillary feature that functioned as a yard surrounding the Feature D structure. It is altered and in fair condition.

Feature C is a rectangular enclosure located along the southwestern wall of the Feature A enclosure. The enclosure is 7.8 m long (northeast by southwest) and 6.4 m wide, with walls built of stacked a'a cobbles and small boulders. The majority of the walls have collapsed to the inside, ranging in width from 1.0 to 1.2 m and in height from 0.85 to 1.1 m. The interior is comprised of level soil deposit with scattered

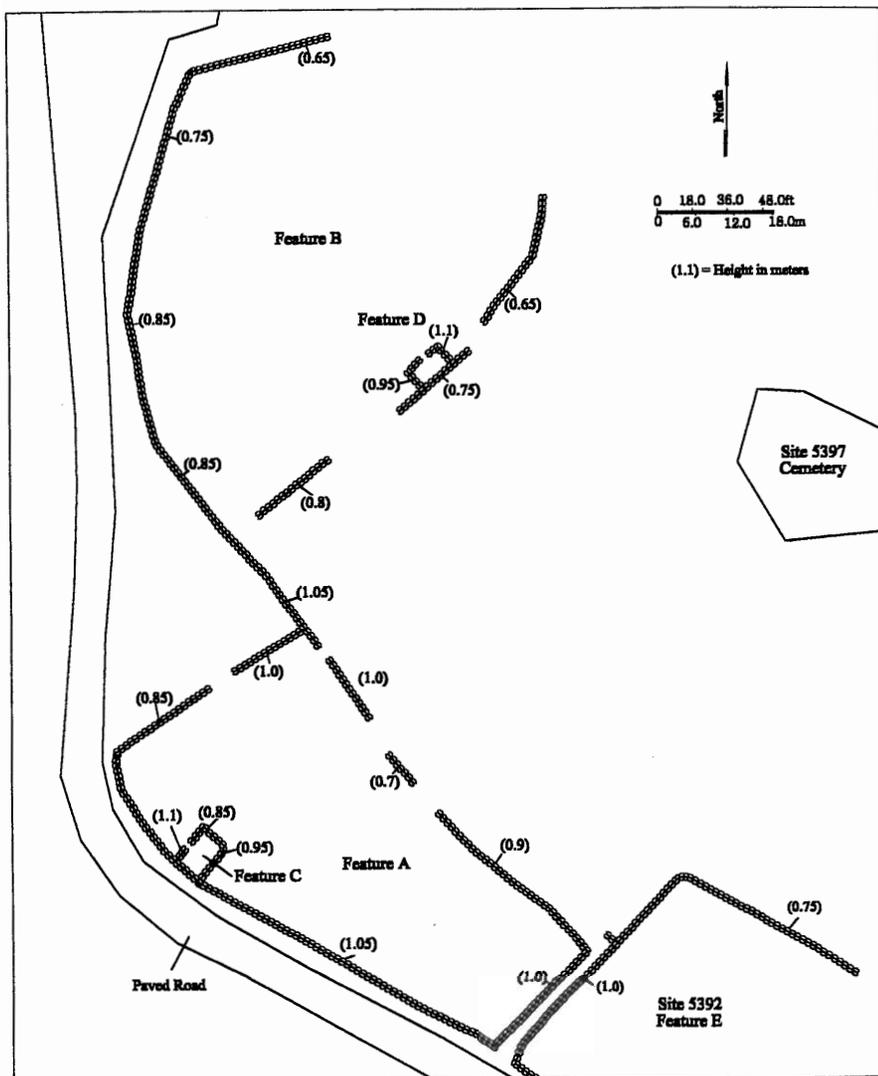


Figure 110. Site 5395 Plan Map

surface stones. A large tree is growing in the interior (Figure 111). There is a 0.9 m wide opening in the northwestern wall that appears to have functioned as an entrance into the interior. Feature C is interpreted as a permanent habitation based on its formal type and size (50.0 sq m). No substantial construction was noted though this may be the result of the disturbed nature of the structure. Feature C is altered and in fair condition.

Feature D is a rectangular enclosure located within the Feature B enclosure along the southeastern wall. The enclosure is 7.9 m long (northeast by southwest) and 5.2 m wide with walls built of stacked a'a cobbles and small boulders. The walls have collapsed to the inside and outside of the structure, ranging in width from 1.0 to 1.2 m and in height from 0.75 to 1.1 m. The interior is comprised of level soil deposit with scattered surface stones. Ti plants and vines growing in the interior (Figure 112). There is a 1.0 m wide opening in the northwestern wall that likely functioned as an entrance into the interior. Feature D is interpreted as a permanent habitation based on its formal type and size (41.0 sq m). No substantial construction was noted although this may be the result of the disturbed nature of the structure. Feature D is altered and in fair condition.

### Site 5396

Site 5396 is an historic cemetery situated to the east of the Site 5395 complex in a grassy area. This cemetery and the Site 5397 cemetery (discussed below) were previously identified by Pearson (1970) and designated as Feature F-29. The cemetery is bordered along the inland, southwestern by a stone wall, and an L-shaped wall along the northern side. A concrete path is situated to the northeast. There is a 1.5 m "walkway" between the southwestern wall and the southwestern side of the L-shaped wall (Figure 113). Site 5396 is 39.5 m long (north-northwest by south-southeast) and 12.0 to 21.5 m wide. It is altered and in fair condition.

The interior of the cemetery enclosure is comprised of a maintained lawn. Fifty-two graves or possible graves are present within the cemetery (Table 7). The majority of the graves are comprised of rectangular, oval, L-shape or irregular shaped alignments (n=39). Of these, 23 are filled with crushed a'a cinders (Graves 5, 8-10, 24-34, 36-38, 40, 41, and 49-51), nine are filled with small waterworn pebbles (Graves 2, 3, 13, 20, 21, 46-48 and 52), and seven are filled with small a'a cobbles (Graves 1, 4, 6, 14, 17, 18 and 35). No markers or headstones were present on any of the graves.

Seven of the graves consist of concrete crypts (Graves 7, 11, 39, and 42-45). All seven have inscriptions indicating that the graves date to as early as 1924 and to as late as 1992. The six remaining features consist of stone mounds (Graves 12, 16, 19 and 22) and two areas of scattered cobbles (Graves 15 and 24), which potentially represent disturbed graves. Site 5396 is an historic cemetery which has been used within the last decade, based on an inscription. Both the unmarked and marked graves are well maintained.

### Site 5397

Site 5397 is an historic cemetery located 48.0 m northwest of the Site 5396 cemetery and 3.0 m southwest of a concrete path. This cemetery was also designated as Feature F-29 by Pearson (1970). The cemetery is surrounded by a rectangular stone enclosure that is 32.5 m long (northwest by southeast) and 20.0 m wide (Figure 114). The enclosure walls are built of stacked a'a cobbles and small boulders that wall vary in width from 0.9 to 1.1 m at the base, 0.65 to 0.8 m at the top and 0.8 to 1.1 m in height. There are openings in the southeastern wall (2.6 m wide) and in the northeastern wall (0.8 m wide) that lead into the interior. A set of concrete stairs leads down from the northeastern side of the enclosure towards the concrete path.

The majority of the interior of the enclosure is comprised of a level grassy area; however, the northeastern portion slopes down to the northeast. There is a stacked stone retaining wall located to the south of the concrete stairs, which retains a level grass terrace. The height of the retaining wall range from 0.6 to 0.9 m.



Figure 111. Site 5395, Feature C Enclosure, view to northeast



Figure 112. Site 5395, Feature D Enclosure, view to northeast

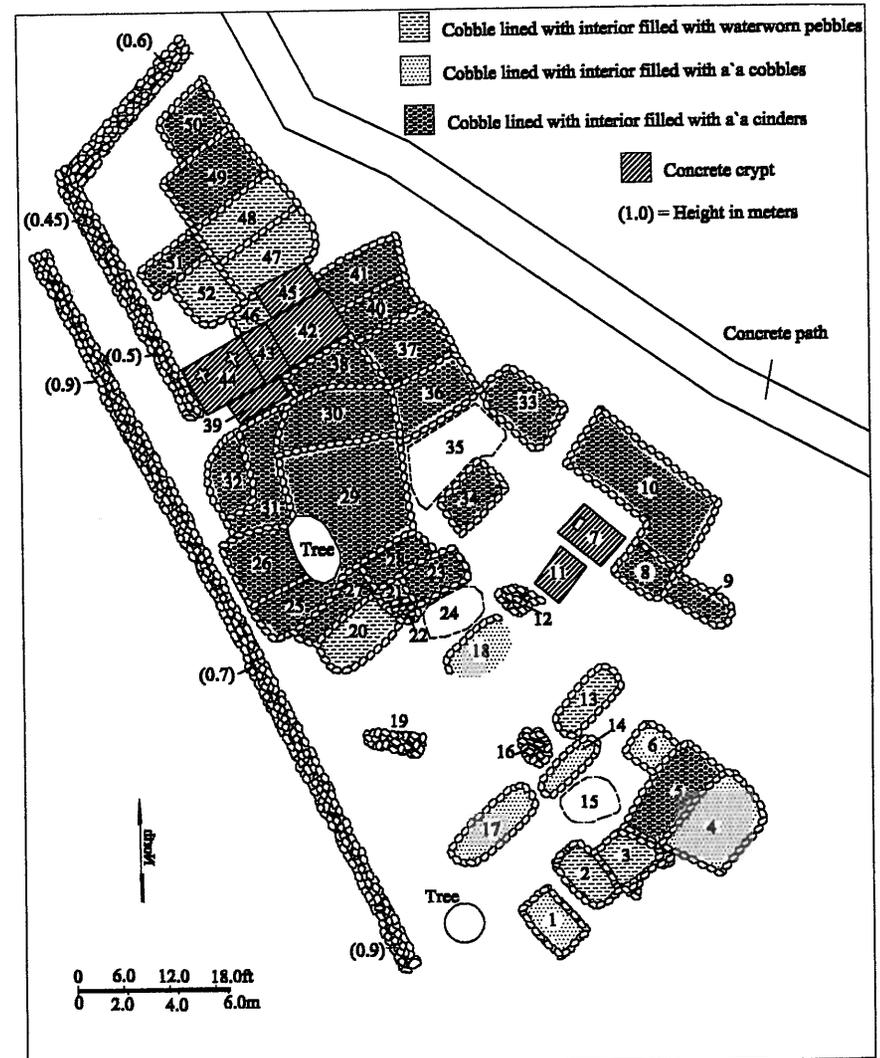


Figure 113. Site 5396 Historic Cemetery Plan Map

Table 7. Summary of Site 5396 Cemetery Features

Grave No.	Construction	Comment
1	Rectangular alignment of a'a cobbles filled with small a'a cobbles	No marker
2	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
3	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
4	Rectangular alignment of a'a cobbles filled with small a'a cobbles	No marker
5	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
6	Square alignment of a'a cobbles filled with small a'a cobbles	No marker
7	Rectangular concrete crypt	"Dady Kaliko" spelled out in waterworn pebbles on surface
8	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
9	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
10	L-shaped alignment of a'a cobbles filled with a'a cinders	No marker
11	Rectangular concrete crypt	"Baby James Smith - Victorine" spelled out in waterworn pebbles on surface
12	Small oval a'a cobbles mound	No marker
13	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
14	Oval alignment of a'a cobbles filled with small a'a cobbles	No marker
15	Oval area of scattered cobbles - disturbed grave?	No marker
16	Small oval a'a cobbles mound	No marker
17	Oval alignment of a'a cobbles filled with small a'a cobbles	No marker
18	Disturbed alignment of a'a cobbles filled with a'a cobbles	No marker
19	Rectangular a'a cobbles mound	No marker
20	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
21	Oval alignment of a'a cobbles filled with waterworn pebbles	No marker
22	Small oval a'a cobbles mound	No marker
23	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
24	Oval area of scattered cobbles - disturbed grave?	No marker
25	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
26	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
27	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
28	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
29	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
30	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
31	L-shaped alignment of a'a cobbles filled with a'a cinders	No marker
32	Oval alignment of a'a cobbles filled with a'a cinders	No marker
33	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
34	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
35	Disturbed alignment of a'a cobbles filled with a'a cobbles	No marker
36	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
37	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
38	Irregular alignment of a'a cobbles filled with a'a cinders	No marker
39	Rectangular concrete crypt	Inscription: "Queenie Pei" on surface
40	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
41	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
42	Rectangular concrete crypt	Inscription: "Hamokahi - Died July 3 1992, Born April 14 1911"
43	Rectangular concrete crypt	Obscured inscription: "Mrs. Wakipu? Died Oct 1923"
44	Rectangular concrete crypt	Two raised molded crosses on surface. Inscription: "Elizabeth Ramiente - Born Aug 1 1924 - Died Sept 19 1924" and "Poor Children" and Baa Baiko - Born April 8 1920 - Died June 2 1924"
45	Rectangular concrete crypt	Obscured inscription of waterworn pebbles: "Hamokahi - Born 1911 - Died 1924"
46	Small rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
47	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
48	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker
49	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
50	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
51	Rectangular alignment of a'a cobbles filled with a'a cinders	No marker
52	Rectangular alignment of a'a cobbles filled with waterworn pebbles	No marker

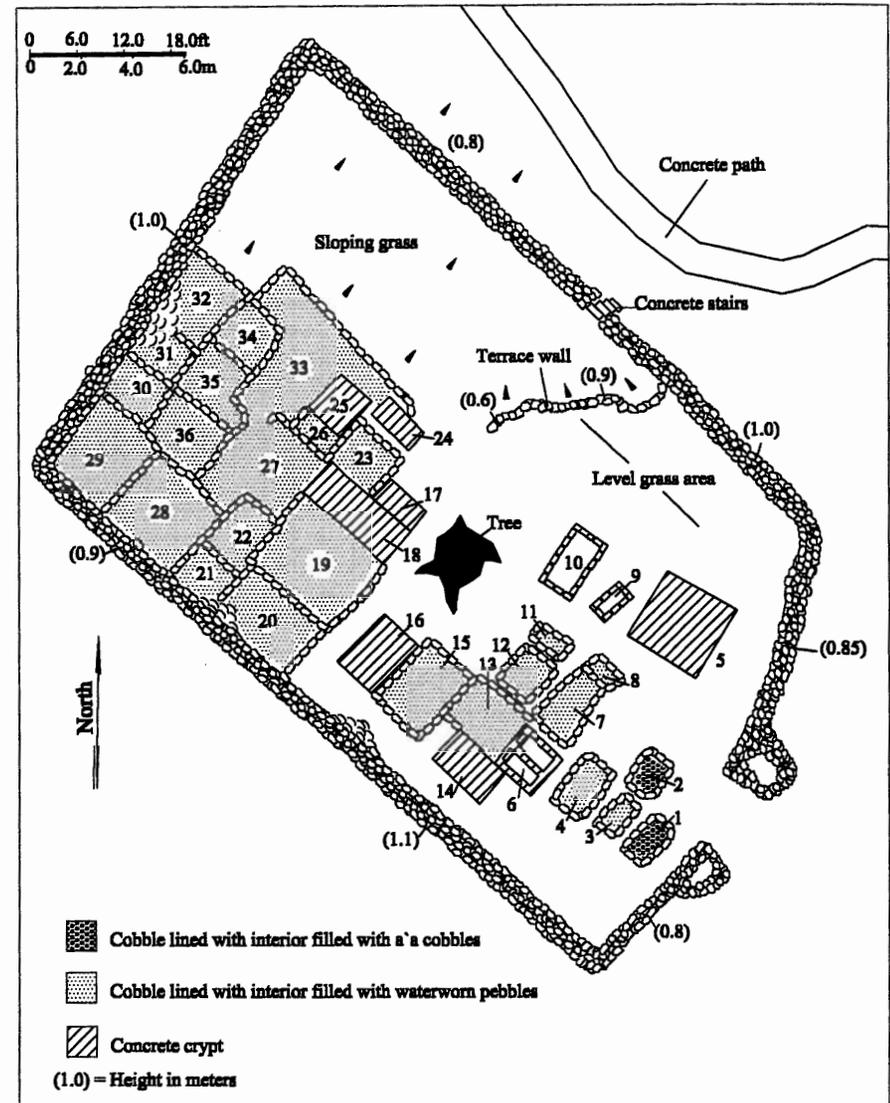


Figure 114. Site 5397 Plan Map

There are 36 graves located within the enclosure (Table 8). The majority of the graves are comprised of rectangular, single course alignments of a'a cobbles (n=26). Of these, 24 are filled with small waterworn pebbles (Graves 3, 4, 7, 8, 11-13, 15, 19-23, and 26-36) and two are filled with small a'a cobbles (Graves 1 and 2). Only one of these 26 graves has a marker (Grave 13), which reads, "Makei - Jul 1919".

The ten remaining graves are constructed of either concrete cinder blocks (Graves 9 and 10) or formed concrete (Graves 5, 6, 14, 16-18, 24 and 25). Inscriptions are present on five of these graves, ranging in age from as early as 1920 to as late as 1998. Site 5397 is an historic cemetery, which is still currently in use. Both the unmarked and marked graves are well maintained. The site is unaltered and in good condition.

### Site 5398

Site 5398 is a stone wall located in the northwestern corner of the project area. The wall originates 43.0 m northwest of the northern corner of the Site 5394 enclosure, on the northeastern side of dirt road that leads to a private residence. The wall extends 45.0 m (northwest by southeast) in length along the seaward side of the road, then angles to the northeast for 30.5 m. The wall then turns to the northwest again, extending in this direction for 97.0 m where it exits the project area, continuing in this direction an undetermined distance. The wall is built of stacked a'a cobbles and small boulders, ranging in width at the base from 1.0 to 1.2m, at the top from 0.7 to 0.85 m and in height from 0.95 to 1.05 m. Portions of the wall are collapsed, though the majority is relatively intact. The interior of the wall is core-filled with small cobbles. Site 5398 is interpreted as a livestock control feature based on its formal type and height. It is altered and in fair condition.

**Table 8. Summary of Site 5397 Cemetery Features**

Grave No.	Construction	Comment
1	Rectangular alignment of a'a cobbles filled with small a'a cobbles	No marker
2	Rectangular alignment of a'a cobbles filled with small a'a cobbles	No marker
3	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
4	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
5	Square concrete crypt	Recessed flower holder in each corner. Inscription: "Julia-George Perry"
6	Square concrete crypt with 2 raised concrete platforms	Headstone at northwest end. Inscription: "Chris Nahinu - B. Feb 21 1905 - D. Dec 31 1925"
7	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
8	Small rectangular alignment of a'a cobbles filled with basalt waterworn pebbles, abuts Grave No. 7	No marker
9	Small rectangular crypt built of concrete cinder blocks, with interior filled with waterworn basalt pebbles	Waterworn coral, marine shell, glass fishing floats and three glass vases inside
10	Rectangular crypt built of concrete cinder blocks, with interior filled with waterworn basalt pebbles	Waterworn coral, marine shell, glass fishing floats and three glass vases inside. Small placard with inscription: "Ella Maui Hoopai Oliveira - April 23, 1932 - April 24, 1998"
11	Small rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
12	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker. Concrete pot inside
13	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	Small headstone with partially visible inscription: "Makei - Jul 1919"
14	Rectangular concrete crypt	Headstone with inscription: "M Ikeoie - Nov 29 1860 - Feb 16 1920" and "Dear Brother Kaihe"
15	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
16	Two-tiered rectangular concrete crypt	Inscription: "I love my Mother - Dear Brother"
17	Rectangular concrete crypt	No marker
18	Rectangular concrete crypt with 3 recessed areas - center recess filled with waterworn basalt pebbles	No marker
19	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
20	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker - Partially buried beneath wall collapse
21	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker - Partially buried beneath wall collapse
22	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
23	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
24	Rectangular concrete crypt	No marker
25	Rectangular concrete crypt	No marker
26	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
27	Irregular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
28	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
29	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
30	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
31	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker - Partially buried beneath wall collapse
32	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker - Partially buried beneath wall collapse
33	Irregular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
34	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
35	Irregular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker
36	Rectangular alignment of a'a cobbles filled with waterworn basalt pebbles	No marker

## CONCLUSION

### Discussion

The identified sites conform to the types expected based on previous archaeological work and historic documentary research. The sites, particularly those in the central and southeastern portion of the park, represent the well preserved remains of traditional Hawaiian settlement on the Hana coast that largely has escaped historic disturbance by plantation agriculture and ranching. The radiocarbon date from the large cave at Site 5372 indicates that settlement in the project area dates to at least as early as the late A.D. 1200s to 1300s. The date from the platform at Site 5366 indicates occupation between the 1400s and mid-1600s.

Occupation continued into the historic period based on the numerous examples of enclosed house yards, some of which probably date to the early 1800s when free-ranging cattle became a problem. The limited number of Land Commission Award claims in the area probably reflects less intensive use of the project area in the mid-1800s due to depopulation caused by introduced diseases and population displacement associated with plantation agriculture. Late 1800s to early 1900s occupation of the area is documented by cartographic data and grave inscriptions. Twentieth century use of the area for recreation, marine exploitation, and burial, which continue today, are documented in a cultural impact assessment conducted for the park by Orr (2002).

Habitation sites consist of 51 permanent habitation features at 23 sites, 15 temporary habitation features at 11 sites, and one site of undetermined occupational duration. The attributes of these features are summarized in *Tables 9 and 10*. Permanent habitation sites consist of one to five features most commonly represented by rectangular enclosures and terraces. Less frequent permanent habitation features consist of overhangs, pavements, and a cave. Features that probably were foundations for pole and thatch structures range in area from 18 to 110 sq m, with an average of 47.4 sq m. Several of the largest features that are greater than 70 sq m in area, including Feature C of Site 5385, Feature A of Site 5374, Feature A of Site 5374, and Site 5382, and fall within Cordy's (1981) size range for men's houses.

A number of large enclosures, ranging from 103 sq m to over 12,000 sq m in area, appear to represent enclosed yards for permanent residential structures that served to exclude free-ranging cattle. Additional examples are probably represented by the large enclosures formed by segments of the Site 5367 network of walls. In several cases, there is no surface architectural evidence for a residential structure within an enclosure. This does not preclude the former presence of pole and thatch structures because such structure may have been built without stone foundations, or the foundations may have been pavements or low terraces that have been destroyed or are no longer visible on the ground surface.

Permanent habitation features are clustered in three areas (*Figure 115*). There is a small cluster of four sites in the southeast-central portion of the project area (Sites 5349, 5350, 5355, and 5356). The densest cluster consists of eight sites situated on the northwest side of the Ohala Heiau complex (Sites 5362, 5363, 5369, 5371, 5372, 5374, 5377, and 5388). A moderately dense cluster of eleven sites (Sites 5381, 5382, 5384-6, 5388, 5389, and 5392-5) spans the northwestern, developed portion of the park.

The latter two clusters of sites would represent nucleated, village-like settlements, if the sites were occupied contemporaneously. This is likely for the northwestern cluster because most of the sites include large yard enclosures. The 1915 map (see *Figure 8*) shows several houses in the vicinity of this cluster, and several of the graves in the three historic cemeteries, which are adjacent to the cluster, have inscriptions indicating burial in the early 1900s.

The central, densest cluster consists of permanent habitation sites both with, and without, enclosing walls. The absence of enclosing walls at most of the sites, and the radiocarbon dates from two sites in the cluster, indicate prehistoric occupation. The association of this cluster with a *heiau* and human teeth, probably from a burial in a cave at Site 5372, provide further support for a traditional Hawaiian permanent occupation. The presence of ritual and mortuary activity lends support to the probable presence of a village size settlement.

**Table 9. Summary of Permanent Habitation Sites**

Site	Feature	Formal Type	Shape	Substantial Construction	Area (sq m)	Comments
5349	A	Enclosure	L-shape	Faced walls, Pavement	56.20	Possible foundation for roofed structure
5349	B	Wall	Linear	None	2.40	Ancillary feature (possible site furniture)
5349	C	Wall	Linear	None	1.60	Ancillary feature (possible site furniture)
5349	D	Enclosure	U-shape	None	8.20	Ancillary feature (possible storage feature)
5350	-	Enclosure	U-shape	Faced walls, Pavement	24.80	Foundation for roofed structure
5355	A	Enclosure	U-shape	Faced walls	22.40	Foundation for roofed structure
5355	B	Overhang	Oval	None	10.05	Ancillary feature
5356	A	Enclosure	U-shape	Faced walls	35.00	Foundation for roofed structure
5356	B	Enclosure	U-shape	Faced walls	28.30	Foundation for roofed structure
5356	C	Enclosure	Irregular	None	15.40	Ancillary feature (possible animal pen or storage feature)
5356	D	Pavement	Rectangular	None	3.45	Ancillary feature (possible site furniture)
5362	-	Enclosure	Rectangular	Faced walls	37.30	Foundation for roofed structure
5363	A	Enclosure	Oval	None	28.10	Ancillary feature (possible animal pen)
5363	B	Terrace	Rectangular	Faced walls	52.60	Foundation for roofed structure
5369	-	Pavement	Rectangular	Paved surface	21.20	Possible lanai for adjacent roof structure
5371	-	Enclosure	Rectangular	Faced walls	393.00	Ancillary feature - yard for pole and thatch roofed structure
5372	A-F	Cave Complex	Irregular	Faced walls	658.00	Probable permanent habitation based on extensive modification and close proximity to other perm. Hab. Sites
5374	A	Terrace	Rectangular	Paved surface	71.30	Possible men's house based on area
5374	B	Terrace	Rectangular	Paved surface	34.60	Possible lanai for adjacent roof structures
5374	C	Terrace	Rectangular	Paved surface	44.70	Possible foundation for roofed structure
5374	D	Alignment	Linear	None	13.9 m long	Ancillary feature of undetermined function
5377	-	Enclosure	Rectangular	Faced walls	20.0 +	Foundation for roofed structure
5378	A	Enclosure	Square	Faced walls	103.80	Ancillary feature - yard for pole and thatch roofed structure
5381	-	Enclosure	U-shape	None	18.00	Foundation for roofed structure
5382	-	Pavement	Oval	Paved surface	109.70	Possible foundation for roofed structure
5384	A	Enclosure	Square	Faced walls	51.00	Foundation for roofed structure
5384	B	Enclosure	Rectangular	None	69.20	Foundation for roofed structure
5385	A	Enclosure	Rectangular	None	1582.00	Ancillary feature - yard surrounding Features B-D
5385	B	Terrace	Rectangular	None	48.50	Foundation for roofed structure
5385	C	Terrace	Rectangular	Faced sides, paved surface	71.10	Foundation for roofed structure
5385	D	Enclosure	Rectangular	None	39.40	Ancillary feature - possible animal pen
5386	A	Enclosure	Rectangular	None	57.60	Foundation for roofed structure
5386	B	Terrace	Irregular	None	34.20	Possible lanai for adjacent roof structure
5388	A	Enclosure	Irregular	Faced sides	4312.00	Ancillary feature - yard surrounding Feature B
5388	B	Enclosure	Rectangular	Faced sides	38.20	Foundation for roofed structure
5389	-	Enclosure	Rectangular	None	12236.00	Ancillary feature - possible yard for roofed structures
5392	A	Enclosure	Rectangular	Internal features	6390.00	Ancillary feature - yard for roofed structures
5392	B	Enclosure	Rectangular	None	41.00	Foundation for roofed structure
5392	C	Enclosure	Rectangular	None	49.80	Foundation for roofed structure
5392	D	Enclosure	Rectangular	None	1140.00	Ancillary feature - yard for pole and thatch roofed structure
5392	E	Enclosure	Rectangular	None	1501.00	Ancillary feature - yard for pole and thatch roofed structure
5393	-	Enclosure	Rectangular	None	917+	Ancillary feature - yard for pole and thatch roofed structure
5394	-	Enclosure	Rectangular	None	527.00	Ancillary feature - yard for pole and thatch roofed structure
5395	A	Enclosure	Rectangular	None	2286.00	Ancillary feature - yard for roofed structure
5395	B	Enclosure	Irregular	None	3358.00	Ancillary feature - yard for roofed structure
5395	C	Enclosure	Rectangular	None	50.00	Foundation for roofed structure
5395	D	Enclosure	Rectangular	None	41.00	Foundation for roofed structure

Figure 115. Distribution of Permanent Habitation Sites

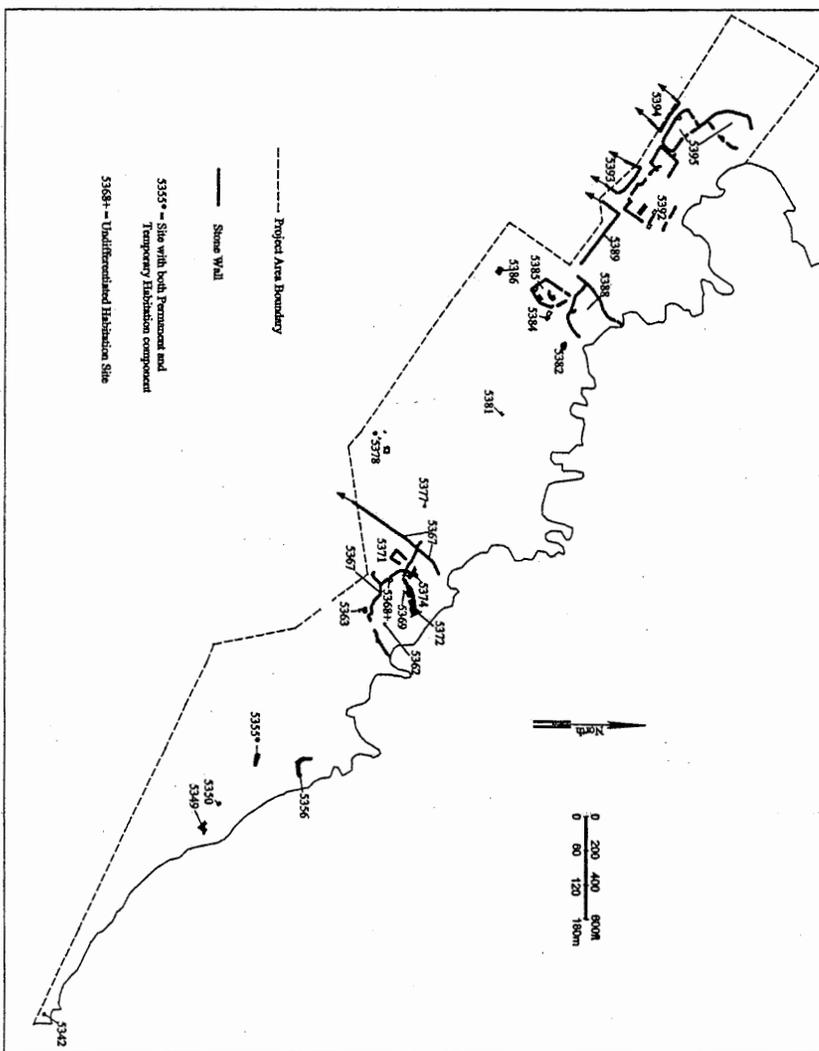


Table 10. Summary of Temporary Habitation Sites

Site	Feature	Formal Type	Insubstantial Construction	Area (sq m)	Associated Features and Comments
5341	-	Enclosure	Unfaced walls	9.50	
5342	-	Terrace	None	17.00	Substantially constructed, but small and isolated
5345	A	Pavement	Piled walls	5.80	Feature C-E Cairns
5345	B	Enclosure	Unfaced walls	6.90	Feature C-E Cairns
5345	F	Pavement	Piled walls	10.20	Feature C-E Cairns
5346	-	Enclosure	Unfaced walls	18.50	
5358	-	Enclosure	Unfaced walls	6.80	
5360	-	Enclosure	-	15.40	
5381	-	Terrace	Unfaced walls	28.00	Large for temp. hab., but isolated
5366	A	Platform	Unpaved surface	15.80	Feature B Platform
5366	B	Platform	Unpaved surface	10.70	Feature A Platform
5373	-	Overhang	No modification	4.90	Located within sink-hole
5375	-	Overhang	No modification	14.10	
5391	A	Cave	No modification	84.30	
5391	B	Cave	No modification	49.60	

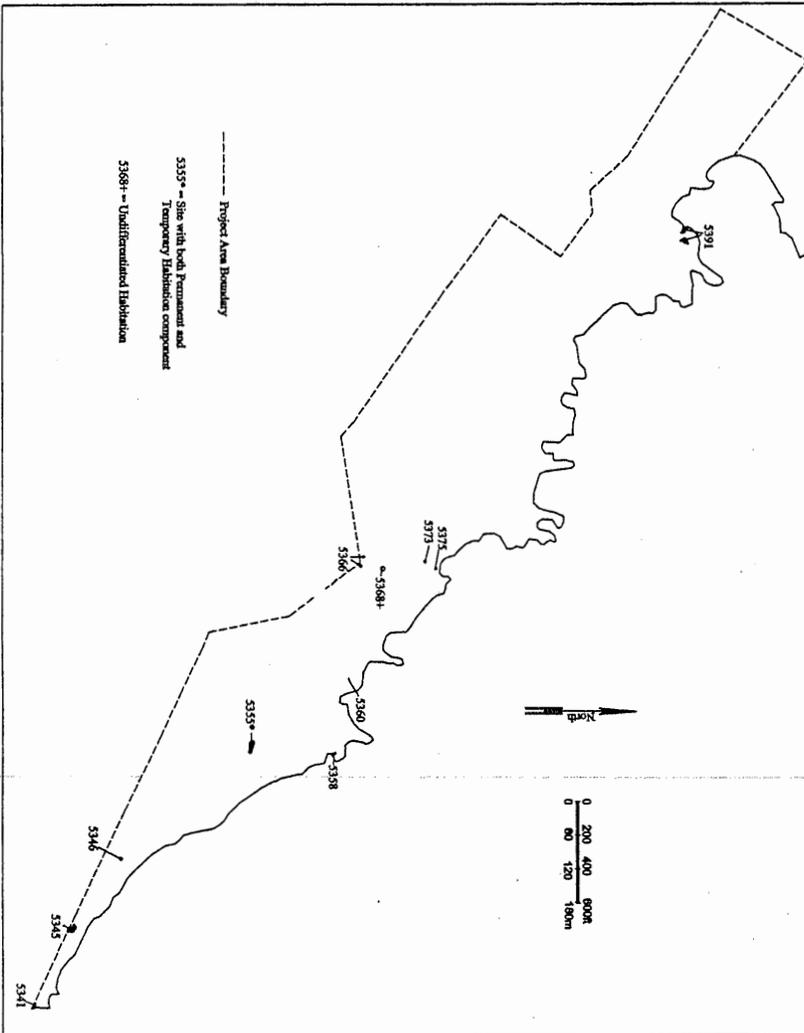
Temporary habitation sites consist of overhangs, caves, and small enclosures, terraces, and pavements. The sites are situated on the periphery of the permanent habitation complexes and along the Site 5340a trail at the southeast end of the park. Most are adjacent to the trail and the coast and probably were used by people traveling the trail or obtaining marine resources.

Ritual sites consist of two possible shrines and the Ohala Heiau complex. The shrines consist of an upright, elongate waterworn boulder at Site 5353 and a mound with a central whole that could have supported a stone or wooden idol (Site 4352). The *heiau* complex (Site 5364) includes a large platform (Feature A), which is over 350 sq m in area, and fourteen other features that are grouped in the complex based on their close proximity to the main Feature A platform, the large size of several features, and the presence of elongate, waterworn stones set upright in four locations in the complex. The other features consist of platforms, pavements, alignments of waterworn stones, a terrace, an L-shape and a trail segment.

The large features consist of Feature B, a 90 sq m platform that is adjacent to the northwest side of the main platform; Feature D, a 115 sq m platform on a knoll overlooking the site; Feature E a 115 sq m terrace adjacent to Feature D, and an extensive paved area over 600 sq m in area. A test excavation in Feature D did not recover any portable remains that would indicate it was used for habitation. A test excavation in a small platform (Feature G) at the edge of the large pavement did encounter food remains indicating habitation-related activity in that part of the site. While it is unclear what the specific functions the large features associated with Feature A platform were, the features are more similar to Feature A in scale, than to any other features in the project area. The complex probably represents a communal construction effort and, potentially indicates at least the periodic presence of a sizable number of ritual observers, or participants.

Walker (1931) gives dimensions of 110 ft (33.5 m) long by 75 ft (22.9 m) at its widest point for Ohala Heiau, yielding an area of 767 sq m that does not match any of the features recorded in the complex. The combined length of Features A and B, including a paved area on the southeast side of Feature A, is 45m and the widest part of Feature A is 15.4 m, yielding an area of 693 sq m, which is close to Walker's

Figure 116. Distribution of Temporary Habitation Sites



dimensions. Walker described the *heiau* as a “low platform of rough construction 4 ft high” and indicated the platform pavement had “been disturbed to form pits in many places” (1931:126). The highest portion of Feature A is 1.2 m (3.94 ft) and it can be described as a low platform; however, only two shallow pits (Sub-features A-2 and A-3) are present on the surface Feature A.

No other features or groups of features in the complex match Walker’s dimensions and it can only be assumed the vegetation cover at the time of Walker’s visit was such that he erred in defining the extent of the architecture. Perhaps, the pits he observed have since been filled in, but there is no doubt that the combined Feature A and B platforms represent the largest structure in the project area and it is typical of the larger coastal *heiau* found elsewhere in Maui.

The Hana coast, including the project area, figured prominently in a several accounts of battles between warring chiefs and at least one site has modifications that appear to be related to warfare. The Site 5372 cave complex has a series of three walls that span the canyon-like access to the main Feature F cave. The interior-most wall has a restricted, prepared opening beside an outcrop. The sheer walls of the canyon range from 3 m to over 5 m in height. These characteristics suggest that the cave either was used as a fortification, or that it was used to ambush warriors who entered the complex.

### Significance Assessments

Pursuant to DLNR (1998) Chapter 275-6 (d), the initial significance assessments provided herein are not final until concurrence from the DLNR has been obtained. Sites identified and relocated during the survey are assessed for significance based on the criteria outlined in the Rules Governing Procedures for Historic Preservation Review (DLNR 1998: Chap 275). According to these rules, a site must possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criteria:

1. Criterion “a”. Be associated with events that have made an important contribution to the broad patterns of our history;
2. Criterion “b”. Be associated with the lives of persons important in our past;
3. Criterion “c”. Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;
4. Criterion “d”. Have yielded, or is likely to yield, information important for research on prehistory or history; and
5. Criterion “e”. Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional 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.

Based on the above criteria, all fifty-nine sites are assessed as significant under Criterion “d” (*Table 11*). The sites have yielded information important for understanding prehistoric and historic land use in project area. Sites 5356, 5364, 5372, 5374, and 5376 are additionally assessed as good examples of site types (Criterion “c”). These sites consist of well preserved examples of permanent habitation enclosures and terraces, Ohala Heiau, a pictograph, and a large, possibly fortified cave complex.

Site 5372 and the historic cemeteries (Sites 5390, 5396, and 5397) are culturally significant (Criterion “e”) to the Hawaiian people because of presence of human remains of probable Hawaiian ancestry, and in the case of the historic cemeteries potentially other ethnic groups as well. The main coastal Kihaa Pi’ilani Trail (Site 5340, Feature A) is also assessed as significant under Criterion “e” for its cultural significance. The trail is additionally assessed as significant under Criteria “a” and “b” because of its associa-

Maui chief Kiha-a-Pi'ilani and the broad pattern of history represented by his rule, which is credited with the construction of the trail and other public works projects during the 1600s.

As mentioned previously, most of the sites documented during the survey fall within the boundaries of the Honokalani Village Site (Site 1230). Site 1230 is a designation that subsumes all of the sites previously identified by Pearson (1969, 1970) including sites outside of the park boundaries to the northwest, and as such the site essentially is a historic district. Also known as the Waiapanapa Complex, the site has been determined eligible for listing on the Hawaii and National Register of Historic Places. The current survey identified sites within the park boundaries that are outside of the Site 1230 boundaries in a strip of land inland of the cabins in the central portion of the park, and in the southeastern coastal portion of the park. It is recommended that the Honokalani Village Site boundaries be modified to include these sites.

The sites included within the historic district, which individually would be considered significant solely under Criterion "d", can as contributing elements to the district additionally be assessed as significant under Criterion "a" because of the site's association with the broad pattern of traditional Hawaiian windward coastal settlement; under Criterion "c" as an excellent site type example of a habitation complex in Hana, and under Criterion "e" for the site's cultural significance to the Hawaiian people.

### Recommended Treatments

All fifty-nine sites are recommended for preservation because the sites are significant for multiple criteria. The specific plans for preservation and maintenance of the sites will be proposed in a Site Preservation Plan prepared for DLNR-SHPD review and approval. Plans for preservation and maintenance of Sites 5372, 5390, 5396, and 5397 will be detailed in a Burial Treatment Plan prepared for DLNR-SHPD and the Maui/Lan'i Island Burial Council review and approval.

**Table 11. Site Significance and Recommended Treatment**

SIHP Site No.	Type	Function	Site Significance Criteria	Additional District Significance Criteria	Recommended Treatment*
5340	Complex	Transportation	a, d, e	c	PR
5341	C-shape	Temporary Habitation	d	a, c, e	PR
5342	Terrace	Temporary Habitation	d	a, c, e	PR
5343	Cairn	Marker	d	a, c, e	NFW, PR
5344	Cairn	Marker	d	a, c, e	NFW, PR
5345	Complex	Temporary Habitation/Marker	d	a, c, e	PR
5346	Enclosure	Temporary Habitation	d	a, c, e	PR
5347	Cairn	Marker	d	a, c, e	NFW, PR
5348	Walls	Indeterminate	d	a, c, e	PR
5349	Complex	Permanent Habitation	d	a, c, e	PR
5350	U-shape	Permanent Habitation	d	a, c, e	PR
5351	Cairn	Marker	d	a, c, e	NFW, PR
5352	Mound	Possible Ceremonial	d	a, c, e	PR
5353	Upright	Ceremonial	d	a, c, e	PR
5354	Cairn	Marker	d	a, c, e	NFW, PR
5355	Complex	Permanent Habitation	d	a, c, e	PR
5356	Complex	Permanent Habitation	c, d	a, e	PR
5357	Cupboard	Storage	d	a, c, e	NFW, PR
5358	L-shape	Temporary Habitation	d	a, c, e	PR
5359	Complex	Marker	d	a, c, e	NFW, PR
5360	L-shape	Temporary Habitation	d	a, c, e	PR
5361	Terrace	Temporary Habitation	d	a, c, e	PR
5362	Enclosure	Permanent Habitation	d	a, c, e	PR
5363	Complex	Permanent Habitation	d	a, c, e	PR
5364	Complex	Ceremonial	c, d, e	a	PR
5365	Wall	Boundary	d	a, c, e	NFW, PR
5366	Complex	Temporary Habitation	d	a, c, e	PR
5367	Wall network	Livestock Control	d	a, c, e	PR
5368	Pavement	Habitation	d	a, c, e	PR
5369	Pavement	Permanent Habitation	d	a, c, e	PR
5370	Wall	Boundary	d	a, c, e	NFW, PR
5371	Enclosure	Permanent habitation	d	a, c, e	PR
5372	Complex	Permanent	c, d, e	a	PR
5373	Overhang	Temporary Habitation	d	a, c, e	PR
5374	Complex	Permanent Habitation	c, d	a, e	PR
5375	Overhang	Temporary Habitation	d	a, c, e	PR
5376	Complex	Rock art	c, d	a, e	PR
5377	Enclosure	Permanent Habitation	d	a, c, e	PR
5378	Complex	Permanent Habitation/Agriculture	d	a, c, e	PR
5379	Mound	Agriculture	d	a, c, e	NFW, PR
5380	Wall	Livestock control	d	a, c, e	NFW, PR
5381	Enclosure	Permanent Habitation	d	a, c, e	PR
5382	Pavement	Permanent Habitation	d	a, c, e	PR
5383	Mound	Agriculture	d	a, c, e	NFW, PR
5384	Complex	Permanent Habitation	d	a, c, e	PR
5385	Enclosure	Permanent Habitation	d	a, c, e	PR
5386	Complex	Permanent Habitation	d	a, c, e	PR
5387	Wall	Livestock control	d	a, c, e	NFW, PR
5388	Complex	Permanent Habitation	d	a, c, e	PR
5389	Enclosure	Permanent Habitation	d	a, c, e	PR
5390	Cemetery	Historic Burial	d, e	a, c	PR
5391	Complex	Temporary Habitation	d	a, c, e	PR
5392	Complex	Permanent Habitation	d	a, c, e	PR
5393	Enclosure	Permanent Habitation	d	a, c, e	PR
5394	Enclosure	Permanent Habitation	d	a, c, e	PR
5395	Enclosures	Permanent Habitation	d	a, c, e	PR
5396	Cemetery	Historic Burial	d, e	a, c	PR
5397	Cemetery	Historic Burial	d, e	a, c	PR
5398	Wall	Livestock control	d	a, c, e	NFW, PR

\*Recommended Treatment - NFW = No Further Work, PR = Preservation

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## Appendix D: Cultural Impact Assessment





**Waiānapanapa State Park  
Cultural Impact Assessment  
Ahupua`a of Honokalani, Wākiu and Kawaipapa  
District of Hāna, Maui Island, Hawai`i**



Cover Page: Pailoa Bay and Black Sand Beach.  
All photos unless otherwise cited are by the author.

Prepared for  
**Haun & Associates  
Wilson Okamoto & Associates  
and  
Department of Land & Natural Resources  
State of Hawai`i**

By Maria E. Ka'imipono Orr  
October 24, 2002

## EXECUTIVE SUMMARY

At the request of Haun & Associates, this Cultural Impact Assessment was conducted as part of an Archaeological Inventory Survey conducted by Haun & Associates to be included in a larger Environmental Impact Study by Wilson Okamoto & Associates, Inc. for the Department of Land & Natural Resources [DLNR], State of Hawai'i. The purpose of a cultural impact assessment is to gather information about traditional cultural practices and pre-historic and historic cultural remains that may be affected by the implementation of a development project.

This study is in compliance with Act 50 SLH 2000 (HB 2895 H.D.1) as it amends the State of Hawaii Office of Environmental Quality Control [OEQC] Guidelines for Environmental Impact Statement law [Chapter 343, HRS]. To this end, the targeted "audience" of this report is the people who will be reviewing it. Therefore, it was written with this in mind and includes an overview of the history of land use by entities such as the residents of Honokalani Village and park use. The literature review included *mo'olelo* or Hawaiian stories and legends of the vicinity, ethnohistoric works from the 19<sup>th</sup> and early 20<sup>th</sup> centuries and other pertinent archival material.

A moderate *level of effort* [5-7 interviews] ethnographic survey was conducted, primarily because the Park area is considered a very sensitive area due to the number of family burials of residents of Honokalani Village, as well as a number of ancient burials in the vicinity. People who have lived and worked on these lands are still alive. It cannot be over-looked that the Park and surrounding areas have been and still may be used for gathering purposes. Another consideration is that subsistence fishing and recreational activity in the Park and ocean waters has been going on for several generations.

Lists of Cultural Resources, Cultural Practices, and Historical Resources were generated based on the literature review and the oral histories. Due to the impacts of the residents and the Park staff, some of the prehistoric cultural resources have been destroyed and/or damaged. A fresh water well and old traditional canoe house (*hale wa'a*) was destroyed by the 1946 tidal wave.

Many of the families of Honokalani Village have concerns about any undertaking within the Park and adjoining lands. These concerns are listed in the Summary section of this report.

## ACKNOWLEDGEMENTS

This project could not have been completed without the assistance, support and *mana'o* of my ethnographic consultants: Mr. Antonio "Brudda Tony" Baggio; Mr. Benjamin "Ben" Perry; Mr. Jimmy Perry; Mr. Gerard Piilani Lono; Ms. Helen "Ipo" Cosma; and Ms. Mavis Oliveria-Mederios.

A special mahalo to Ms. Ipo Cosma for helping to organize the group interview session; and Mr. Edwin "Take" Matsuda for recommending his cousin Mr. Tony Baggio and for checking with his mother-in-law Mrs. Lucy Van Loon.

Additional mahalo also goes out to State Parks Division Staff: archaeologists Martha Yent (Interpretive Program), Alan Carpenter and Toni Han-Palermo, and planner Lauren Tanaka for loan of reports and maps; SHPD archaeologists Sara Collins and Muffet Jourdan for their continuing help; and Bishop Museum Archives staff DeSoto Brown and Linda Laurence for all their kokua.

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MAHALO!

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## PART I: PROJECT AREA DESCRIPTION

### INTRODUCTION

At the request of Haun & Associates a Cultural Impact Study [CIS] of Wai'ānapanapa State Park was conducted during July through October 2002 to be included in a larger Environmental Impact Study [EIS] by Wilson Okamoto & Associates for the Department of Land and Natural Resources [DLNR]. The purpose of this cultural impact study [CIS] was to gather information about traditional cultural practices, ethnic cultural practices and pre-historic and historic cultural remains that may be affected by the implementation of the development project. This study is in compliance with Act 50 SLH 2000 (HB 2895 H.D.1) [Appendix A] as it amends the State of Hawaii Environmental Impact Statement law [Chapter 343, HRS] to include effects on the cultural practices of the community and State.

This report is organized into five parts. Part I describes the project area in terms of location, in the context of ahupua'a, district and island, as well as a generalized description of the natural environment [geology, fauna, flora]. Part II explains the methods and constraints of this study. Part III summarizes the review of the traditional and historical literature in the context of the general history of Hawai'i, the island of Maui, the district of Hāna, and the local history of Wai'ānapanapa State Park as it pertains to cultural resources, and land and water use in the project area. Part IV presents the analysis of the ethnographic survey. Part V summarizes the findings of this cultural impact study.

### SCOPE OF WORK

The scope-of-work (SOW) [Appendix B] was based on the OEQC *Guidelines for Assessing Cultural Impacts* (1997) [Appendix C] and focuses on three cultural resource areas (traditional, historical and archaeological), conducted on two levels: archival research (literature review) and ethnographic survey (oral histories). Since Haun & Associates have conducted an archaeological inventory survey for Wai'ānapanapa State Park, this study will only include a brief overview of previous archaeological studies in the project area and vicinity, and Land Commission Awards (LCA).

The research for this cultural impact study was conducted within the broader context of the *ahupua'a* (traditional land division) and *moku* (traditional district), as well as the historic aspects of the area. This study was initially a *low level of effort* [1-3 interviews] due to a preliminary assessment that the project area was previously surveyed and is currently being impacted as a State park and tourist destination. However, after a discussion with State Parks Planner Lauren Tanaka, the *level of effort* was elevated to moderate [5-7 interviews] at her suggestion, due to the high level of interest/concern by residents of Honokalani Village; at least thirty people attended her public meeting. Research on traditional resources entailed a review of the literature of Hawaiian *mo'olelo* (stories/legends), late nineteenth and early twentieth century ethnographic works, and interviews with knowledgeable consultants who met the following consultant criteria:

- ❖ Referred by Hawaii State Park Staff because of they live on Wai'ānapanapa Rd..
- ❖ Referred By Office of Hawaiian Affairs (OHA) Staff
- ❖ Had/has Ties to Project Location(s)
- ❖ Known Hawaiian Cultural Resource Person
- ❖ Known Hawaiian Traditional Practitioner
- ❖ Referred By Other Cultural Resource People or Honokalani 'ohana

Historic research focused on the sugar plantation era and park development. Literature from the following institutions were reviewed: University of Hawai'i-Manoa Hamilton Library; Bishop Museum Archives; Hawai'i Children's Mission House Museum archives; Hāna Cultural Center archives; Bailey House Museum/Maui Historical Society Archives; maps from State Survey Division of Board of Land & Natural Resources (BLNR); and personal library. The ethnographic research (oral histories) included descendants of people who are buried in Wai'ānapanapa State Park.

### Project Location

Wai'ānapanapa State Park is located in the *moku'āina* (district) of Hāna on the northeast coast of the island of Maui, in the *ahupua'a* (land division) of Honokalani, Wakiu and Kawaipapa, [Figure 1, 2 & 3], just under two miles from the town of Hāna and ¾ mile east of State Highway 360. Wai'ānapanapa State Park (TMK: 1-3-05:09 and TMK: 1-3-06:09 & 10) [Figure 4 & 5] encompasses a total of 110 acres with only 18 acres "developed" (Yent 2002). The District of Hāna or East Maui, is made up of five *moku'āina* (Kahikinui, Kaupo, Kipahulu, Hāna, and Koolau) each radiating from a large rock called Palaha, on the northeast brim of the crater of Haleakala [see Figure 2. from Sterling, 1998:3]. The Park is bounded on the north by the Wai'ānapanapa Caves which lie just outside of the park boundaries, but inside Hawai'i State lands; on the east by the Pacific Ocean; and on the western borders the Park is land-bound by both private and Hawai'i State lands in the ahupua'a of Honokalani, Wakiu and Kawaipapa. It's north-south coast is made up of the spectacular Pailoa Bay with it's black-sand beach, as well as many coves and land points, that are favorite swimming, fishing and gathering places of local families who have lived in the area for generations, to Luahaloa Point at its southern boundary.

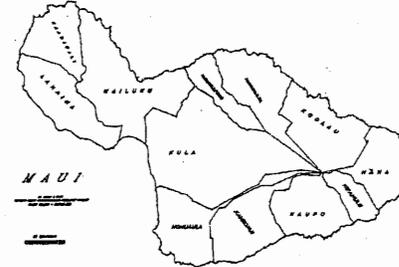


Figure 1. Island of Maui, Moku of Hana

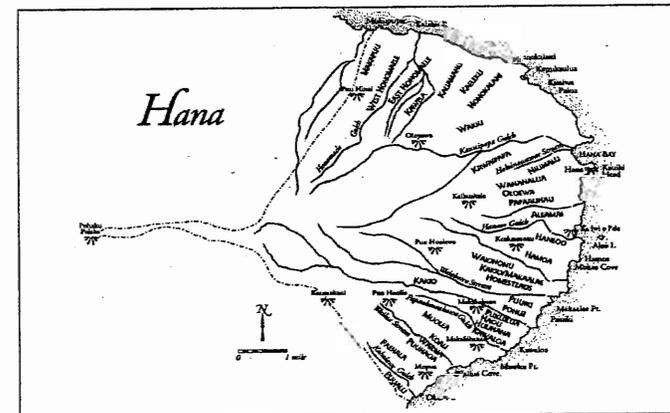


Figure 2. Ahupua'a of Honokalani, Wakiu and Kawaipapa in the Moku of Hana (Sterling 1989)

Figure 3. Boundaries of Wai'ānapanapa State Park (Survey Division 1977).

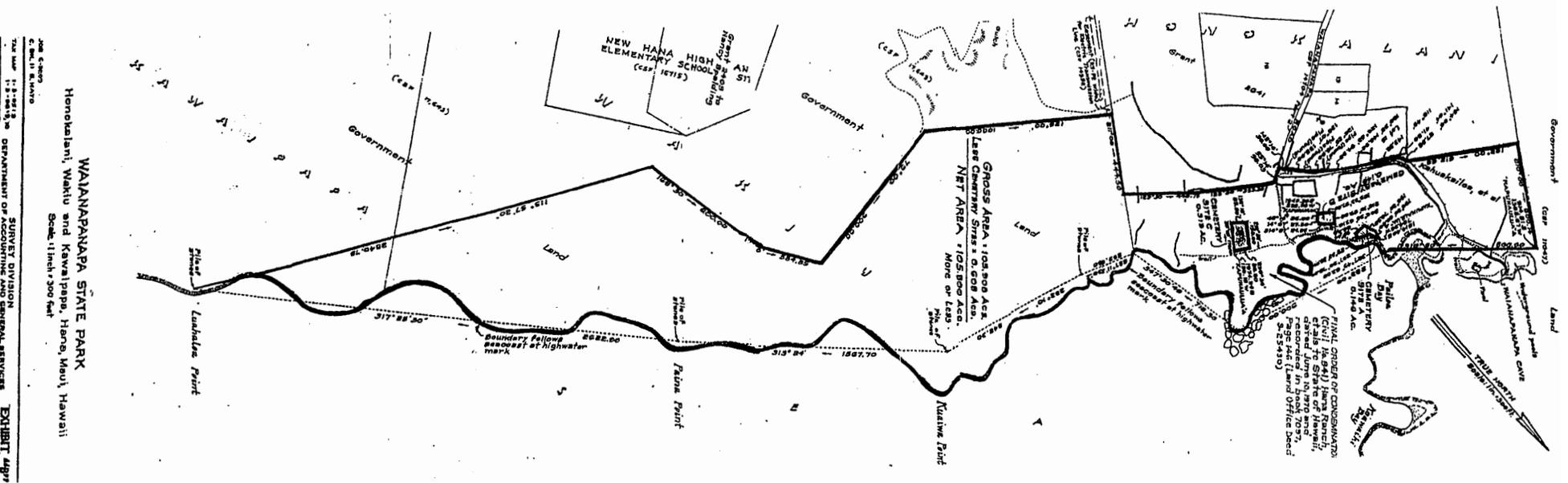


Figure 3. Boundaries of Wai'ānapanapa State Park (Survey Division 1977).

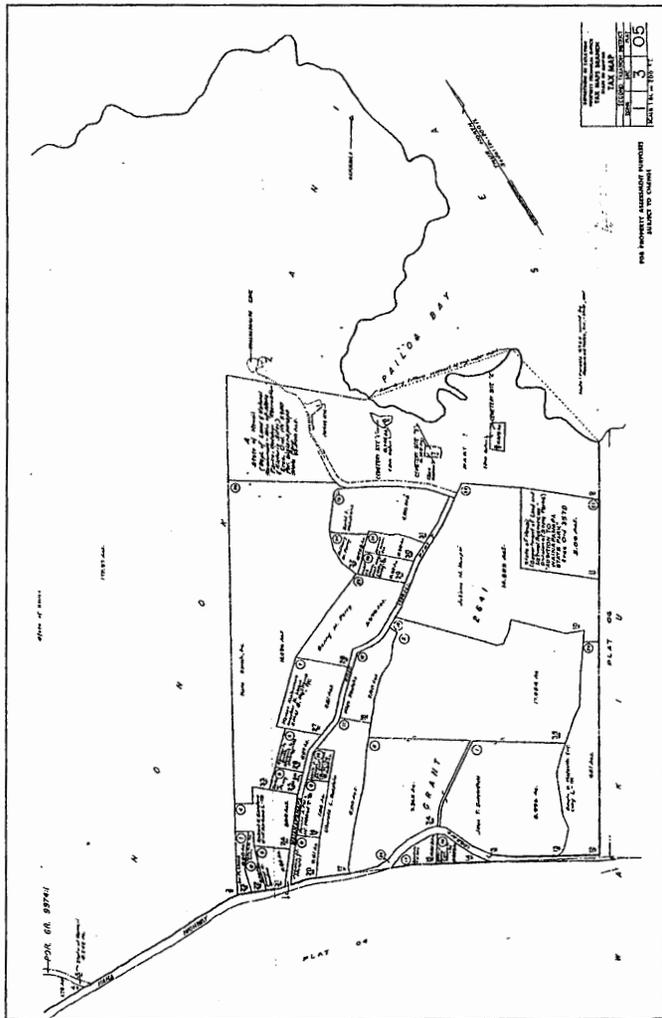


Figure 4. Project Location TMK: 1-3-05:09.

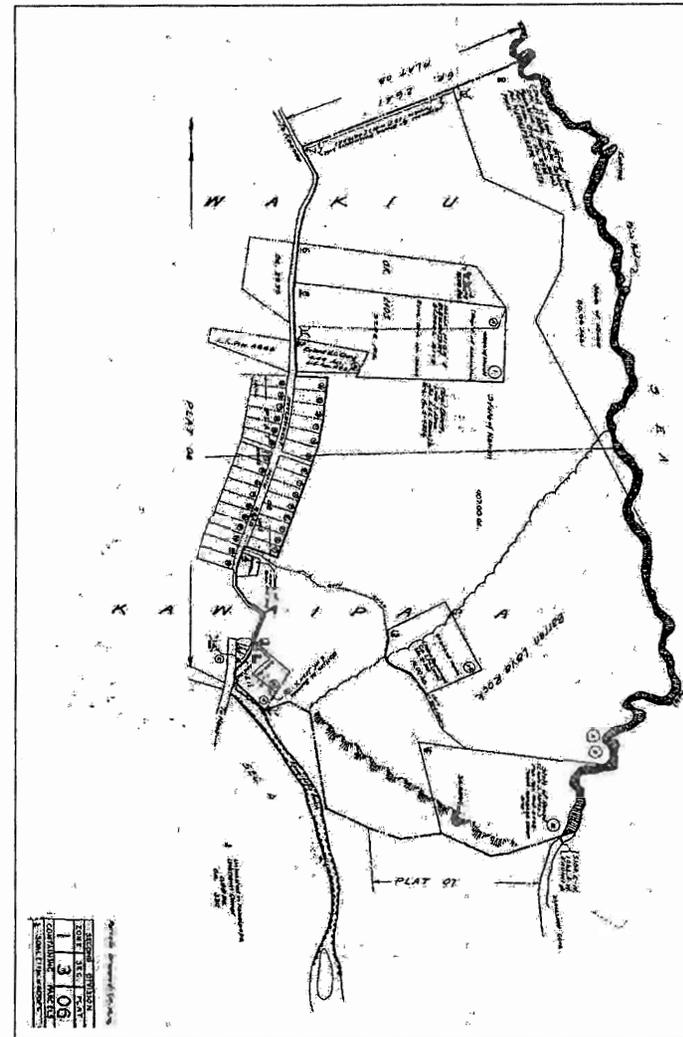


Figure 5. Project Location TMK: 1-3-06: 09 & 10

## Eco-history of Hāna

**Geology.** The District of Hāna, from the Koolaus to Kahikinui, is made up of early Hoomanu, Kula, and later Hāna Series lava flows of the now dormant 10,025' Mount Haleakala. The last lava flow in the Hāna District occurred in 1750 AD [Figure 6] (Macdonald, Abbot and Peterson, 1983:383). The major soils of this district are the Hāna-Maka'alaie-Kailua association (30%-25%-20%) evolving from weathered volcanic ash. It is well drained and found near sea level to 2,500 feet (USDA-SCS 1972:10). The Hāna Soil and Water Conservation District is from Koolau to Kaupo. It comprises 114,600 acres or approximately 15% of Maui County, which includes the islands of Maui, Lana'i, Molokai and Kaho'olawe. The significance of the area is its rainfall, averaging from 50-300 inches a year, the wettest area in the "cloud belt" from 2,000-5,000 feet elevation (HSWCD 1970:32). Data from the HSWCD 1978 Resource Inventory shows that 77% or 87,656 acres of this district is forest reserve and watershed. Approximately 22% or 25,469 acres are pasturelands (HSWCD 1978:1,5). About 79% of the 114,600 acres comprise the Hāna Community District, from Maliko Gulch to Kaupo Gap.

For clarification, in the Hawaii Session Laws of 1909, it was determined that the *Hāna District* would include Kahikinui, Kaupo, Kipahulu, Hāna and Koolau [Sterling, (1998:4); taken from R. D. King *Districts in the Hawaiian Islands*, in J.W. Coulter, *Gazetteer*, p. 219]. The cultural and historical section of this report will follow these boundaries.

Wai'ānapanapa State Park extends along the jagged, very scenic coast of bays, coves, caves, over-hangs, lava tubes and two black-sand beaches. Dense black water-worn basalt pebbles can be found on the main beach of Pailoa Bay [also referred to as Papaloa]. However, interesting formations of clinker-type a'a lava rock [Hāna flow] make up the rest of the coastline. One of the caves [Wai'ānapanapa] on the northwestern border of the park has fresh water and is subject of a famous local legend [explained elsewhere in this report]. Another cave *makai* of these legendary caves is also famous because of its size.

A very large dry cave on the *makai* side of the freshwater cave at Wai'ānapanapa is said to have been used during violent Kona storms. It is called the *Cave of 400*, according to Mr. Frank Oliveria, because it could hold 400 people. The cave was...estimated to be about 10m (33 ft) high, 40m (131 ft) wide, and 25m (82 ft) deep (Pearson 1970:14).

**Flora.** In *Hawaii a Natural History*, Carlquist divides each island into six regions: Coast, Dry Forest, Wet Forest, Epiphytic Vegetation, Bog and Alpine. Within the 0-500' elevation the only native tree is the *hala* (*Pandanus odoratissimus*). Humans have introduced other coastal trees in this zone (Carlquist 1980:267). The Hāna coast has a moderately large pocket of *hala* forest from the 'Ula'ino area to Kawaipapa. A few of the Polynesian-introduced trees grow in sparse areas along the Hāna coast, such as the *noni* (*Morinda citrifolia*), 'ulu (*Artocarpus altilis*), *hau* (*Hibiscus tiliaceus*), banana (*Musa sp*), coconut (*Cocos nucifera*) and *kukui* (*Aleurites moluccana*). Many non-Polynesian introduced trees now grow in abundance along the Hāna coastal region as well, such as ironwood (*Casuarina equisetifolia*) and false *kamani* (*Terminalia catappa*). Most of the native coastal plants consisted of shrubs and herbaceous vegetation such as *naupaka kai* (*Scaevola taccada*), 'ilima (*Sida fallax*) and various ferns (Carlquist 1980:269). Several consultants mentioned that *hala* was utilized for generations in many ways.

The Dry Forest Region has suffered the most impact by man. This is the area the early Polynesians modified extensively in slash and burn cultivation to expand their subsistence level, intensifying food production with complex irrigated agricultural systems of various crops (Kirch 1985:217). Kamakau mentions a reference in *Ruling Chiefs of Hawaii*, to the "fertile land of Hāna, where taro, sweet potatoes, bananas, sugar cane and wild fruits grew in abundance" (Kamakau 1974/1992:25). The early Polynesian settlers introduced all of these food plants. Several of the consultants mentioned that their families grew taro and banana as subsistence and economic foods.

Some of the Dry Forest vegetation that may have been affected by early Hawaiian cultivation practices are the *naio* (*Myoporum sandwicense*), *wiliwili* (*Erythrina sandwicensis*), *ohe* (*Reynoldsia*

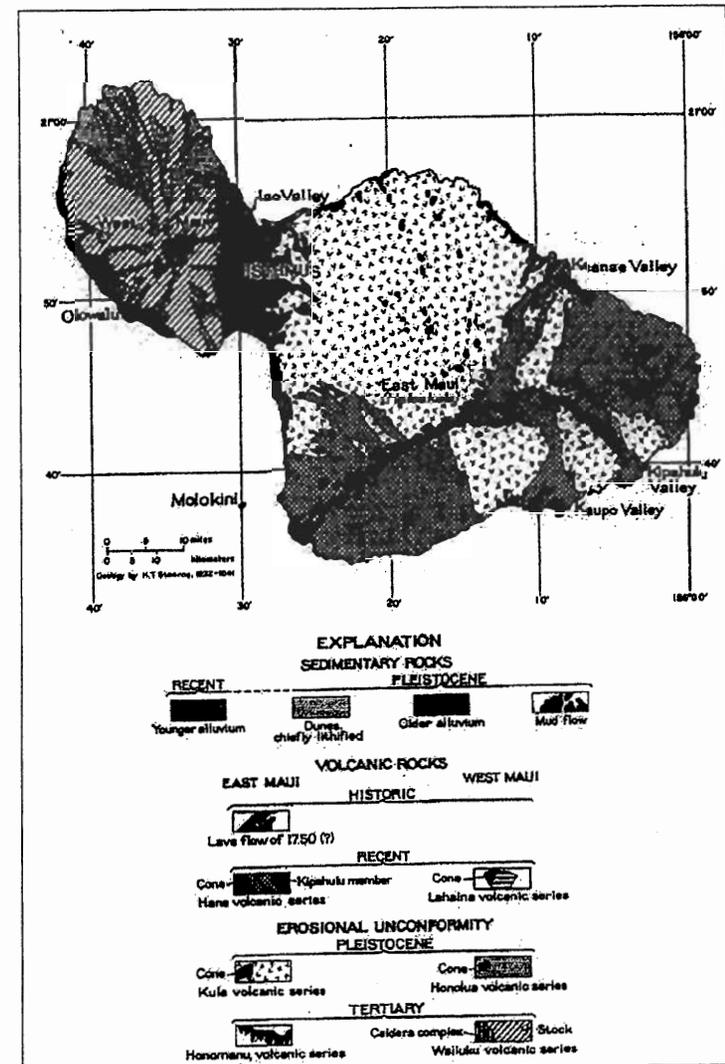


Figure 6. Lava flows in the Hāna District. Last flow circa 1750 (Macdonald et. al., 1983:394).

*sandwicensis*, *'iliahi* (*Santalum* sp), *'ohia* (*Metrosideros* sp), *koa* (*Acacia koa*), as well as several species of shrubs, vines and ground cover (Carlquist 1980: 275-300). One of the most predominant and insidious introduced species today in Hāna proper is the African tulip tree (*Spathodea campubulata*). Its bright red-orange flowers can be seen dotting several elevation levels.

The distinction of a Hawaiian Wet Forest is that it gets more than 70 inches of rain per year, and its most predominant native plant is the *'ohia*. Other native species of this region are the *loulu* palm (*Pritchardia macdanielsii*), *uluhe* (*Dicranopteris*), *hupu* (*Cibotium*), *maile* (*Alyxia oliviformis*) and an abundant variety of fern, mosses, liverworts, fungi and lichens. The significance of the *'ohia* or wet forest is that it is the most bio-diverse region of the Islands. It is here that the greatest evolution and diversification of plants and animals take place, and it was a region relatively unoccupied at first [by early Hawaiians] on the Islands (Carlquist 1980:301, 306). Today, there is a long list of historically introduced species found in many pockets of this region along the Hāna highway, such as strawberry guava (*Psidium cattleianum*), mountain apple (*Syzygium jambos*) and Brazilian pepper (*Schinus terebinthifolius*). In 1988, Holt reported in *The Maui Forest Trouble*, about "*'ohi'a* forest dieback," a historical problem of East Maui first noticed and studied by Dr. Harold L. Lyons in 1909 (Holt 1988:2-3).

Epiphytes of the Hawaiian wet forests are limited to the many species of mosses, liverworts, lichens, ferns, about 50 species of *Peperomia*, and *'ie'ie* (*Freyinetia arborea*), a plant of early Hawaiian ethnobotanical significance that displays qualities of an epiphyte and a climber (Carlquist 1980: 333-5).

Bogs are usually found at higher elevations where rainfall exceeds the porosity level of the soil, and on old volcanic domes with steep slopes and natural damming. They usually consist of mud, very small pockets of standing water and tussocks of sedge (*Oreobolus* sp) or grass (*Panicum* sp). Plants that grow in the bog are usually dwarfed. The only Maui bog Carlquist mentions is in West Maui at Pu'u Kukui Summit (Carlquist 1980: 347-9). However, there is a bog in the Hāna district, located in a basin on the slopes of Haleakala, in the Kakio *ahupua'a* (land division). Hāna residents know of ancient *ko'a* (shrine) sites located there (Kalalau 1992). Hawaiian Alpines are located above the six thousand feet level. The literature mentions the Hawaiians accessing through the Kaupo Gap to get to and from the Haleakala Crater [an activity done by many hikers today] therefore they would have come in contact with alpine flora and fauna.

In the 1930s E.S.C. Handy did a horticultural study of the islands. In *Hawaiian Planter* (from Sterling 1998:120) Handy reported the following regarding "Hāna Cultivation" [p111] and "Sweet Potatoes" [p160]:

North Hana is a gently sloping land covered by a recent rugged lava flow; hence there are no constantly flowing streams and no terraces. Dry taro flourishes, however, in the rich soil composed of a mixture of humus and decomposed lava, which is plentifully watered by rain except during occasional periods of drought. Above the sea cliffs and the fresh-water lava caves of Waiānapanapa is Honokalani, a sizable native settlement, where some dry taro is grown. On the moderately sloping forest land called Helani, inland from the road just north of Hana town, a number of Hawaiians have patches of dry taro. In the forest zone above Hana town, at an elevation of about 1,500 feet, is a small valley below Olopawa Peak where taro was formerly cultivated during the dry season.

In Hana, at Helani, there are a number of Hawaiian plantations in rich soil of decomposed lava and humus. Here dry taro and sweet potato appear to grow equally well. Before the era of sugar plantations there must have been many localities over this whole rich country where sweet potatoes were planted with other Hawaiian crops. There are today a few potato patches at Honokalani and in the neighborhood of Hana town....

A map (Figure 7) from a biological survey in 1992 illustrates the high density of alien vegetation and clusters of Hala Coastal Mesic Forest and Naupaka Coastal Dry Shrubland surrounding the Park area.

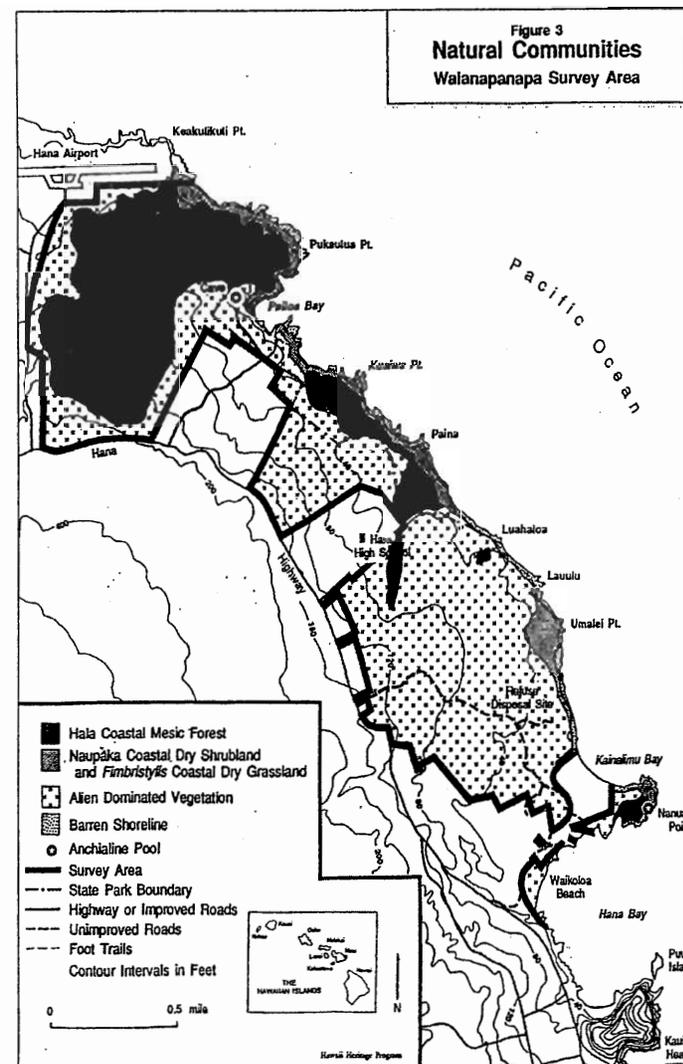


Figure 7. Map of Natural Communities in the Waiānapanapa Area (HHP/NCH 1992:13).

Approximately 9,800 acres of the Hāna Community District is zoned agriculture (EDAW 1981:21). Although there are commercial ventures such as tropical floral nurseries, taro crops, tree crops (i.e., papaya, and macadamia nuts), *ulu* (breadfruit), private botanical garden, and agricultural residences with private gardens, most of this agricultural zone is undeveloped. All three *ahupua'a* have remnants of what appears to have been an extensive native *hala* stand, as well as some coconut (*Cocos nucifera*) and various ferns and mosses. The majority of the other vegetation includes Polynesian introduced *noni* (*Morinda citrifolia*), *maia* or banana (*Musa spp.*), *naupapa* (*Scaevola frutescens*), *ulu* (*Artocarpus communis*) and *hau* (*Hibiscus tiliaceus*); and exotic or historically introduced plants [i.e., mango (*Manifera indica* L.), ink berry, Christmas berry, false *kamani* (*Terminalia catappa*), guava (*Psidium cattleianum* f. *lucidum* Degener) and several varieties of gingers and impatiens].



Photos 2-6. Native *naupaka*; Polynesian-introduced *Milo*; and exotics: crotons, ginger, and ti.

**Fauna.** Terrestrial fauna in pre-colonized Hawaii consisted of only one endemic mammal, the hoary bat (*Lasiurus cinereus*), thousands of endemic insects, and about 100 species of endemic birds such as the Hawaiian honeycreeper (*Drepanididae spp*) (Berger, 1972:7, Kirch, 1985:28). Early Polynesian introduced animals included the Southeast Asian pig (*Sus scrofa*), jungle fowl (*Gallus gallus*), dog (*Canidae*), and the Polynesian rat (*Rattus exulans*). Mammals in Hāna today include both the feral and domestic pig, various breeds of cattle, horses, dogs, cats and the mongoose (*Herpestes auropunctatus*), first introduced in 1883 (Berger, 1972:9).

Marine life in Hāna includes a variety of mollusk, seaweed, sea urchins, octopus, turtles, dolphins, stingray, whales and a variety of fish species. In the ethnographic section of this report, the residents and former residents talk about the abundance and variety of sea life along the coast of Waiānapanapa State Park when they were growing up. The 1992 (HHC/NC?) study found two rare fauna in the Park (Figure 8).

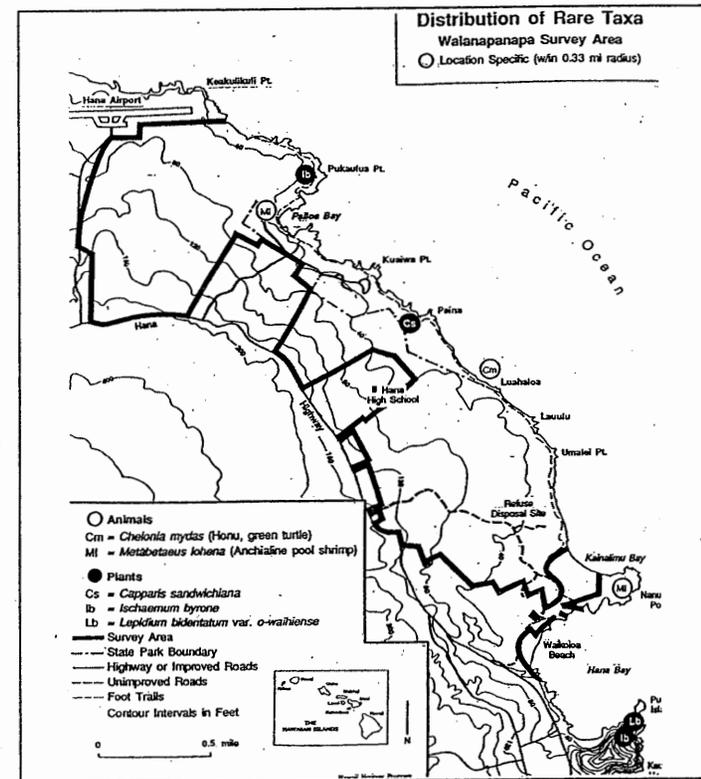


Figure 8. Rare Taxa communities in Waiānapanapa State Park (HHP/NCH 1992).

## PART II: METHODS

The Wai`ānapanapa State Park Cultural Impact Study was conducted from July to October 2002. The study consisted of three phases: (1) cultural and historical background research and review; (2) the ethnographic survey processes; and (3) report preparation.

**Personnel.** The personnel consisted of the researcher/interviewer 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; and an undergraduate curriculum that included Hawaiian History, Hawaiian Language, Pacific Islands Religion, Pacific Islands archaeology, Cultural Anthropology, and the core archaeology track. The researcher/interviewer also at one time lived in Hāna for three years and was very active in the Hāna community (i.e., Trustee: Hāna Cultural Center).

**Level of Effort.** At the request of Hau & Associates the *level of effort* was initially a low *level of effort* [1-3 interviews] and limited archival research because of previous archaeological surveys in the Park as well as the on-going impact of Park utilization by the public. However, the *level of effort* was elevated to moderate *level of effort* [5-7 interviews] at the suggestion of State Park Planner Lauren Tanaka after she conducted a local meeting that was well attended. Ms. Tanaka had a list of 30 residents who had concerns about any modification to the Park. She asked that the families be contacted and have them decide who would speak for the various families. After contacting several people on the list, a representative number of six people were selected. The archival research was also elevated to include a broader history of Hāna because of the links of the *ahupua`a* of Honokalani, Wakiu and Kawaipapa with the prominent *ali`i* inui of Hāna and greater Maui.

**Identification Process.** Individuals were identified as potential subjects if they met with the following criteria: (1) recommended by State Park staff because they are current residents of Wai`ānapanapa-Honokalani; (2) had/have ties to the project location; (3) known Hawaiian cultural resource person; (4) known Hawaiian traditional cultural practitioner; or (5) referred by other cultural resource person or Honokalani `ohana. Five of the six people interviewed were from the list; the sixth was recommended by someone on the list who felt this person could represent their `ohana and because that person grew up in Honokalani.

**Archival Research.** The majority of the archival research took place in the Hawaiian, Pacific and Map Collections of the University of Hawaii Hamilton Library (Manoa Campus); State Historic Preservation Division (SHPD); and other repositories such as the State of Hawai`i Archives, Bishop Museum Archives, Honolulu Tax Office archives, Hāna Cultural Center Archives, Bailey House Museum Archives, State Survey Department, and the Pacific Map Center. Effort was concentrated on legends, chants and songs of old Hawai`i, as well as ethnohistorical works of the late 19<sup>th</sup> century and early 20<sup>th</sup> century. An attempt was also made to find early documentation of land use in the Hāna area (i.e., sugar plantations).

**Ethnographic Interview Procedures.** A research instrument was designed [Appendix D] based on gathering information regarding Wai`ānapanapa State Park area; land use, marine use, history of Hāna, and any personal story that could inform on any of these subjects. Each interview was scheduled to take at least an hour. Each consultant was given a copy of a Consultant Research Agreement [Appendix E] to read prior to the interview, and sign [Appendix F] in the presence of the interviewer. Each interview was electronically taped, and later transcribed [Appendix G (Vol. II)].

**Consultant Selection.** Six individuals were interviewed---all were over forty years of age. These individuals represent the major families in the Wai`ānapanapa/Honokalani area. Four out of six currently reside in Hāna, the other two now live in Kahului, Maui. However all six grew up in Honokalani.

**Interview Process.** The interview process included following a semi-structured and open-ended method of questioning based on each person's answers to questions from the basic research instrument. No restrictions were placed on anyone as to how to answer questions or how long the answer should be. Each interview was conducted at the convenience (date, place and time) of the consultant. One interview was conducted at the home of the consultant in Kahului. One interview was conducted at the workplace of the consultant in Wailea. Three interviews were conducted in Hana Town. And one interview was conducted at Hāna Bay. The consultants were each given an Informed Consent Form to read and sign prior to the interview. Each interview began with a few exploratory questions about their background, and residence in Honokalani, Hāna. Subsequent questions generally followed the content of the previous answer. Although everyone was asked similar questions, the question format did not follow the same order. The interviews naturally took on a "talk story" flow as they all shared information about their life in Honokalani.

**Transcribing Process.** The taped interviews were transcribed verbatim by the interviewer using a Sony Dictator/Transcriber (BI-85). Each consultant was mailed a hard copy of the transcripts, along with a *mahalo* letter with an explanation of the transcribing process, and a self-addressed, stamped envelope for return of the edited transcripts. Each individual was asked to review the transcripts and to edit where necessary. This allowed for corrections (i.e., spelling of names, places), as well as a chance to delete any part of the information if they so desired. This turned out to be a very drawn out process as only three transcriptions were returned in a timely manner.

**Analysis Process.** This analysis process followed a more traditional method, as a qualitative analysis software program (i.e., TALLY) was not necessary. Each interview was considered a separate file, and the first name was used to identify the consultant. Five basic research categories/themes were employed (i.e., consultant background information; land use; marine use, anecdotal stories; burials) on the basis of information required for Study as stated above in the *Introduction* and *SOW*. For the purpose of this Study, it was not necessary to go beyond the first level of content and thematic analysis. Following the return of the reviewed transcripts, they were electronically coded for thematic indicators and sub-themes were created.

**Research Problems.** One problem of this project was the reluctance of some contacts to be interviewed; they were older *kupuna* who deferred to the "younger" 50-70 year olds. Some minor research problems were technical, re-scheduling and interruptions. One interview had to be re-scheduled for the next day so that technical problems could be solved. Another interview was interrupted by several phone calls.



Photo 7. Neighborhood Fruit Stand on Waiānapanapa Road.

### PART III: CULTURAL AND HISTORICAL BACKGROUND RESEARCH

The Cultural and Historical Background Review entailed a broad search of primary and secondary source literature. The majority of this research took place in the Hawaiian collections of the University of Hawaii Hamilton Library (Manoa Campus), the Bishop Museum Archives, Hawai'i Children's Mission House Museum archives, State Historic Preservation Division library, State Survey Division, Maui Historical Society Archives at Bailey House Museum, Hāna Cultural Center archives and the researcher's private library. Primary source material included maps, journals, genealogies, oral histories and other studies. Secondary source material included translations of 19<sup>th</sup> century ethnographic works, historical texts, indexes, archaeological reports, and Hawaiian language resources (i.e., proverbs, place names and Hawaiian language dictionary). A review of the archival material is presented in this section, along with an overview of the chronology of the *moku'āina* (district) of Hāna, within the context of the broader history of the *mokupuni* (island) of Maui, and Greater Hawaii.

#### A. Models of Hawaiian Chronology.

Models of Hawaiian Chronology such as Kirch (1985), Hommon (1976/1986) or Cordy (1974/1996) provide a temporal view of settlement patterns as well as cultural changes through time, from initial settlement through first contact with the western world. Cordy's (1974) first model of a cultural development sequence looked at Initial Settlement Period, New Adaptation Period and a Complex Chiefdom Period. He has since modified this model (1996). Hommon's (1976) model of sociopolitical development sequence included four phases: Phase I AD 500-1400; Phase II AD 1400-1550; Phase III AD 1550-1650; and Phase IV AD 1650-1778. This model was later modified (1986) to three phases: Phase I AD 400-1400 Exploration and Settlement; Phase II AD 1400-1600 Expansion; and Phase III AD 1600-1778 Consolidation. Kirch believed that initial settlement occurred much earlier than AD 600. His culture-historical sequence model has four phases: Phase I Colonization Period (AD 300-600); Phase II Developmental Period (AD 600-1100); Phase III Expansion Period (AD 1100-1650); and Phase IV Proto-Historic Period (AD 1650-1795) (Kirch, 1985:296-308; Kolb, 1991:205).

It should be noted that a recent study (Tuggle & Spriggs 2001) refutes the 'early colonization' supposition. For decades, the consensus among Hawaiian archaeologists was that evidence from Bellows, O'ahu and Ka'u, Hawai'i island supported early Polynesian colonization dates of AD 300 to AD 600 (Tuggle 1979; Kirch 1985). However, Tuggle and Spriggs (2001) have since studied new data and re-evaluated past dates and dating methods and have concluded that acceptable early dates fall within AD 700-1100. These dates appear to coincide with data that eastern Polynesia was settled much later than previously thought (Rolett 1989).

While Kirch's chronology model may need to be revised, his basic period system is still a valid model. Therefore for this cultural impact study, Kirch's (1985) model will be used with the following modifications and additions: the dates for the Colonial and Development periods will not be used; Early Historic Period (AD 1795-1899), Territorial History (AD 1900-1949), and Modern Historic Period (post AD 1950). The reasoning behind using Kirch's model is the belief of many native Hawaiian people, that based on oral histories or legends, the migrations of their Polynesian ancestors to Hawai'i took place prior to AD 700. According to Formander (1917:IV: II: 406), there are seventy-five generations from Wakea to Kamehameha I who born was around AD 1753. If only eighteen years were allotted to each generation (typically twenty years) that would make the time of Hawaiian progenitors Wakea and Papa Haumea (who settled in Nu'uauu, Oahu) approximately AD 403. [McKenzie (1983:12) generation is thirty years.]

The following chronological overview encapsulates cultural changes over time and highlights significant events and people. More corroborating details follow this section with a review of pertinent traditional *mo'olelo*, *mele* and *oli*, historic works and various studies.

## B. Human Impact, Settlement and Socio-economic Development in the District of Hāna in the context of Greater Hawaii.

**B-1. Colonization Period.** First voyager dating is based on early site dates from Bellows, Oahu and South Point, Hawaii Island. These first Polynesian voyagers to Hawaii “followed the tracks of migratory birds. Mainly they traveled by the stars.... On a voyage of migration, from sixty to a hundred persons could exist for weeks on a large canoe, which might be a hundred feet in length” (Day 1992:3). This feat was “remarkable in that it was done in canoes carved with tools of stone, bone, and coral; lashed with handmade fiber; and navigated without instruments” (Teuira 1995:vii). The earliest dates for an area near Hāna is around AD 800, from sites of the Haleakala Crater (Kirch 1985:298).

Reconstructing the cultural sequence for the Hāna district and other places in Hawai‘i during the colonization period would involve the ‘founder effect’ and time necessary to adjust and adapt to a new environment. The colonizers were not able to bring all of the gene pool or crop plants from their homeland, so their new culture consisted of what survived the journey, what was remembered and what could be applied to the new environment (Kirch 1985:285-6). Although early Hawaiians were farmers and felt spiritually tied to the ‘*aina* (land) in many ways (Waters, n.d.), when they first arrived they had to modify both their subsistence practices and the land. Faunal remains analyses indicate that early Hawaiian subsistence depended on fishing, gathering, bird hunting [extinct fossil remains, see Olson and James, 1982], as it took time to clear the forests, plant their crop cultigens, breed their animals, and construct suitable living quarters. Creation chants such as the *Kumulipo* depict a very deep philosophical bond with the land and nature and “the respectable person was bound affectionately to the land by which he was sustained” (Charlot 1983: 45,55). Ancient sites of various *ko‘a* (fishing and bird shrines) also imply a spiritual respect for their sustenance.

As the founding groups grew, they fissioned into subgroups referred to as ramares, with the senior male of the original rama as chief of the conical clan, although hierarchical ranking was not just relegated through the patrilineal line of descent (Kirch 1985:31). Bellwood refers to these groups as tribal and related by blood (Bellwood 1978:31). In *Ka Po‘e Kahiko* Kamakau refers to Hawaiian ranking in the following passage:

For 28 generations from Hulihonua to Wakea, no man was made chief over another, and during the 25 generations from Wakea to Kapawa, various noted deeds are mentioned...Kapawa was the first chief to be set up as a ruling chief...from then on the group of Hawaiian Islands became established as chief-ruled kingdoms - Maui from the time of Heleipawa, son of Kapawa...this was the time that records [oral] began to be kept of the chiefs (Kamakau 1964:3)

**B-2. Developmental Period.** During the Developmental Period, changes occurred bringing about a uniquely Hawaiian culture, documented by the material culture found in archaeological sites. These include quadrangular adze, bone fishhook variations, ‘*ulu maika* (a game piece) stones, *lei niho palaoa* (necklace of bone or ivory and human hair worn by chief rank) and evidence of shifting cultivation. The evidence also indicates that the “ancestral pattern of corporate descent groups” were still in place (Kirch 1985:302-3). The early culture evolved as the population grew, and many of the changes were related to significant socio-economic changes.

**B-3. Expansion Period.** The Expansion Period, AD1100-1650, is significant in that most of the “ecologically favorable zones,” the windward and coastal areas of all major islands, were now settled, and the more marginal leeward areas were being developed. Leeward Kahikinui, the southern extension of the Hāna District, was occupied in the middle of this period. This was also the period of the greatest population growth, the development of large irrigation field system projects, and dryland farming. The uniquely Hawaiian invention, the *loko* or fishpond aquaculture, was developed in the fifteenth century or the later half of this period (Kirch 1985: 303). In Thrum’s *Hawaiian Annual* he recounts the legend of Ku‘ula in which the first *loko* was invented and constructed in Hāna at Leho‘ula (Thrum 1901:115).

Around the 12<sup>th</sup> century another migration to Hawaii brought the “priest” Pa‘ao and a ruling chief, Pilika‘aiea, from central Polynesia (some say Tahiti, others Samoa). This created a major shift in “religion” and socio-political patterns. Pa‘ao brought with him the Ku practice of human sacrifice, used in monumental *luakini heiau* or war temples. Pili started a line of *ali‘inui* that would continue to the Kamehameha “dynasty.” The evolution of the *luakini heiau* is difficult to place archaeologically, and although the arrival of Pa‘ao may have been a real event, the uniqueness and complexity of *heiau* were most likely a local [Hawaiian] development (Kolb 1989:3).

Hāna’s history becomes more visible in the literature during this period with the legends of the infamous King Hua and the activities of the Pi‘ilani line of chiefs (Youngblood 1983:35-7). Monumental *heiau* building flourished in this Period, as “religion” became more complex. The relatively recent dating of the central terrace of Hāna’s famous Hale O Pi‘ilani Heiau to AD 1270-1440 (Kolb 1990) corroborates this and infers that Hāna was quite developed and had a sizable population, enough to accomplish the monumental project of building this *heiau* complex. During the last 200 years of the Expansion Period, the concept of *ahupua‘a* was established, as well as class stratification, territorial groupings, powerful chiefs and “*mo‘i*” or king (Kirch 1985:303-6).

One of Maui’s most famous *ali‘inui* during this period was Pi‘ilani (ca. Late 1500s to Early 1600s) who’s ancestors made Hāna their home. As a ruler, Pi‘ilani spent time at both Hāna and Lele/Lahaina. He was well known for his peaceful rule of Maui, Molokai and Lanai. While he ruled there were no wars between chiefdoms and island polities. Several *mele*, ‘*olelo no‘eau*, and *mo‘olelo* mention that Maui, Molokai and Lanai and all the bays of West Maui that begin with ‘Hono’ were in the realm of Pi‘ilani.

Pi‘ilani met his second son Kiha-a-Pi‘ilani in Lele (now Lahaina). Kiha (ca. Early 1600s) was raised on O‘ahu (Waikiki) with his mother’s family. However, as a young adult he grew tired of listening to his uncles and wanted to meet his father. The *mo‘olelo* indicates that from the moment he met his father, Kiha was never satisfied with being a junior son to his older brother, Lono-a-Pi‘ilani. After the death of Pi‘ilani in Lele, friction between the brothers escalated. Kiha went to the Big Island to solicit the help of his sister Pi‘ikea and her husband, Hawai‘i *ali‘inui* Umi-a-Liloa, but not before he spent some time living in Hāna. After a year of building an army to challenge Lono-a-Pi‘ilani, Kiha and Umi traveled to Maui to find that Lono had recently died, presumably from fear of doing battle with his brother and brother-in-law. Kiha-a-Pi‘ilani eventually took control of the Maui domain. He is credited with many public works, one of which was to finish the Hono-a-Pi‘ilani highway that his father started. Remnants of this monumental feature (King’s Trail) can still be seen today in various parts of Maui, including the coastal zone of Wai‘ānapanapa State Park.

*Mo‘olelo* about events that took place in the early to mid 1600s were revealing in that they illustrate that many of the battles of this period were relatively quickly contained by the opposing *ali‘i* [see *History of Kualii* (Kualii ca. 1630-1660s) in Forander 1917:IV: II: 364-434]. These stories also illustrate the ongoing inter-relationships between the people of the various islands. In the *History of Kualii*, the exploits of Kualii (great-great grandson of Kahuihewa, *ali‘inui* of Oahu) take him to every island and he eventually unites all the islands “from Hawaii to Niihau” (Forander 1917:IV: II: 406). Kualii lives in the time of Maui *ali‘inui* Kamalalawalu and Kauhioakalani, sons of Kiha-a-Pi‘ilani by each of his two wives [Kumaka and Koleamoku] and Kauhikama, son of Kamalalawalu (Kamakau 56; McKenzie 1986, 1983).

**B-4. Proto-Historic Period.** The Proto-Historic Period, A. D. 1650-1795, appears to be marked with both intensification and stress. However, it was during this period that the *Royal Kolowalu Statute* or Kualii’s Law was enforced. Kualii Kuniaka Kukealaikauakalani lived for an extremely long time, was said to sometimes have supernatural powers, and was the first to “unite” all the islands. This *ali‘inui* of Oahu died at Kailua in Koolau in AD 1730, supposedly at the age of one hundred and seventy five.

It (Kualii's Law) was strict, unvarying and always just. It was for the care and preservation of life; it was for the aged men and women to lie down in the road with safety; it was to help the husbandmen and the fishermen; to entertain (morally) strangers, and feed the hungry with food. If a man says, "I am hungry for food," feed (him) with food, lest he hungers and claims his rights by swearing the *kolowalu* law by his mouth, whereby that food becomes free, so that the owner thereof cannot withhold it; it is forfeited by law. It is better to compensate.... A transgressor, or one who is about to die, is, under the application of this law exonerated of his death or other penalty....(Fornander 1917:IV:II:432).

Many wars took place during this time between intra-island chiefdoms and inter-island kingdoms; the majority of these *ali'inui* were related in various ways. In 1736, Maui *ali'inui* Kekaulike died. He chose his *ni'aupi'o* son Kamehameha-nui to be his heir; although Kauhi was the oldest, he was of a slightly lower rank. Kamehameha-nui was the brother of Ka-lola, Ka-hekili, and Ku-ho'oeihei-pahu. In 1737 and 1738 Kauhi-aimoku-a-Kama (Kauhi), oldest son of Ke-kau-like rebelled against his younger brother, Kamehameha-nui. The fighting men of Kamehameha-nui were slaughtered. This prompted Kamehameha-nui to flee to his uncle's canoe, big island *ali'inui* Alapa'i-nui-a-Ka-uaua (Alapa'i), who took him to Hawaii island where they spent a year preparing for war. Alapa'i was the half-brother of Kamehameha-nui's mother (Kamakau 1992:73-74).

When Kauhi heard that Alapa'i was heading back to Maui, he enlisted the help of Pele-io-holani, Kauai *ali'inui* who was also ruling chief of Oahu and the son of Kualii; Pele-io-holani was also father of Ke'eaumoku and cousin of Alapa'i (McKenzie 1986:23). Alapa'i attacked Maui (1738), drying up the streams of Kaua'ula, Kanaha and Mahoma near Lahainaluna, destroying the taro patches. His men kept guard over the streams of Olowalu, Ukumehame, Wailuku and Honokawai (sic). "When Pele-io-holani heard that Alapa'i was in Lahaina he gathered all his forces at Honokahua and at Honolua. At Honokawai (sic) an engagement took place between the two armies, and the forces of Alapa'i were slaughtered and fled to Keawawa." Pele-io-holani had 640 men to Alapa'i's 8,440. However, the cousins once again came face to face in Pu'unene and decided to once more opt for peace between the families. Kamehameha-nui ruled Maui in peace; Pele-io-holani retired to Molokai for a while, and Alapa'i went back to rule Hawaii Island (Kamakau 1992:74).

Around A. D. 1759, High Chief Kalani'opu'u from the Island of Hawaii made war on East Maui and conquered Hāna from *ali'inui* Kamehameha-nui, brother of Kalola, Kalani'opu'u's wife. Kalani'opu'u [father of Kīwalao and grandfather of Ke'ōpūlani, sacred wife of Kamehameha I] took control of Hāna's prominent Pu'u Kau'iki as his fortress. He appointed one of his chiefs, Puna, as "governor" of Hāna and Kīpahulu. Puna was later tricked by Mahihelelima into going back to Hawai'i Island, thereby leaving Mahihelelima in control of Hāna. Mahihelelima was an independent chief of Hāna, Kīpahulu and Kaupo, whose ancestors, grandparents, and parents had been chiefs of the districts (Kamakau 1992:81-82).

Kamehameha-nui relinquished Hāna and lived in peace in west Maui. In 1766 the peaceful Maui *ali'inui* died. After ruling Maui for 29 years, ~~Kamehamehanui was taken ill at Kawaipapa~~ on a journey about the island. There in Hāna he ceded his lands to his younger brother Kahekilinui'ahumanu (Kahekili), a fierce warrior and "manipulator" [and biological father of Kamehameha I] (Kamakau, 1992:82-84, 188; Kame'elehiwa 1992:47). During this period, Ka'ahumanu, daughter of Ke'eaumoku and Namahana, was born at Mapuwena, Paliuli, in a cave at the base of Pu'u Kauiki, (she would later become queen and favorite wife of Kamehameha I, unifier of the Hawaiian Islands and nephew of Kalani'opu'u). "Her afterbirth was taken and buried at Kani-a-mako in Kawaipapa above Pihele" (Kamakau 1992:309).

[Ka'ahumanu's] mother was Na-mahana-I-ka-lele-o-na-lani who had already borne two children to her cousin Kamehameha-nui, Pele-io-holani the first borne, and Kua-kini-o-ka-lani the second. When both her husband and her older son died Na-mahana was taken to wife by Ke'e-au-moku, son of Ku-ma'ai-ku and Keawe-poepoe.... [Ka'ahumanu] was therefore... cousin to Kamehameha through their common grandfather Ha'ae.... She was brought up in the land of Kawaipapa and was a great favorite of her father Ke'e-au-moku and the beloved child of her aunts, uncles, and grandmother .... at Cook's arrival Ka'-ahu-manu was a little girl of eleven (Kamakau 1992:309-310).

In 1775 Kalani'opu'u, son of Ka-lani-nui-I-a-mamao [whom the Kumulipo was composed for] and his forces in Hāna raided and severely destroyed the neighboring Kaupo district, before continuing several more raids on the islands of Molokai, Lanai, Kaho'olawe and parts of West Maui. He returned again in 1776 and for several years later, raiding and treating the *maka'ainana* cruelly. In 1777 when very young, her parents took Ka'ahumanu and their whole family to Hawaii to get away from the war between Kalani'opu'u and Kahekili (Silverman, 1987:iii, 5-6; Kamakau, 1992:310).

In January 1778 Cook landed in Waimea, Kauai and the culture of old Hawaii began its spiraling change (see Day 1992). Cook left Hawaii for several months, but returned later in the year. Kalani'opu'u was fighting Kahekili's forces in Wailua, Maui on November 19, 1778 when Cook's ship was sighted on his return trip to the islands. Kalaniopu'u visited Cook on the *Resolution*, while Kahekili visited Clerke on the *Discovery* (Kuykendall and Day 1976:16). When Cook sailed into Kealakekua Bay on January 17, 1779, Kalani'opu'u was still fighting Kahekili on Maui. At this time Kaeo was ruling chief of Kauai; Ka-hahana of Oahu and Molokai; Kahekili of western Maui, Lanai and Kaho'olawe; and Kalaniopu'u of Hawaii Island and Hāna (Kamakau, 1992:84-86, 92, 97-98). On January 25<sup>th</sup> Kalaniopu'u visited Cook again at Kealakekua Bay, presenting him with several feather cloaks. By February Cook's scheme to kidnap Kalaniopu'u as a hostage were thwarted and Cook was killed following a skirmish over a stolen cutter (Kuykendall and Day 1976:18).

The warring between the Hawaii and Maui forces continued. When Kahekili heard about the death of Kalani'opu'u, he was determined to retake East Maui [Hāna District]. The chiefs of Hāna, bastioned at the fortress of Ka'uiki, were Mahi-hele-lima, Kaloku-o-ka-maile, Nae'-ole, Malua-lani, Kaloku, a grandson of Keawe and other chiefs of Hawaii who "liked to live there"[in Hāna] as well as some native Hāna chiefs "who with some commoners, took the side of Hawaii" (Kamakau 1992:115). Kahekili, split his forces and sent them through the southeastern Kaupo Gap and the northeastern Ko'olau Gap into Hāna in 1781. After being thwarted Kahekili sent for Ku-la'a-hola who advised him.

The fortress of Ka'uiki depends upon its water supply. Cut that off and Ka'uiki will surrender for want of water.... Let the chiefs, guards, and fighting men cut off the springs of Punahoa, Waka'akahi, Waikoloa [Kawaipapa] and the ponds from Kawaipapa to Honokalani on the Ko'olau side of the hill.... When the people are dying of thirst and can get no water, then they may be slaughtered (Kamakau 1992:116).

After damming and diverting the supply of spring water to Pu'u Kau'iki, the Hawaii chiefs were finally defeated, and the Maui *ali'inui* regained control of Hāna in 1782. The corpses of the defeated Hawai'i forces were burned at two *luakini heiau* (war/human sacrifice temple), Kuawalu and Honuaua; *heiau* that King Hua was supposed to have built during his infamous reign in Hāna (Kamakau, 1992:84-86; 115-116; Fornander 1900:Vol II 146-7, 150, 216). Both *heiau* were destroyed during the sugar plantation era and on their sites, Catholic and Protestant churches now stand (Walker 1931:186; see also Sterling, 1998:133). Kahekili reclaimed Hāna, then through war and trickery went on to gain control of all the islands except Hawaii Island (Kamakau 1992:116, 128-141).

By 1790 Kamehameha I had gained enough control of the island of Hawaii that he could leave to join the war parties on Maui. Their canoe fleet "beached at Hāna and extended from Hamoa to Kawaipapa" to battle Kalanikupule, son of Kahekili, and ruling chief of Maui while his father ruled Oahu. After several battles along the East Maui coast, Kamehameha's force reached Wailuku where the "great battle" took place. This would be the beginning of the end of independent ruling chiefs because of the inequity of battle strategy. Kamehameha had brought a cannon from the *Elenaora* along with her captain, Isaac Davis, and crewmember John Young, now his *aikane punahele* (favorites) and advisors (Kamakau 1992:147-148) [Day, 1992:24 says that Isaac Davis was the lone survivor of the *Fair American*].

Demographic trends during the Proto-Historic Period indicate a population reduction in some areas, yet show increases in others, with relatively little change in material culture. However, there was a continued

trend in craft and status material, intensification of agriculture, *ali'i* (chief) controlled aquaculture, upland residential sites, and oral records that were rich in information. The Ku cult, *luakini heiau*, and the *kapu* (restriction or regulation) system were at their peak, although western influence was already altering the cultural fabric of the islands (Kirch 1985:308, Kent 1983:13). By 1794 at least eleven foreigners were living on the island of Hawaii, including American, English, Irish, Portuguese, Genoese, and Chinese (Day 1992:23-25) [most likely holdovers of the sandalwood trade]. When Kamehameha I conquered Oahu and Maui in 1795 (with western advice and technology), subsequently unifying the Island Kingdom (Kent 1983:16), it marked the end of the Proto-Historic Period.

**B-5. Early Historic Period.** The Early Historic Period (AD 1795-1899) is marked by very significant events. After Kamehameha I conquered Maui in 1795, he went to Molokai where the sacred women of Maui (Kalola Pupuka and her daughters Kalanikauio'kikilokalaniakua and Keku'iapo'iwa Liliha and her daughter Kalanikauia'aleano), were in hiding. Kamehameha took Keku'iapo'iwa Liliha and Kalanikauia'aleano to O'ahu to witness the Battle of Nu'uuanu Pali and the defeat of O'ahu. It was during this trip that Kalanikauia'aleano was given the name Ke'ōpūolani (Kleiger 1998:21).

Hawaii's culture and economy continued to change radically as capitalism and industry established a firm foothold. In 1810, Kauai *ali'inui* Kaunua'i ceded his kingdom of Kauai, Ni'ihau, Lehua and Ka'ula to Kamehameha. At this time the Sandalwood trade in Hawaii was flourishing; the Fijian and Marquesan supply of sandalwood was exhausted, so Hawaii became known as the "sandalwood mountains" to entrepreneurs of Southern China. Sandalwood came under the personal control of Kamehameha I, who had become "a fervent consumer of high-priced western goods." The sandalwood industry was thriving to the point where the subsistence levels declined, as farmers and fishermen spent most of their time logging, causing famine to set in (Kent 1983:17-20).

On October 1819, seventeen Protestant missionaries set sail from Boston to Hawai'i. Earlier that year, on May 8, 1819, Kamehameha I died. Following his death, his son and heir Liholiho banished the *kapu* system at the advice of his queen mother Ke'ōpūolani and queen regent Ka'ahumanu (Kamakau, 1992:210, 222). The missionaries arrived in Kailua-Kona on March 30, 1820, to a markedly changed culture; one with a "religious" void, and a growing appetite for western products. They quickly started missions on all of the islands, including a station in Hāna. During this period "between one hundred and two hundred foreigners lived among the Islands.... Hardly a ship touched without leaving a deserter or two behind.... A white man automatically ranked as a chief, although he could not own land in fee simple or build a permanent house...[and] they took Hawaiian wives" (Day 1992:25). Kamakau comments on the influence of the missionaries on Maui in the following excerpt:

The island of Maui, the "haven of Pi'ilani," is famous as the place where the word of God was first accepted as the guide to good conduct.... At the haven of Pi'ilani was the word of God first used to protect the laws and to punish wrongdoing and law breaking. At the haven of Pi'ilani laws were proclaimed and enforced against adultery, prostitution, liquor drinking, stealing, taking life and other misdeeds.... There were too many petty laws made at this time at the haven of Pi'ilani, such as laws against smoking, tattooing, knocking out teeth (Kamakau, 1992:353).

In 1828 a group of Protestant missionaries made a trip to Hāna where they "found nearly a thousand scholars" on the plain of Hāna (Forster 1959:18). Also in 1828, two Chinese merchants established the Hungtai sugar works at Wailuku. Many of the earliest Chinese residents in Hawai'i were knowledgeable in sugar production (the *tong see* or sugar masters), and established successful plantations on Maui and Hawai'i (Speakman 2001:90).

In 1831, the Sandwich Islands Mission set up a "high school" on a hill above Lahaina, Maui, "to educate young Hawaiians as teachers and preachers" (Day 1992:47). In 1837 Rev. Conde brought his wife and baby to Hāna, establishing its first permanent mission station—they were the "first European woman and baby ever seen by the local inhabitants." Conde estimated there were about 6,000 Hawaiians living in the

district at that time. Later a missionary report of 1839 stated that "31 schools existed in the [Hāna] district with 1,523 pupils" (Forster 1959:17-19, see also McGregor 1989:355).

In the 1830's other industries such as whaling, and merchandising crept into Hawaii. In 1836 the first sugar plantation was established on Kauai (Kent 1983:23, 29). The first sugar venture in Hāna was established in 1849 when 60 acres of land in the heart of Hāna was cleared and planted by a refugee of the whaling industry (Youngblood 1992:44). This activity not only destroyed Hawaiian ethnobotanical lands in Hāna, but cultural and historical features too. The Hāna Plantation, later called the Ka'eleele Sugar Company, was first established in 1851. "The acquisition of lands by the plantations created a new population distribution in the district. For the first time, dwellings were moved to the sea coast and the hinterland was completely given over to the raising of sugar" (Forster 1959:22).

In the 1840s a political act of the Hawaiian Kingdom government would change forever, the land tenure system in Hawai'i and have far-reaching effects. The historic land transformation process was an evolution of concepts brought about by fear, growing concerns of takeovers, and western influence regarding land possession. King Kamehameha III, in his mid-thirties, was persuaded by his *kuhina nui* and other advisors to take a course that would assure personal rights to land. One-third of all lands in the kingdom would be retained by the king; another one-third would go to *ali'i* (chiefs) as designated by the king; and the last one-third would be set aside for the *maka'āinana* or the people who looked after the land. In 1846 Kamehameha III appointed a Board of Commissioners, commonly known as the Land Commissioners, to "confirm or reject all claims to land arising previously to the 10<sup>th</sup> day of December, AD 1845." Notices were frequently posted in *The Polynesian* (Moffat and Kirkpatrick, 1995). However, the Legislature did not acknowledge this act until June 7, 1848 (Chinen 1958:16; Moffat and Kirkpatrick 1995:48-49), known today as *The Great Mahele*. In 1850, the Kingdom government passed laws allowing foreigners to purchase fee simple lands (Speakman 2001:91).

The 1840s also heralded other changes as well. The Hawaiian government, with the aid of the missionaries, encouraged the sugar industry as well as other enterprises such coffee, cotton, rice, potatoes, and silk worms (Speakman 2001: 93). Disease had a devastating affect on the population and the landscape, killing *ali'i* and *maka'āinana* alike: measles epidemics in 1848 and 1849, was followed by the horrendous smallpox epidemic in 1853. "The whole population was wiped out from Wai'iu, the uplands of Kawaiipapa, Pa'alea, and mauka of Waikā'akū in the Hāna district, and so for Kipahulu and Kaupo...ten thousand [all toll] of the population are said to have died of this disease in Hawaii" (Kamakau, 1992:411, 418). John Papa 'Ūi in *Fragments of Hawaiian History* (1984) talks about the impact of this disease and as *kahu* or guardian of several young *ali'i*, he had to take several of them off of Oahu island. They just kept sailing from island to island and usually were not allowed to land as Oahu was thought to be the source of the smallpox.

By 1858 at least 2,119 foreigners lived in Hawaii. Many were merchants who traded with whalers, while the missionaries lived in various locations throughout the islands. "Foreigners engaged in agricultural pursuits with the idea of reaping a profit from the land, in contrast with the Hawaiians, who carried on...subsistence agriculture" (Coulter 1931/1971:11).

By 1878, the Hāna plains were "dotted with native and European-style dwellings" and fields of sugar cane (Davis 1988:19). The cultural and socio-economic fabric of Hāna would continue to change radically as New Hebrideans, Gilbertese, Chinese, then Japanese laborers were brought in to work the plantations, which, by 1883 totaled six in Hāna, destroying even more farmland and cultural features. Later Portuguese, Puerto Rican, Spanish and Filipino laborers were brought in and supervised by managers from Denmark, Scotland, Germany and the United States. However, by necessity, the plantation workers adopted the subsistence patterns of the Hāna Hawaiians—fishing, hunting, gathering and raising their own food (Davis 1988: 21, 49, 50, 53; Youngblood 1992:45-47). The Overthrow of the Hawaiian Kingdom in 1893 and the subsequent annexation to the United States in 1898 (Daws 1974:289-290) heralded even more radical changes to the Hawaiian culture and to the local landscapes.

**B-6. Territorial History (AD 1900-1949).** This period saw Native Hawaiians running for Congress (Daws 1974 297); and much of the lands being sold in fee simple. Between 1899 and 1905 three rubber plantations were established in Nahiku, but by 1912 their failure to thrive was accepted and they were shut down (Hāna Ranch Newsletter; Youngblood 1992:96-7). In 1927 a 55-mile highway to Hāna built by prisoners--compliments of the Territorial Government, was completed allowing easier access to Hāna. Until then, "the settlements along the Hāna Coast were only accessible by ocean or along rugged horse and mule trails."

However, by 1930, in the Hāna District--from Ke'anae to Kahikinui--there were only "2,436 people living in this area, out of whom 1,117 or 48 per cent were Hawaiian" (McGregor 1989:353-354). Hāna's sugar industry was declining by the 1930's, yet Paul Fagan bought the Ka'eleku Sugar Company. As World War II ended in the 1940's, he decided to convert his sugar holdings to a long-time dream of cattle ranching and the visitor industry (Youngblood 1992:67). The Ka'eleku Sugar Company (previously known as Hāna Plantation), the last sugar plantation in Hāna, shut down operations in August, 1945 at the "high noon" whistle, signifying "death" of the Company, and the "end of plantation life of about 400-500 employees and their families (Okano, nd:16). Many of the plantation laborers were relocated to other parts of Maui (Youngblood 1992:60, 67-70). The plantation town of Hāna changed again to become the *paniolo* or "cowboy" town of Hāna, with first-class accommodations for visitors who could afford to fly in to the grassy runway of Hamoa. The gentle Hāna slopes were modified once again as sugar cane was cleared and alien grasses planted to accommodate the newly converted grazing lands.

**Modern History (post AD 1950).** Post World War II brought about an influx of people and industries to Hawai'i, allowing the tourism industry and offshoot enterprises to flourish. Along with the rise of the tourism industry, and competing sugar markets abroad, the sugar companies saw a sharpening decline in business (the Sugar Acts of 1934 and 1937, and LWU Strike of 1946 didn't help). The 1950s and 1960s were the bleakest years for the sugar industry and it was becoming apparent that the sugar industry was beyond salvage (Kent 1983:107-108). More changes were soon to take place on the landscapes of Hawai'i. Hāna's population declined to about 500 people in the 1950's, but started to increase again after the State paved the Hāna highway in the 1960's, making Hāna more accessible (Youngblood 1992:70-7). The economy picked up as visitors "discovered" Hāna's beauty and charm, and wealthy Mainlanders invested in hideaway property.

1950 also marked the introduction of radiocarbon analysis which shifted the focus of study in archaeology from relative dating excavated material cultural remains to carbon dating; this was followed by a focus on settlement and subsistence patterns, land and marine use. However, the recent Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) and its implementing regulations (43 CFR Part 10), and Hawai'i's Act 50 (2000) has shifted the focus of study to include a greater interaction with indigenous people, and a lesser focus on invasive methods of study. Hāna remains one of the relatively untapped areas of study with a tremendous potential to yield a plethora of information due to the continuous "Hawaiian" lifestyle of its residents, and the large quantity of sites still relatively well preserved.

### C. Traditional Literature

The ethnographic works of the late 19<sup>th</sup> and early 20<sup>th</sup> century contribute a wealth of information that comprise the traditional literature--the *mo'olelo*, *oli*, and *mele*--as well as glimpses into snippets of time, and a part of the Hawaiian culture relatively forgotten. The genealogies handed down by oral tradition and later recorded for posterity, not only give a glimpse into the depth of the Hawaiian culture of old, they provide a permanent record of the links of notable Hawaiian family lines. The *mo'olelo* or legends allow *ka po'e kahiko*, the people of old, the *kupuna* or ancestor, to come alive, as their personalities, loves, and struggles are revealed. The *oli* (chants) and the *mele* (songs) not only give clues about the past, special

people, and *wahi pana* or legendary places, they substantiate the magnitude of the language skills of *na kupuna kahiko* (the people of old). Several excerpts of the *mo'olelo* and *mele* have already been used as references or chronology markers in the 'Overview of Human Impact, Settlement and Socio-economic Development...' above. The following sections give a little more detail and explanation of the traditional literature.

**C-1. Genealogies.** *Po'e ku'auhau* or genealogy *kahuna* were very important people in the days of old. They not only kept the genealogical histories of chiefs "but of *kahunas*, seers, land experts, diviners, and the ancestry of commoners and slaves...an expert genealogist was a favorite with a chief" (Kamakau 1992:242). During the time of 'Umi genealogies became *kapu* to commoners, which is why there "were few who understood the art; but some genealogists survived to the time of Kamehameha I and even down to the arrival of the missionaries" (ibid).

Surviving genealogies illustrate that the ruling families of each island were interrelated quite extensively. The chiefs of Oahu, Kauai, Hawaii, Maui and Molokai had one common ancestry. Families branched out, but conjoined several times in succeeding generations. Oahu and Hawaii's chiefs were linked as are Hawaii and Maui chiefs, and Hawaii's chiefs were linked to Kauai chiefs (Kamakau, 1991:101; McKenzie, 1983:xxv). Not only were the chiefs or *ali'i* related to each other, they were also related to the commoners. In *Ruling Chiefs*, Kamakau states that "there is no country person who did not have a chiefly ancestor" Kamakau (1992:4). In the following passage Kamakau (1992) explains how some of the *ali'i* were connected.

It is said that the chiefs of Hawai'i island were from Maui and from Oahu and Molokai between the times of 'Aikanaka and Hanala'anui. Thus 'Aikanaka was the chief of Koali and Mu'olea in Hāna; Hema, the chief of Ka'uiki in Hāna; Kaha'i, the chief of 'Iao in Waikiki; Wahieloa, the chief of Papauluana in Kīpahulu. Laka the chief was born at 'Alae in Kīpahulu, Maui; he ruled in Ko'olaupoko, Oahu; the site of his house, Hale'ula, was at Waikane, Oahu (Kamakau, 1991:101).

Malo (1971) wrote about the connection between the *maka'ainana* and the chiefs. "Commoners and *alii* were all descended from the same ancestor, Wakea and Papa" (Malo, 1971:52). This is evident in the genealogies. Genealogies were very important to the chiefs, because ranking was very important. The genealogies not only indicated rank, they ascertained a link to the gods. The following excerpt explains the idea and importance of rank and the role of genealogies:

Position in old Hawaii, both social and political, depended in the first instance upon rank, and rank upon blood descent--hence the importance of genealogy as proof of high ancestry. Grades of rank were distinguished and divine honors paid to those chiefs alone who could show such an accumulation of inherited sacredness as to class with the gods among men...a child inherited from both parents.... The stories of usurping chiefs show how a successful inferior might seek intermarriage with a chief of rank in order that his heir might be in a better position to succeed his parent as ruling chief...a virgin wife must be taken in order to be sure of child's paternity--hence the careful guarding of a highborn girl's virginity (Beckwith1990: 11).

One could defend and/or prove their rank by knowing or having one's genealogist recite one's genealogy. "To the Hawaiians, genealogies were the indispensable proof of personal status. Chiefs traced their genealogies through the main lines of 'Ulu, Nana'ulu, and Pili, which all converged at Wakea and Papa (Barrere, 1969:24). Two well-known genealogy chants are the *Kumuhonua* and the *Kumulipo*.

**C-1a. Kumuhonua.** The *Kumuhonua*, first published by Forlander in 1878, in *The Polynesian Race Vol. I* was based on information from Kamakau and Kepelino. *Kumuhonua*, the man, was of the Nanaulu line, and the older brother of Olopana and Moikeha (McKenzie 1986:14-15). However, the birth chant *Kumuhonua* has been a subject of controversy as noted in following *Preface* by Kenneth P. Emory:

We have become painfully aware that the Kumuhonua 'legends' are not ancient Hawaiian legends, nor is the genealogy which accompanies them a totally authentic genealogy.... In his second volume (1880) when he relates events from the period of the arrival in Hawaii of migrant chiefs from Tahiti to the time of Kamehameha, in these writings he is dealing with relatively untampered, authentic Hawaiian traditions and genealogies.... We must ever be on guard against the effects of this impact in what was recorded subsequently about the pre-contact period.... The world of the Polynesian began to be transformed overnight by Western influence." (Barrere, 1969:i)

Barrere (1969) explains that some of the *Kumuhonua* legends were recorded by Kamakau and Kepelino between the years 1865 and 1869, however, the 'genealogy' of the *Kumuhonua*, published by Fornander, was given to him "to provide credibility to the legends...this 'genealogy' [was] constructed from previously existing genealogies--the *Ololo* (*Kumuhonua*) and the *Paliku* (*Hulihonua*) which are found in the *Kumulipo* chant (see Beckwith 1951:230-234) and interpolations of their own invention" (Barrere, 1969:1).

**C-1b. Kumulipo.** A better example is the famous Creation Chant *The Kumulipo*. Feher (1969) had several notable Hawaiian scholars write passages in his *Kumulipo: Hawaiian Hymn of Creation-Visual Perspectives* by Joseph Feher. In the *Introduction* Momi Naughton states "The *Kumulipo* belongs to a category of sacred chants known as *pule ho'ola'a ali'i*, 'prayer to sanctify the chief,' which was recited to honor a new-born chief (Feher, 1969:1).

In her passage, Edith McKenzie states:

"The *Kumulipo* is a historical genealogical chant that was composed by the court historians of King Keaweikēhāhāli'iokamoku of the island of Hawai'i about 1700 AD in honor of his first born son Ka-lani-nui-'Ia-mamao. This important chant honors his birth and shows the genealogical descent of both the *ali'i* (chiefs) and the *maka'ainana* (commoners) from the gods, in particular Wakea...." (Feher, 1969:1).

*The Kumulipo* was an *inoa* or name chant for Ka-lani-nui-'Ia-mamao, first born son of Keawe, who later became the father of Kalaiope'u [Kalani'ope'u], ruling chief of Hawai'i (Beckwith, 1990:9). However, Johnson comments that "Malo remarks that the *Kumulipo* is important to both *ali'i* (chiefly) and *maka'ainana* (commoner) groups. It is also a means by which Polynesians as a whole may corroborate lineal ties to the Hawaiian people." (Feher, 1969:2)

In a passage by Roger T. Ames, he corroborates this idea and states, "what is of particular humanistic interest is the way in which the *Kumulipo* as a repository of cultural authority served Hawaiian society in transmitting its cultural legacy and organizing its community. In doing so, it combines both a linear sense of temporal development, and the richness of one particular moment in time" (Feher, 1969:3).

We see prominent Hāna *ali'inui* in the last verse of the *Sixteenth Era*, in Campbell's (1997) *The Kumulipo: An Hawaiian Creation Myth*, a reproduction of Queen Lili'uokalani's translation.

Kawaukaohēle was born, also Keleanuinohoanaapii,  
The woman that lived at [with] Kalamakua,  
From whence Laielohelohe was born and who married Piilani.  
Piikea was born and married Umi;  
Kumamaenui Umi, who owned those precipices from whence slaves were held.  
Kumalaenui of Umi was the husband of Kunuunipuawalau.  
Their son, Makua, was the only high chief (wohi Kukahi) of the island.  
Kapohelemai, his wife, whose rank as sacred wohi Alii and Honor.  
So their heir I, the I of the Kingdom,  
Whose power and right to execute,  
And lord of the famed lands of Pakini,  
Of the sliding Ohia and the weaving of the islands of Hawaii,  
To Ahu—to Ahu of I, of Lono, of Lonoikamakahiki. (Campbell, 1997:78)

Youngblood (1992) found that he could draw on both Fornander and Beckwith's translations of *The Kumulipo* to sketch a socio-political history of Hawaii, specifically the Hāna Coast (Youngblood, 1992:34). In his re-creation he found that stemming from Wakea and Papa are two major Hawaiian genealogies: the *Nana'ulu* and the '*Ulu*. The *Nana'ulu* was the wellspring for the *ali'i* of Oahu and Kauai, while the '*Ulu* line supplied the chiefs of Maui and the Big Island.

**C-1c. Hawaiian Genealogies.** In 1983 Edith McKenzie completed the first volume of *Hawaiian Genealogies*, translated from genealogy articles in 19<sup>th</sup> Century Hawaiian newspapers; these articles were in response to a call to preserve the Hawaiian heritage. The descent of Hāna's *ali'inui* and their connection to other ruling families can be illustrated by piecing these genealogies together. Some of McKenzie's genealogies were from feature articles published in Hawaiian newspapers such as *Ka Nonanona* and *Ka Nupepe Kuokoa* in the late 19<sup>th</sup> century and early 20<sup>th</sup> century. Some of the information was also in Malo's (1838) *Hawaiian History*, and in Fornander's (1880), *The Polynesian Race* (Book I) (McKenzie, 1983:1).

The following excerpt is from Kamakau's article in *Ka Nupepe Kuokoa* October 7, 1865, and was translated by McKenzie (1986). It illustrates some of the mid-19<sup>th</sup> century sentiment regarding genealogies:

*I na makaainana, he mea waiwai ole, no ka mea ua papa ko lakou mau makua o hoohalikelike, a hoohanau keiki o ke kuaaina a pii aku i na li'i. Nolaila ia ao ole ia ai na keili a na makaainana, ma kahi makuakane a makuahine, a kupuna aku no.... Ia kakou i ka poe o keia wa, aole waiwai o keia mea he mooolii aole a kakou mau kuleana nui iloko. Aka, ma ko kakou noonoo iho he waiwai nui. Ua komo kakaou iloko, ua waiwai na'lii i na kupuna; a ua waiwai pu kakou i koo kakou ike ana. No ka mea, ua kapu i ka makaainana aole e ike i keai mea. Aka, no ka pii ana i ka naauao a me ke akamai o na keiki a na makaainana; nolaila, ua noa na wahi kapu, ua pii waleia. O ke koeana mai o na kupuna oia kahi waiwai.*

To the commoners, a genealogy was of no value because their parents forbade (sic) it lest comparisons should occur and country children be born and rise up as chiefs. Therefore, the children of the commoners were not taught beyond father, mother, and perhaps grandparents.... To us, the people of this time, there is no value of this thing of a chiefly lineage; we have no great interest in it. But in our thoughts it is of great value. We have entered into discussion of it; the chiefs valued the chiefs and ancestors; and we also value our knowledge of it. Because it was forbidden to the commoners, they were not to know this. However, due to the rise of wisdom and skill of the children of the commoners, therefore, all of the ranking privileges were no longer restricted; it was only lifted. What remains of the ancestors is something of value (McKenzie 1986:18-19).

Using thirty years to account for one generation, McKenzie determined that Wakea was born in AD 190; Umi-a-Liloa in 1450; Keawekehāhāli'iokamoku in 1650, Kalanihūi'ikupuapaikalani Keoua in 1710; and Kamehameha I in 1740" (McKenzie, 1983:12). Volume Two of *Hawaiian Genealogies* was published in 1986 and consists of information extracted from genealogical lists published in thirteen newspapers from 1858 to 1920. It complements genealogies found in other works, such as Fornander's (1880) *An Account of the Polynesian Race...* and David Malo's *Hawaiian Antiquities* (McKenzie, 1986:v).

The following tables [Table 1 & 2] of the Maui Line and Hawaii line are extracted from McKenzie's works (1983, 1986) as well as other sources such as Kamakau (1992). They illustrate the various family connections. The ruling chiefs of the various islands come from combinations of genealogies or branches. Most of the main figures in the Tables are in a loose chronological order, however, the multiple unions of a particular person is not necessarily in a chronological order, as much of that information was not provided in most cases.

Table 1. Maui Line, genealogies extracted from McKenzie (1983, 1986); and Kamakau (1992).

Kane	Wahine	Keiki
Hanala'ani	Kapukapu	Mani'loa [14 generations before...]
Kaulaheanuokamoku 1	Kapohanaupuni	*Kakaalaneo
"	"	Kakae [?husband of Popalaea]
*Kakaalaneo	Kaulua	Kaihiwalua
Kaihiwalua	Kahekilimanuahumanu	Luaia
Piliwale [Ewa--Oahu ali'inui/]	Paakanilea [Lihue, Kauai]	Kukaniloko
"	"	Kohepalaoa [Pi'ilani's mother]
Luaia [Maui mo'i]	Kukaniloko [Oahu]	Kalanimanuia
**Kakae [Iao/Olowalu-Maui mo'i]	Kapohauola	<b>Kahekilinuihuanu 1</b>
<b>Kahekilil</b>	Haukanuimakamaka	<b>Kawaukaohēle</b> [Pi'ilani's father]
"	"	<b>Keleanuino'ano'ana'api'api</b> [Pi'i's wife's ma]
<b>Kawaukaohēle</b> (Kawaokaohēle)	<b>Kepalaoa</b>	<b>Pi'ilani</b> [& sister Popalaea]
Pi'ilani	Kununuikapokii	Kalamakua
Kaloanui [Waikiki]	Kaipuhoua	Kalamakua-a-Kaipuhoua
<b>Kalamakua</b> [Waikiki Chf]	<b>#*Keleanuino'ano'ana'api'api</b>	<b>Lalelohele</b> [B/R on Oahu]
Pi'ilani	Mokuahualeikea	Kauhiilulaapiilani [version 1]
<b>Pi'ilani</b> [Cousins]	<b>Lalelohele</b>	<b>Lonopifilani</b>
"	"	<b>Pi'ikea</b>
"	"	Kalaaiheana 2--De Fries Family
"	"	<b>Kihapifilani</b>
"	Kununuikapokii	Nihokela → W.C. Lunailo
"	Kuamookea	Kauhiilulaapiilani [version 2]
<b>Lonopifilani</b>	Kealauawauli	Kaakaupēa
Umi-a-Lilōa	Piikea	Aihakoko
"	"	Kumalaenuiaumi → Lili'uokalani
Hoolae [Kauiki Chief]	Kaululena [Waiakea Chfs]	Koleamoku
Kihapifilani	Kumaka [Hāna]	Kamalalawalu [Maui Chief]
"	Koleamoku	Kauhiokalani → Aea family p 89
"	Umahauleiohua	Kapuiholani Kuaimanuu → Luahine Family
"	Hilima	Keaweau
"	"	Moemoē → Heleluhe family
Kauhiokalani	Kauamanu	Makaku
Kamalalawalu	Pi'ilaniwahine [Hilo/Oahu]	Kauhiakama (k)
"	"	Umikalakauehuakama (k) → Kawaihae line
"	"	Paikalakauakama (k)
"	"	Piilanikapu/Piilanikapokulaniokama (w)
"	"	Ka'unohohoikapelapokakae (w)
"	"	Kekaikuihalaokeku'imanano (w)
Kauhiakama	Kapukini-2	Kalanikaumakaowakea [Maui King] → E M
Kalanikaumakaowakea	Kaneakauhi	Lonohouakini
"	Makakuwahine	Umiailoa-2
Lonohouakini	Kalanikaunakinilani	Kaulaheanuokamoku
Kaulaheanuokamoku	Papaikaniau	<b>Kekauliki</b> [Father of Kahekilil 2]
Kalanikauleleaiwi	Kekuiapoewa Nui	["Kekaulike, Maui Mo'i- bays of Pi'ilani."]
<b>Kekaulike</b>	Kahawalu	Kauhiaimokuakama
"	Holau	Manuhāipo
"	"	Kakauhiwamoku
"	"	Ka'eokulani [Kauai Mo'i/father/Ka'umuālii]
"	?	Kuhoohiehe
"	Haalou	Namahanaikaleleonalani → Ka'ahumanu
"	"	Kekuamanoha

Table 1. Continued, Maui Line.

Kane	Wahine	Keiki
<b>Kekaulike</b> [sibs]	Kekuiapoewa Nui	<b>Kamehameha Nui</b> [king of Maui]
"	"	Kalola
"	"	<b>#*Kahekilinuihuanu 2</b> [Iron king of Maui]
"	"	Ku
"	"	Naaiakalani
"	"	Manuāilehua
"	?	<b>Ka'okulani</b> [King of Kauai]
"	?	Manuhaaipo [Queen of Iao]
"	?	Ahia
"	?	Nahulanui
<b>Kamehameha Nui</b> [sibs]	Kalola [Maui]	Kalanikauiokikilo/Kalaniwaiakua [Kapu]
" [Cousins]	<b>Namahanaikaleleonalani</b>	Pele-io-holani
"	"	<b>Kuakinikalani</b>
<b>Keeaumoku</b>	"	<b>Ka'ahumanu</b> [b Ka'uiki, Hāna]
"	"	Opiia
"	"	Kaheihemalie
"	"	Kahekilil Keeaumoku 3
"	"	Kuakini
"	Kamaka'imoku	Keoua
"	Namahana	?
<b>Keeaumoku</b>	"	<b>Ka'ahumanu</b>

\*[Kakaalaneo planted the breadfruit in Lahaina, and built the Heiau Halulukoakoa]

\*\*[Note: Below are different fathers, but same mothers of Kahekilil 1]

[Note: Kaulaheanuokamoku is listed as father of Kekaulike - see below]

#\* **Kelea** was Queen of Maui and sister of **Kawao**, Pi'ilani's father

Table 2. Hawaii Line extracted from McKenzie (1983, 1986) and Kamakau (1992).

Kane	Wahine	Keiki
Hanala'ani	Mabuia	Manakawai [14 generations before...]
Kauholanuimahu	Neuia	<b>Kihanuilitumoku</b> [Kiha 1]
Kiha 1	Waoilea [Ewa, Oahu Ali'inui]	Lilōa-a-Kiha
Lilōa	Pinea 1 [yng'r sib of Waoilea]	Hakau [later killed by Umi]
"	Haua [Maui Ali'inui]	Kapukini
"	Akahiakuleana [←Hāna]	Umi-a-Lilōa I
Hakau	KukukalaniaPae	Pinea 2
<b>Umi</b>	Ohenahena/Hehena	Kamolaniuaumi
"	"	Kahekilinuihuanu
"	Kulamea	Kapunahuanuuaumi
"	Makaalua	Nohowaumi
"	<b>Kapukini/Kapulani</b>	Kealiioalōa → Kalaniopu'u/Kamehameha I
"	"	Kapulani
"	"	<b>Keawenuiaumi</b>
"	Piikea-a-Pi'ilani	Aihakoko
"	"	Kumalae → Aikanaka/Lili'u
"	Kuihewamakawalu	Papaikaneau
"	"	Kuimeheua (k)
"	"	Uluehu
"	Mokuahualeikea	Akahiilikapu → Liholiho/Kamamalu
Keawenuiaumi	Koihalawai [Kauai Chfs]	Kanalōakua'ana
"	Hoopiliahae	Umiokalani
"	"	Keawepaikana

**Table 2. Continued.** Hawaii Line extracted from McKenzie (1983, 1986) and Kamakau (1992).

Kane	Wahine	Keiki
Keawe	Hoopilihae	Lililoa 2
Keawenuiaumi	"	Hoolaaikaiwi
<b>Kaulahea</b> [Maui king]	Kalanikauleleaiwi	<b>Kekuiapoiva Nui</b>
<b>Keawe</b> [Hawaii king]	"	KalaniKeeaumoku
"	"	<b>Kekelakeke</b> aokalani
Kauaunuiamahiloii	"	Alapainui [Hawaii king]
Lonoikahaupu [Kauai king]	"	Keawepoepoe [Chief-Hawaii/Maui/Oahu/Kauai]
<b>Kaulaheanuio</b> kamoku	Papaikaniau	Kalaninuiuihonoikamoku <b>Kekaulike</b>
<b>Kekaulike</b> [sibs]	<b>Kekuiapoiva Nui</b>	<b>Kamehameha Nui</b> [Ruling Chf Maui]
"	"	<b>Kalola</b>
"	"	<b>Kahakilinui</b> humanu 2 [Iron king of Maui]
"	"	Kuhoohaiheipahu (w)
"	"	Naajakalani
"	"	Manuailehua
"	?	<b>Namahana</b> kaleleokalani [-> Ka'ahumau]
Kalaninuiimaa [Ka'u]	Kamakaimoku	<b>Kalanio</b> 'u * [Hawaii king]
"	"	<b>Keoua</b> kalanikupuapaikalaninui->K-I
*[ Two fathers: also Begotten by Pele-jo-holani, ruling chief of Oahu and Kamakaimoku of Waialele]		
<b>Kalanio</b> 'u	Kalola [Maui High Chfs]	<b>Kiwalao</b>
"	"	Liliha Kakuipoiva
"	Kaneikapolei [Maui line]	<b>Keoua</b> Kuahu'ula [Ka'u]
"	"	Keoua Peeale
"	Mu'olehu	Manoua-> Peter Kaeo of Kauai
"	Halau	Kawelaokalani
"	Kamakotunuiakalani	Pualinui [->a Lahaina line]
"	Manoua [Ka'u]	Manono [Died in battle and placed on Mookini altar]
"	"	Kukanaloo [mo'opuna of 3 kings]
Haee	<b>Kekela</b> okalani	<b>Kekulapoiva</b> 2 [Oahu/Maui Chiefess]
Keoua Kalanikupu	<b>Kalola</b> [->Keopuolani]	Kekuiapoiva 3 Liliha
<b>Keoua</b> KupuapaiKalani	Kekuiapoiva 2	<b>Kamehameha I</b>
"	"	Keliimaikai [Kalanimalokuloku-Keopookalani]
"	?	Kala'imamahu
Keawe Ka'iana	"	KaluaiKonahale Kuakini/John Adams
<b>Kiwalao</b> [Hawaii Chf] [Sibs]	<b>Kekuiapoiva</b> Liliha 2	Kalanikauika' alaneo <b>Keopuolani</b> [Wailuku]
"	Manoua	Kaaimalolo-> Kaeo of Kauai
Kamehameha Nui [sibs]	<b>Kalola</b> [Maui]	Kalaniakuaiokikilo/Kalaniwaiakua [Kapu]
" [Cousins]	<b>Namahana</b> kaleleonalani	Pele-io-holani
"	"	<b>Kuakini</b> okalani
Kamehameha I	<b>Kalola</b> -a-Kumuko'a	?
"	Kanekapolei	Pauli Kaoleioku
"	Peleuli	Kapuiiokiioko
"	"	Kahoanoku Kina'u
"	<b>Keopuolani</b> [Kapu chiefess]	Liholiho [b Hilo]
"	"	Kalanikauikeouli Kiwala'o [b Keauhou]
"	"	Harriet Nahienaena
"	Kanekapolei	Kaoleioku
Kalaimamahu [K1 sib]	Kaheihimalie	Kahahaika' ao' aokapuoka/Kekauluohi
Kamehameha I	"	Kamehameha Kapuajwa
"	"	Kamehamehamalu Kekuiwaokalani
"	"	Kaho'anoku Kina'u
"	Kauhilanimaka	Kahiwa Kanekapolei [mother of Kepelino]
"	Peleuli	Kinau
"	Kaheihimalie	Kekuiwa [Lunalilo Kamehameha]

**C-2. Mo'olelo.** Legends or *mo'olelo* are a great resource as well as entertaining. Leib and Day (1979) state in their annotated bibliography of Hawaiian legends, that legends "are a kind of rough history." They noted "Luamala's idea of the value of myth and legend in the serious study of a culture" and her following quote. "To a specialist in mythology, a myth incident or episode is as objective a unit as an axe, and the differences and similarities of these units can be observed equally clearly and scientifically." They also expressed concern about authenticity, and sometimes found it difficult to determine if a legend was a primary or secondary source. The following definitions of terminology, including the Hawaiian classification of prose tales--*mo'olelo* or *ka'ao*, come from their work (Leib and Day 1979:xii, 1):

<i>Tradition</i>	used to refer to that which is handed down orally in the way of folklore
<i>Folklore</i>	a rather inclusive term, covering the beliefs, proverbs, customs, and literature (both prose and poetry) of a people
<i>Myth</i>	a story of the doings of godlike beings
<i>Legend</i>	deals with human beings and used interchangeably with 'myth'...because the collectors and translators of the tales often failed to make the strict distinction themselves
<i>Ka'ao</i>	"pure fiction"
<i>Mo'olelo</i>	deals with historical matters and somewhat didactic in purpose...included tales of the gods, as well as tales of historical personages...many have recurring patterns, plots, and types of characters

**C-2a. History of Mo'olelo Collecting.** According to Leib and Day (1979) a substantial number of legends were collected and written in Hawaiian, during the century following Cook's arrival in Hawaii. A few accounts of the mythology were printed in the journals of missionaries and travelers, and a few of the Hawaiian lore were printed in languages other than English. The following synopses are excerpts from the works of Leib and Day's (1979), and gives an overview of the first collectors and compilers of Hawaiian myths and legends.

The first printed narrative legend of any importance is the epic "Song of Lono" in Byron's *Voyage of H.M.S. Blonde to the Sandwich Islands* (1826), credited by Byron to the American missionaries. Byron had hoped that the missionaries 'will obtain a correct knowledge of the creed and traditions of the Islanders.' Unfortunately, the missionaries were at first more anxious to supplant the native beliefs with new ones than to perpetuate the old ones, with the result that a good many of the legends became altered or were lost. However, the missionaries did a more thorough job of writing down the legends than did the explorers and voyagers (Leib and Day 1979:5). William Ellis, who toured Hawaii in 1823, is credited as "chronologically the first important source of Hawaiian mythology. Although [Ellis] deplored the content of the legends, they showed that the Hawaiians had mental powers which might later be 'employed on subjects more consistent with truth' (Leib and Day 1979:6).

About 1836 a movement was started under the influence of Reverend Sheldon Dibble, to write down in Hawaiian some of the material dealing with the native legendary history, customs, and other lore. Results of the research were published at the Lahainaluna press in 1838. A partial translation made by Rev. Reuben Tinker was issued serially in 1839 and 1840--the first four installments appearing in *The Hawaiian Spectator* and the last four in *The Polynesian*. In 1841 the Royal Hawaiian Historical Society was formed at Lahainaluna. Some of their research and the earlier *Ka Moololo Hawaii* were incorporated into Dibble's *History of the Sandwich Islands* (1843). After his death in 1843 his work was carried on principally by two of his outstanding native pupils, David Malo and Samuel M. Kamakau. Malo wrote his own *Moololo Hawaii* about 1840 at the request of Rev. Lorrin Andrews, which was later translated by Emerson as *Hawaiian Antiquities*. In 1858 the Rev. John F. Pogue of Lahainaluna printed a third *Moololo Hawaii*, based on the 1838 history, but including additional material. Kamakau did not print any of his material for thirty years (Leib and Day 1979:7, 8, 9).

The increase in the amount of Hawaiian lore appearing in the native press in the 1860's and thereafter was at least in part the result of an organized effort to collect and preserve such material. At Kamakau's instigation a Hawaiian society was formed in 1863 to collect material for



Beckwith's (1970) version is as follows:

**Hanala'anui and Hanala'aiki.** Maui chief Haho, son of Paumakua and grandson of Hua-nui-ka-la'ila'i [and grandfather of the twins], was the traditional founder of the *Aha'ali'i* or ranking body of chiefs whom were distinguished by the use of the sacred cord called *aha*. They cultivated a metaphorical form of speech to conceal their words from the uninitiated.... Between the periods of Hua and Pi'ilani, that is, between Moikeha's time and that of Umi on Hawaii, the twins were born at Kahinihini in Moka'e, Hamoa. 'Little and big sacred one of Hāna' called Hana-la'a-nui and Hana-la'a-iki, from who respectively the chiefs of Hawaii and Maui are descended. From Kiha and his wife Koleamoku are descended the great Kaupo families of Ko'o and Kaiuli. From them, Kahekili's wife Kauwahine, mother of Kanlanikupule, the last ruling chief of Maui, and of a daughter, Kaiikaouha, who became the wife of the Maui chief Ulumehe'ihe'i Hoapili and mother of Liliha, beloved wife of Boki of sandalwood fame (Beckwith, 1970:387, 389).

The following synopsis consists of excerpts from Fornander's (1880) *An Account of the Polynesian Race: Its Origins and Migrations*, and give an overview of the various *ali'inui* (ruling chiefs) of Hāna and Maui, which Fornander refers to as "Moi":

**Independent Hāna Mo'i.** Among the Maui chiefs from the close of the migratory period, say Laamaikahiki to Pi'ilani, the contemporary of Umi and his father Liloa, not many names arrest the attention of the antiquarian student. The position of 'Moi' of Maui appears to have descended in the line of Haho, the son of Paumakua-a-Huanuikalalailai, though, judging from the tenor of the legends, East Maui, comprising the districts of Koolau, Hāna, Kipahulu, and Kaupo, was at times under independent Mo'i (sic). The legends mention six by name, from Eleio to Hoolae,<sup>2</sup> the latter of whom was contemporary with Pi'ilani, and whose daughter [Kolea] married Pi'ilani's son, Kiha-a-Piilani. Their allegiance to the West Maui Mo'i was always precarious, even in later times (Fornander, 1880).

[Fornander's Note: <sup>2</sup>] Maui Mo'i names were Eleio, Kalaehaeha, Lei, Kamohohalii, Kalaehina, and Hoolae, each one succeeding the other. They generally resided at Hāna, where the fortified hill of Kauiki was considered an impregnable fortress. I have a legend, which mentions some transactions between Eleio and Kakaalaneo, the son of Kaulahea I., but, if the legend may be trusted, Eleio must have been very old at the time. Whether this Eleio of Hāna family descended from some of the southern [Tahiti] immigrant chiefs or from the ancient Nanaulu line, I have not been able fully to ascertain. The ever more or less uncertain state of allegiance of the Hāna chiefs to the Maui sovereign, and their frequently independent political status, would seem to have been born of some radical ancient antagonism. The old legends mention incidentally that Kanaloa and Kalahumoku, two of the sons of Hualani, the wife of Kanipahu, and fifth in descent from Maweke, settled at Kauwiki [sic] in Hāna. While the Hawaii chiefs retained the pedigree of the younger brother whose grand daughter Kamanawa married Kuaiwa, the Mo'i of Hawaii, the descendants of the older brother, have dropped out of memory. Kanaloa may have been the great-grandfather of Eleio (Fornander 1880:78).

**Kamaloohua and `Ohana.** While Kamaloohua ruled over the greater part of Maui, a chief who was doubtless a near relation, and who was called Wakalana, ruled over the windward side of the island and resided at Wailuku. During his time tradition records that a vessel called "Mamala" arrived at Wailuku. The captain's name is said to have been Kaluiki-a-Manu, and the names of the other people on board are given in the tradition as Neleike, Malaea, Haakoa, and Hika. These latter comprised both men and women, and it is said that Neleike became the wife of Wakalana and the mother of his son Alo-o-ia, and that they became the progenitors of a light-coloured family, "po'e `ohana Kekea;" they were white people, with bright, shining eyes, "*Kananka Keokeo, a ua alohilohi na maka*" (Fornander 1880:80).

After the reign and times of Kamaloohua nothing worthy of note has been recorded of the Maui chiefs until we arrive at the time of Kakae and Kakaalaneo, the sons of Kaulaheanuikamoku I [Kaulahea II], three generations after Kamaloohua.... Kakae's brother, Kakaalaneo, appears, from the tenor of the legends, to have ruled jointly with Kakae over the islands of Maui and Lanai. He

was renowned for his thrift and energy. The brothers kept their court at Lahaina, which at the time still preserved its ancient name of Lele, and tradition has gratefully remembered him [Kakaalaneo] as the one who planted the breadfruit trees in Lahaina, for which the place in after times became so famous (Fornander 1880:80).

Kaka'alaneo was a distant uncle of Pi'ilani. The following synopsis about Kakaalaneo and Kukanalao are excerpts from Beckwith (1970). There appears to be a time-conflict with the arrival of the light-skinned foreigners. Fornander (1880) indicates they arrived during Kamaloohua's reign, while Beckwith indicates the foreigners arrived four generations later during the time Kakaalaneo. Along with the "Legend of Kukanalao" is an accompanying *mele* that refers to Pi'ilani. This *mele* was probably after Kaka'alaneo's time because Pi'ilani was born much later.

**Legend of Kaka'alaneo.** Many legends mention the name of Kaka'alaneo (Kuka'alaneo, Ka'alaneo), who lived in the present Lahaina district on the hill Keka'a [Black Rock of Sheraton Maui]. He also owned fishponds in the Hāna district on the opposite end of the island and planted a famous breadfruit grove in Lahaina. His wife was the Molokai chiefess whom Eleio found for him and who brought him the first feather cape ever seen on Maui, and by whom he had the mischievous son Kaululaa who killed off the spirits on Lanai. In his day Lahaina was called Lele. According to tradition, a group of strangers (*haole*) who later played an active part in court life and whose names were (according to Kamakau), kept in memory as late as Captain Cook's day, arrived on Maui in Kakaalaneo's time. Kukanalao and Kaekae (also Kakae) were the leaders of this group. The "last allusion" in this legend is a pun about chief Lolae of Oahu who abducted the pretty chiefess of Maui, Kelea [sister of Pi'ilani's father], while she was out surfing and carried her away to Oahu in the uplands of Lihue. She later deserted him for his cousin Kalamakua of Ewa, by whom she became mother of the high chiefess Laie-lohelohe (The drooping pandanus vine), who became the wife of her Maui cousin Pi'ilani. All these names appear in the chant linked with the coming of Ku-kanalao, together with the names of a wife and son of Kakaalaneo (Beckwith, 1970:384-385).

**Legend of Kukanalao.** The strangers land first at Keei in South Kona and then come on to Waihe'e, Maui, and land at a place called Ke-ala-i-Kahiki (The road to Kahiki). They are exhausted and the natives clothe and feed them. In looks they are light with sparkling eyes. When asked after their homeland and parents they point to the uplands 'far, far above where our parents dwell' and show that they are familiar with bananas, breadfruit, mountain apple, and candlenut trees. The two leaders became Kaka'alaneo's property. There is no kapu place closed to them. They married chiefesses and some of their descendants are living today. Kani-ka-wi and Kani-ka-wa they are called, 'perhaps because their speech was as unintelligible as that of the lale birds that live in the hill' (Beckwith, 1970:386). Pi'ilani and some of his family are mentioned in the following *mele* of this *mo'olelo*:

<i>Puka mai o Kanikawi, Kanikawa</i>	Came Sharp-sound, Loud sound,
<i>O na haole iluna o Halakaipo,</i>	The strangers above Halakaipo
<i>Puka mai nei Kukanalao,</i>	Came Ku-kanalao
<i>Kupuna haole mai Kahiki</i>	The stranger forefather from Kahiki
<i>Puka mai nei Kakaalaneo</i>	Came Kakaalaneo,
<i>Me ke leo iki o Kakae,</i>	With the soft-voiced Kakae,
<i>O Kaulua is, o Kaihiwalua</i>	Kaulua (the wife), Kaihiwalua (the son),
<i>O Kelea, o Kalamakua,</i>	Kelea (the wife), Kalamakua (the husband),
<i>O Pi'ilani ia, o Laielohelohe</i>	Pi'ilani (the husband), Laielohelohe (the wife).

According to Fornander (1880), Kakae was the son of Kaulaheanuikamoku I, and the brother of Kakaalaneo with whom he co-ruled Maui. He was also the father of Kahekiliinuahumanu I and Kaulaheanuikamoku II, grandfather of Kawaokaohele and Keleanuiohoh'ana'api and great-grandfather of Pi'ilani of Hāna and Lahaina. The following excerpts from Fornander (1880) reveal some of their history.

**Kakae, Kahekili I, and Kawaokaohele.** Kakae's son was Kahekili I, who is known to have had two children, a son name Kawao Kaohela [Pi'ilani's father], who succeeded him as Moi of Maui, and a daughter named Keleanoanoapiapi [Pi'ilani's wife's mother], who was successively the wife of LoLale, son of Kalona-iki, and of Kalamakua, son of Kalona-nui, on the Oahu Maweke line.

From the time of Mauiloa, third from Haho and contemporary with Laamaikahiki, to the time of Kaulahea I [father of Kakae and Kakaalaneo] there must have been troublous times on Maui, and much social and dynastic convulsions, to judge from the confusion and interpolations occurring on the royal genealogy of this period. I have shown it to be nearly historically certain that the Oahu and Maui Paumakua were contemporary, and it will be seen in the sequel that it is absolutely certain that Kawaokaohele [Pi'ilani's father] on the Paumakuahaho line was contemporary with Kalamakua, Piliwale and LoLale on the Maweke line of Oahu chiefs, as well as on the Oahu Paumakua line through Lauli-a-Laa; and yet the Maui royal genealogy, as recited at the court of Kahekili II at the close of the last century, counts thirteen generations between Mauiloa and Kaulahea I, or sixteen generations between Mauiloa and Kawaokaohele [Pi'ilani's father], whereas the Maweke and Oahu Paumakua genealogies count only seven from Laamaikahiki to Keleanoanoapiapi [mother of Pi'ilani's wife La'ielohelohe], the sister of Kawaokaohele [Pi'ilani's father]. (Fornander 1880:78-79).

**Kawaokaohele.** During the reign of Kawaokaohele [Pi'ilani's father], the son of Kahekili I, and grandson of Kakae, the island of Maui appears to have been prosperous and tranquil. No wars with neighboring islands or revolts of turbulent chieftains at home have left their impress on the traditional record. Kawaokaohele's wife was Kepalaoa, whose pedigree is not remembered, but who was probably some Maui chiefess [she was the daughter of Oahu *alii'inui* Piliwale]. Kawaokaohele was succeeded as Moi of Maui by his son Piilani, who, through his good and wise government, and through his connection with the reigning chief families of Oahu and Hawaii, brought Maui up to a political consideration in the group which it never had enjoyed before, and which it retained until the conquest by Kamehameha I consolidated the whole group under one rule (Fornander 1880:83, 87)

There are several legends of Keleanuino'ana'api'api [Kelea], the sister of Kawaokaohele, aunt of Pi'ilani, and mother of La'ielohelohe, Pi'ilani's wife. Her story is one of intrigue, and romance, but also allegorizes the life and privileges of *alii'inui* women. It further illustrates the interrelationships between the *alii'inui* of the various islands. The following *mo'olelo* is extracted from Fornander's (1880) "Story of Kelea-Nohoanaapiapi."

**The Story of Kelea.** The Story of Keleanui Nohoanaapiapi, sister of Kawaokaohele, begins in Hāna. The men of Chief LoLale of Lihue, Oahu [now Schofield] were searching for a wife for him.... They went first to Molokai, then to Lanai, then sailed for Hāna intending to go to Hawaii. While at Hāna they heard that Kawaokaohele, the Moi of Maui was stopping with his court and his chiefs at Hamakuapoko, regulating the affairs of the country, and enjoying the cool breezes of that district, and the pleasures of surf-bathing, and that with him was his sister Kelea, the most beautiful woman on Maui, and the most accomplished surf-swimmer.

They thought of a plan to win her confidence by going surfing with her, and challenging her to a race. On her third time out, they captured her, and took her into a waiting canoe to Oahu. They took her to Chief LoLale Lihue, Oahu, son of Oahu Moi Kalona-iki, and brother of heir-apparent Piliwale. "And as she did not commit suicide, it may be inferred that she became reconciled to her lot and accepted him as her husband. And as no invasion of Oahu was ever attempted by Kawaokaohele, or vengeance exacted for the abduction of his sister, it is probable, though the legend says nothing about it, that the affair was diplomatically settled to the satisfaction of all parties."

Kelea and LoLae had three children: Kaholi-a-Lale, who later married Kohipalaoa, sister of Kukaniloko, Moi of Oahu after her father, Piliwale's death [Kukaniloko was a contemporary of Pi'ilani, and Piliwale was Pi'ilani's maternal grandfather], Luliwahine, and Luli Kane. After

several years and three children she informed Lolale that she was leaving him, as was her privilege due to her rank. He reluctantly gave his consent, but his grief was preserved in a chant. While traveling around Oahu, Kelea met Kalamakua, chief of Halawa and cousin of LoLale. They marry and have a daughter Laielohelohe, who in her youth was betrothed to her cousin Pi'ilani, son of Kelea's brother Kawaokaohele (Fornander 1880:83-87, 90-91).

There are other versions of that story. The following synopsis corroborates Fornander's (1880) "Story of Kela." The genealogies indicate how *alii'inui* from all the islands were related, and the *mo'olelo* also confirm this as indicated in the following story of La'ielohelohe in Kamakau (1991, 1992).

**The Story of La'ielohelohe.** Kalamakua was a good chief who cultivated large pond fields of Waikiki. He married [Kelea] Keleanuino'ana'api'api, a beautiful chiefess and sister of Kawaokaohele [children of Kahekili I], [Pi'ilani's father, also spelled Kawaokaohele] the *alii'inui* of Maui. She loved to surf at Hamakuapoko, Kekaha, and Wailuku.... The chiefs of Oahu, searching for a wife for Chief Lolae, ruling chief of Lihue, Oahu, when reaching Hāna heard about the beautiful Kelea, they wanted to obtain her for their chief. They found her at Hamakuapoko, and she proved to be an unsurpassed surfer of East Maui. They tricked her and kidnapped her to Waialua, Oahu, where she was taken to Chief Lolae at Lihue. They had three children: Kaholalale, Luliwahine, and Lulikane, ancestral chiefs of Oahu. After ten years she asked her husband if she could go to Ewa to go sightseeing and he agreed. On her travels she heard about the surfing of Waikiki and asked her companions if she could go there and they agreed. She asked the *kama'aina* for a board and she proved to be a very skilled surfer. The people cheered and cheered her. Chief Kalamakua was working in his fields and heard the shouts. He went to check and watched her from the shore. When he saw her skill and beauty he asked if she were Kelea. She said yes. He wrapped his *kihei* around her naked body and took her to a *kapu* place. She married Kalamakua. They had La'ielohelohe, born at Helumoa and raised in Waikiki. She was betrothed to Pi'ilani, the son of the *alii'inui* of Maui [Kawaokaohele]. Her *akua* grandmothers Hapu'u and Kalaiohauola took care of her. Later she voyaged to Maui to marry Pi'ilani. They lived at Halehuki and had four children: Lono-a-Pi'ilani, Pi'ikea, Kala'aiheana, and Kihapi'ilani. La'ielohelohe returned to Oahu for Kiha's birth. He was born at 'Apuakehau in Waikiki—there is a rock there to mark the place (Kamakau, 1991:45-49, Kamakau, 1992:22).

**Pi'ilani.** There is no "Story of Pi'ilani" by any of the early compilers of *mo'olelo*. However, Fornander (1880) notes that during Pi'ilani's reign, and perhaps during that of his father, the Hāna chiefs acknowledged the "suzerainty" of the Moi of Maui, and Pi'ilani made frequent tours all over his dominions, enforcing order and promoting the industry of the people (Fornander 1880:87). Pi'ilani's connection to Wai'ānapanapa State Park will become evident in the legend of Wai'ānapanapa. Below, Beckwith alludes to Ka'uiki being the home of the Pi'ilani *ohana* in the following excerpt:

The island of Hawaii lying over against Kauiki, home of the heaven-high chiefs of the Pi'ilani line, bred meanwhile the offspring of the second of those usurping chiefs [Kihapiilani; the first she refers to is 'Umi] whose final example is found in the well-known history of the first Kamehameha (Beckwith 1970:389).

According to Fornander (1880), Pi'ilani's children with La'ielohelohe were Lono-a-Pii, who succeeded him as Mo'i of Maui; and Kiha-a-Pii, who was brought up to the age of manhood among his mother's relatives on Oahu. Their daughter Pi'ikea, became the wife of Umi, son of Liloa, Mo'i of Hawaii, and through her great-grandson, I, became the ancesstress of the present sovereign of the Hawaiian group, Kalakaua (Fornander 1880:87). They had another daughter, Kala'aiheana, of who no further mention occurs. With another wife, named Moku-a-Hualeiaka, a Hawaii chiefess of the Ehu family, Pi'ilani had a daughter, Kauhi'iluila-a-Pi'ilani, who married Laninui-a-Kaihupepe, chief of Koolau, Oahu, and lineal descendant of Maweke through his son Kalehenui. And with still another wife, named Kunuunui-a-kapokii, whose pedigree has not been preserved, he had a son, Nihokela, whose eighth descendant was Kauwa, grandmother of the late King Lunalilo on his father's side. (Fornander 1880:87).

There are some modern references to Pi'ilani unifying Maui by warfare (see Speakman, 1978/1984; Kolb, 1991:67). In Youngblood's (1992) re-creation of Hāna's history, in *On the Hāna Coast*, we see a peaceful Pi'ilani in the following excerpts:

It is known that Kake'a established a court at Lahaina about 1360 A. D. and that he was succeeded by a son, Kahekili I, who was in turn, succeeded by his son Kawao-kao-hele then his son and successor, Pi'ilani. The Hāna Coast came under their control, thus unifying Maui under one family of *ali'i*. Pi'ilani's rule is remembered as a time of unity, peace, prosperity and construction of public works, including at Le'ekeku, the largest *heiau* in existence. Although Pi'ilani kept his court "Out There" in Lahaina and Wailuku, he maintained a home in Hāna. Even then it was a place of physical and spiritual refuge.

Pi'ilani ordered the construction of fishponds and irrigation systems for the taro fields, and he undertook the immense task of building a network of stone-paved roads, four to six feet wide, around and across the island. The job was continued by his son Kiha-a-pi'ilani, who extended the ribbon of coastal road first built in Hāna around the West Maui and also up Kaupo Gap through the center. Kiha was followed by his son Kamalalawalu [by Kumaka], who is said to have sent his son to spy on the Big Island.... The Maui line passed to Kauhakama...to Kalanikaumakaowakea to Lonohouakini to Kaulahea to Kekaulike [II] to Kamehamehanui to Kahekili [III], the last of the Maui kings (Youngblood 1992:38).

Pi'ilani was a descendant of Hanala'aiki of the Ulu line as indicated in the genealogies and *mo'olelo*. However, we begin to find out about Pi'ilani, the person, in the following excerpt from the *Legend of Wai'anapanapa* which takes place in Hāna.

**Legend of Wai'anapanapa.** A powerful and arrogant warrior chief saw the young and beautiful girl Popoalaea at her father's home and asked for her as his wife. He took her to his mountain home on the slopes of Kaihuakala [Pu'u across Kauiki] where she was hidden from the eyes of other men. Kakae [also the name of their great-grandfather, but could have been a namesake] was more than twenty years older than Popoalaea and as time went on he grew more jealous and suspicious of her and threatened her constantly until she began to fear for her life. Her brother, Pi'ilani, who was of a gentle nature, decided to move near her to keep her company and they would wander through the woods in search of plants and herbs for his house. They were happy in their affection for each other and forgot the jealousy of Kakae. Then Kakae, angered by this affection of the brother and sister, threatened to kill Popoalaea. Fearing for her life, she and her faithful companion, Manona...fled...traveling by the underground passages, for the great mountain [Haleakala] is honeycombed with caves and caverns, and lava tubes leading to the ocean. At last they reached the sea, the beach of Papalaoa [?Pailoa]. There, where the waters have washed the rocks for centuries were to be found wild caves and deep places where only the sunbeams play and here the women thought to hide in safety. In one of the caves they found refuge.... Kakae, searching for his wife, came to the village of Honokalani where he heard strange tales from the fisher folk of spirits wandering on the shore at night.... Suddenly Kakae saw something in the reflection of the pool... With brutal hands Kakae seized Popoalaea... and dashed them to death against the rocks...all nature seemed to cry out against this dastardly thing.... From that day to this the caves in that region have been called Wai'anapanapa--water flashing rainbow hues--for the death of Popoalaea it is said the place sparkled with rainbow stones which the gods in their pity sent... [As told by Emma Kalelokalani Omstead and printed in the *Paradise of the Pacific* 25 or 30 years ago; from E. P. Sterling, 1998:125. A synopsis of JR McConkey, *County Chirps*, by a Westside Bird, *Maui News* Sept 5 (18), 8 (12), 12 (18), 1962.] [See also Beckwith, 1970:381].

Pi'ilani's parents were Kawaokaohele and Kepalaoa. Kawaokaohele was the son of Kahekili I, *ali'i nui* of Maui, and Kepalaoa who was the daughter of the famous Oahu chief, Piliwale (McKenzie, 1983/1986). During Pi'ilani's life and reign as *ali'i nui* of Maui, he was a contemporary of Big Island *ali'i nui* Liloa and his son Umi-a-Liloa. "During the reign of Liloa, king of Hawaii, father of Umi...Pi'ilani was king of Maui, Kalamakua king of Oahu, and Manokalanipo king of Kauai" (Thrum, 1916:128). There are several

legends about Liloa, son of Kiha I, and father of Hakau, Kapu-kini and 'Umi-a-Liloa (Rose, 1992:11).

**Lonoapiilani.** Like his father, there was no "Story of Lono-a-Pi'ilani" in the *mo'olelo*. However, there are many references to him. The following are extracts from Forlander's (1880) collection of legends.

After Piilani's death, his oldest son, Lono-a-Pii, followed him as Moi of Maui. His character has been severely handled by succeeding generations and the legends they handed down. He is represented as unamiable, surly, avaricious--unpardonable faults in a Hawaiian chieftain. His niggardliness and abuse of his younger brother, Kiha-a-Piilani, drove the latter into exile and brought about his own downfall and death, as already narrated (Forlander 1880:205)

Lono-a-Pii's wives were Kealana-a-waauli, a great granddaughter of Kahakuakane, the sovereign of Kauai, and grandson of Manokalanipo. With her he [Lono] had a daughter called Kaakaupua, who became the wife of her uncle Nihokela, and mother of Piilaniwahine [granddaughter of Lonoapiilani], the wife of Kamalalawalu [son of Kihapiilani]. Lonoapii had another daughter named Moihala, from who descended Kapuleiolaa, one of the wives of Kanaloaouoo and ancestress of Sarai Hiwaui, wife of the late Hon. John Ii (Forlander 1880:205-206).

When Umi arrived with his fleet at Hāna, he was informed that Lono-a-Pii had died, and that a son of his named Kalanikupua reigned in his stead, and had charge of the fort of Kawiki at Hāna; that Umi was disposed to spare the young man and allow him to remain on the throne of his father, but Piikea, Umi's wife, strongly opposed such clemency, and persuaded her husband to prosecute the war and place Kihapiilani as Moi of Maui (Forlander 1880:206).

The next major story in *Ruling Chiefs* (Kamakau, 1992), and also Thrum's *Hawaiian Annals* was the 'Story of Kiha-a-pi'ilani'--the youngest son of Pi'ilani's royal children. In Thrum's version (1916) of 'Traditions of Kihapiilani' he notes that there is a different version of the Umi/Kihapiilani story found in the *Polynesian* in 1840 "as told by natives" (Thrum, 1916:128-135).

The following story is based on Thrum's version. It gives a glimpse of Kihapi'ilani the man, as well as the conflict between his older brother and heir, Lono-a-piilani. It also shows a connection to the lands of Honokalani and Kawaipapa.

**The Story of Kihapiilani.** Kihapiilani was born and raised on Oahu with his mother's family. Kihapiilani lived with his uncle and mother and wanted to know who his "real" father was and was told that his father was on Maui, so he wanted to go there and live with his father. "She made ready the canoe, provided the food and said: 'Go, you will find your father keeping the *awa kapu*, and no canoe will be allowed to land...if you reach Keawaiki at Lahaina...land on the beach, let all the men remain on board the canoe...but go yourself ashore to the large man sitting at the door of the house; he is your father, sit on his lap, and if he asks you whose boy you are, tell him you are his, I am Kihapiilani. If he places you at his left hand, that is your place; there is no land on that side; the right side is the place of lands. There will be two cups of *awa*, the one in his right hand represents your elder brother Lonoapii, the other yourself. He will drink first the cup in his right hand, then that in his left; then take pieces of potato in his right hand and left hand and eat them in the same succession; then a banana in each hand, eating them in the same order; after which he will eat fish and poi, then the *kapu* will be ended. If he offers you the cup and potato and banana which are in his right hand you will be the heir; if not, you have no inheritance.'

Kiha found everything as his mother said upon his landing...he sat in the big man's lap...his father kissed him and seated him on his left, but the boy leaped over to the right side. The father said 'You have taken your elder brother's place' and without consent of his father he continued to sit there. The father put out his right hand to take the cup of *awa*, but the son snatched it from him as he did with the potato and banana...he constantly conducted himself in this manner during the life of his father. At his death the lands were willed to the elder brother, who was angry with his brother Kiha for his efforts to obtain the birthrights.

After many conflicts and abuses from his brother, Kiha decided to rebel. They fought in the Wailuku valley near the present female seminary and Kiha was beaten---he and his guardian alone escaping. Kiha then returned to Lahaina to dwell. When he had grown a large following he rebelled again, and was again beaten and all his people killed, together with his guardian (Thrum, 1916:129, 130)

He escaped to Molokai and rebelled again. They fought on a hill called Pakui where he escaped again. A friend gave him a canoe and together with his wife he fled to Lanai where he stayed two days. His friend said lets go to Maui...They arrived in East Maui and went into the woods where they were seen by some fishermen who reported it to the king on his arrival at Maui. The king sent his runner after him...his friend advised him to go and hide in Kula while he returned to the King. Kiha and his wife lived in Makawao. He stole kapa implements to make kapa, he stole potato tops to plant, but was still befriended by a man from Kipahulu who invited them to live with him. (Thrum, 1916:131).

Kiha was later told to see a priest in Hamakuapoko who will see if the kingdom will be his. Then was told to go to see Hoko a priest in Keanae who would perform the same ceremony. He was then told to go to Hāna, to the priest Owao...[part of the plan was to take Kolea, Hāna chief Ho'olae's daughter as his wife---the priest advised his present wife to become their servant until he had gotten the kingdom, which she agreed]. The lands he asked for were: ~~Honokalani [sic]; Waipapa [Kawaiapapa]~~ and Wananalua. Her father said "no, if you take those lands you take the two hills which are celebrated in war; you will then be rebels". He was then advised to leave his new wife, take his old wife and go to Hawaii to see his sister Piikea. (Thrum, 1916:132)

He told his story to 'Umi who told him "We shall lose our labor in fighting with your brother. He will hear of your arrival here and will be taken with fear of me and die trembling. This happened; he died and left his kingdom to his sons. Kiha lived with 'Umi till the end of the year. (Thrum, 1916:133)

Then "they sailed to the war and landed at Hāna; all the chiefs and people and canoes of Hawaii, and the women and children. Landing a party at Hamoa, they fought with Holai [Hoolae] who drove them back to their canoes...[but] they took possession of Kauiki and put Holai to flight.... Piimaiwaa soon found him and chased him among the *lauhala* trees until dark, when he killed him...[In Kamakau's (1992) version, Ho'olae-makua was found at Kapipiwai in the back of Nahiku. He was killed and his hands were brought to Kihapi'ilani as confirmation of his death. "Ho'olae-makua was killed because Kiha-a-Pi'ilani bore a grudge against him, his father-in-law, for not helping on his side...revengeful indeed was the haughty Oahuan!" (Kamakau 1992:31)]

The next morning they advanced by land and canoe until they reached Wailuku where they fought with the chiefs of Maui and put them to flight. The priests advised Kiha not to take the kingdom but to give it to the children of Umi [and Piikea, his sister].

So Kumalae and Aihakoko were left in charge and Umi returned to Hawaii. Aihakoko eventually died after travelling to Lanai, and Molokai on a [funerary quest] after his guardian was killed. He ended up in East Maui where he died. After Umi died, Kiha sent Kumalae to Oahu, and took possession of Maui. He reigned a long time, oppressed the people, made a road of flat stones all around the island and finally died a natural death (Thrum, 1916:134-135).

We see a very different view of the brothers, Lonoapiilani and Kihapiilani, and their conflicts in Kamakau's versions (1870, 1991, and 1992). Kamakau presents a brief overview of Kihapiilani in the following excerpt:

Kihapi'ilani was taken by the *kahuna* and raised at the *heiau* of Mau'oki at Kamo'ili'ili [Mo'ili'ili]. He was taught to be an orator and warrior. When he was twenty he was ordered home to become heir apparent, but when he got to Kalae on Molokai he found that his father Pi'ilani had died at Lahaina. The first-born Lono-a-Pi'ilani became the *ali'i nui* of Maui. (Kamakau, 1991:49; Kamakau, 1992:22).

Kamakau wrote the following *Story of Kiha-a-Pi'ilani* in the newspaper *Ke Au 'Oko'a* on December 1, 1870, as well as in *Ruling Chiefs* (1992). In this story we not only see the conflict between the brothers, and the various place names associated with Kihapiilani, we see their early connection with Hāna where Kiha lived for a while. We also get a glimpse of some of Hāna's history during this period, including place names like Wakiu and Kawaiapapa, where Kiha went to consult a kahuna and stayed with him for a while.

**The Story of Kiha-a-Pi'ilani.** Pi'ilani died at Lahaina, Maui, and the kingdom of Maui became Lono-a-Pi'ilani's. He was the oldest son by La'ieloheloheikawai, next came Pi'ikea, Kalai'aiheana then Kiha-a-Pi'ilani. It was said that there were two heirs Lono and Kiha but Kiha wasn't present at his father's death because he was in Oahu where he was born and reared. So it went to Lono. Pi'ilani commanded that Lono have the kingdom and Kiha dwell in peace under him. In the first years his reign was well and people content.

Lonoapiilani took care of Kiha and he cared for the people by giving them food. Then Lonoapii became angry with Kiha. They both farmed in the *ahupua'a* of Waihe'e. Lono's taro patch was smaller while Kiha's was bigger. Lono got angry and abused Kiha and they fought. Lono tried to kill Kiha so he fled in secret to Molokai to the fortress of Paku'i then later to Lanai...from there he sailed to Kapoli in Ma'alaea, and from thence to the upland of Honua'ula. Someone saw him and it was reported to Lono. Kiha fled to Lahaina where he was hunted, but the gods saved him.

He and his wife went to the gulch of Kuanu'u and round back to the boundary of Honoa'ula and Kula to a place named Ke'eke'e. Later to Kula/Makawao--many people went there to play games and to go swimming in a pool called Waimalino as Kula and part of Makawao were waterless lands. During a famine Kiha cleared an immense patch of land for sweet potato...(Kamakau, 1992:22-33).

Kiha went to Hamakuapoko and Hali'imaile to ask for slips...a rainbow revealed his identity. He later went to Pa'ia for help, but was directed to Kaluko in the upland of Ke'anae, then to Lanahu in Wakiu, then by Weua-Lanahu to Kawaiapapa to consult Kahu'akole at Waipuna'ala'e. Kiha became a ward of Kahu'akole. He dwelt at Kawaiapapa at a place called Kinahole. His wife's name was Kumaka whom he made his sister.

Hāna was a fertile land where taro, sweet potatoes, bananas, sugar cane, and wild fruits grew in abundance, and there was always much food to be had. Kawaiapapa was rich in fish from the ponds and from the sea.

Hāna had a chief to govern it, Ho'olaemakua. It belonged to the ruling chiefs from ancient days, and the ruler was a descendant of the chiefs of Hāna. He belonged to a family that was noted for strong people, and Ho'olaemakua was numbered among them. He was small in size, but his hands had a very strong grip. Ka'hu'akole felt that if Ho'olaemakua sided with Kiha then war could be fought against Lono to take the kingdom from him. Ka'uiki was the strongest fortress there was.

Ho'olae had a daughter, Koleamoku, and Kahu'akole believed that when she became Kiha's wife her father would aid him.... Kiha's constant bathing reddened his cheeks to the color of a cooked crab and his eyes as bright as those of the *moho'ea* bird. Kolea surfed at Keainini in the bay of Kapueokahi (Hāna Bay). Kolea fell for Kiha, but her father was against it because she was betrothed to the ruling chief Lono-a-Pi'ilani. Kiha told her that he was the son of Ka'hu'akole. When Kiha didn't show up at surfing [one day] she went to the upland of Waika'ahiki to Waikalou and to Kawaiapapa where she and Kiha got married. When news that Kolea had married the son of Kahumoku (same as Ka'hu'akole) her father became angry and he disowned her.

They had a son named Kauiokalani and he became ancestor to some chiefs and commoners. Kiha asked Kolea to take their son to Ho'olae to make amends...and to ask for some farm lands... 'If your father should offer you all of Hāna, do not accept. These are the lands for us: Honoma'e, Ke'eke'e, Kawaiapapa, and the two Wananalua'. Her father wanted to give her the

district of Hāna, extending from Pu'ualu'u to 'Ula'ino. She said these are the lands my husband asks for 'Honoma'ele, Ka'eleku, Kawaipapa, the two Wananalua and Kooli."

He said "Your husband is no commoner. He is a chief, Kiha. Your child is a chief. I shall not take Kiha's part. I shall remain loyal to his older brother till these bones perish. Your husband does not want farmlands for the two of you, but is seeking means to rebel against the kingdom. "The lands of Honoma'ele and Ka'eleku supply the 'ohi'a wood and 'ie'ie vines of [the forest of] Kealakona to build ladders to the fortress. Kawaipapa supplies the stones of Kanawao that are used in battle, and then the fortress will be well supplied. The Wananalua lands hold the Ka'ūiki fortress and the places below it. Kooli is the fortress of Kue. I shall not take your husband's side."

Her father said he would give assistance only when Kiha was willing to abide under Lono's rule...then he took his grandson to raise. Kiha was angry when he heard this and wanted vengeance and to rule all of Maui. He decided to go to Hawaii to consult his brother-in-law, 'Umi-a-Liloa. Kiha's first wife [Kumaka] was a chiefess of Hāna and Kipahulu. Kiha took her to Hawaii...they landed at Kohala, then to Maka'e'o in Kailua where he told his entourage to wait for him while he visited his sister.

Kiha told 'Umi that his father had commanded that they share the kingdom of Maui, but his brother took it all for himself and wanted to kill him. 'Umi decided to help Kiha who had been wronged. Lono heard that war canoes were being built in great numbers. The kaula wood of Napu'u and Kahuku, the o'a and koai'e were being made into clubs to be used against Maui...they trembled in fear. After a year they were ready. When the first canoes reached Hāna, the last ones were still on Hawaii... Ho'olae was at Ka'ūiki building a tower and ladders to reach the top.... The first canoes reached Kipahulu and [were] coming towards Kapueokahi [Hāna Bay]... The Hawaii canoes hardly reached the spring of Punahoa when Ho'olae killed the men who manned the spring. The canoes were forced to land at Waika'ahiki... the men who landed at Kihahale walked to Waikoloa in front of Kawaipapa where they fought with slings... Ho'olae stayed close to a rock now called Ho'olae Rock...and was victorious over the warriors of Hawaii who fled to open sea... [from] the expert stone-tossers of Waiku and Honokalani, and the quick slinging lads of Ka'eleku...

The losing warriors of Hawaii sailed for Wailuaiki [sic] at Ko'olau. When the canoes reached Wailuaiki they were dismantled and set upright...then they headed for battle. Upon reaching 'Ula'ino, the fighting commenced at Makaolehua, and in 'Akiala, at La'ahana, at Kawaikau [old name for the Honoma'ele Stream], at Nenewepue, at Kameha'ikana's kukui tree, and all the way along to Honokalani and Waiku, into the pandanus grove of Kahaloeweke, down to Pihele, to the flats of Kalani and the spring of Panahoa. Ho'olae's army proved to be a worthy foe...and very clever--he set up the giant image called Kawalaki'i and dressed it in war apparel (Kamakau, 1992:24-30). [In *Ka Hoku o Hawaii* (1909) it also mentions the black stones ('eleku) of Ka'eleku used in this battle between Ho'olae's army and the Hawaii warriors (Sterling 1998:121)].

Finally a warrior named Pi'imaiwa'a figured out the ruse of the ki'i and destroyed it. Ho'olae escaped. Kiha commanded that Ho'olae's daughter Kolea and her son not be hurt [Kolea was his second wife during his stay in Hāna]. Ho'olae was finally found in the back of Nahiku at a place called Kapipawai and killed ("Revengeful indeed was the haughty Oahuan!") When Lono heard the news he trembled with fear of death and died in Wailuku. Kiha tried to find his body but it had been hidden. They sent for a prophet from Kauai to tell them where the corpse was buried. He said it was in Wailuku in a land called Pa'uniu, but Kiha's men could not find it. Kiha divided the lands... 'Umi left his son 'Aihako'ko' to remain with Kiha and he went back to Hawaii (Kamakau, 1992:31).

Beckwith (1970) first published her *Hawaiian Mythologies* in 1940. The following are excerpts from her version of the story of Kihapi'ilani.

**Legend of Kihapi'ilani.** The name of Kiha is preserved locally about the island of Maui in connection with his feats of leaping from a height into a pool of water, called *leleka'a*, and for his famous paved road about the island with the building of which he oppressed the people. Men are said to have stood in line and passed the stones from seashore to upland. Parts of the road are still in place and may be followed where the trail cuts in a straight line up and down the deep gorges that break the windward slope of the island.

Kihapi'ilani was brought up on Oahu, but when his uncle scolds him for wasting food he goes off to Lahaina to find his true father. He is dissatisfied to take the place of a younger son. After their father's death Lono takes pains to humiliate him. The brothers come to blows. Kiha is defeated and saves him self only by leaping off a cliff down the hill Pakui. He hides himself in the Kula district at Kalani-wai in the Makawao region with his wife Kumaka of a Hāna family of chiefs, whom he passes off as his sister....

He consults various *kahunas* as to the course he should pursue to win the rule from his brother. He goes back to Oahu, learns surfing and, returning to Hāna district, surfs with the daughter of Ho'olae [Chief of Hāna]. The couple are repudiated by the father, but after a son is born, a reconciliation is effected and Kiha sends his wife to ask of Ho'olae such lands as will give him control of the fortress Kauiki.

Ho'olae recognizes at once that this is no common man to whom his daughter Kolea-moku has born a child, but the chief Kihapi'ilani. He nevertheless loyally refuses to desert his old chief Lono. Kiha retires to Hawaii and succeeds in winning Umi's cooperation through the influence of his sister Pi'ikea. After the death of Lono, Umi sends an army to establish Kiha in the succession. Ho'olae defends Kauiki for Lono's son and sets up a wooden image so huge as to frighten off Umi's men... Eventually Pi'imaiwa [one of Umi's warriors] discovers the trick and they defeat Lono's warriors. Kiha has Lono's son put to death and asks that the lands may be made over to Pi'ikea's sons. The two lads come to Maui, but are despised and done to death and Kiha is established as ruler over his father's lands. It is his famous son Kama-lala-walu (son of eight branches) who gives the name Maui-of-Kama to the island (Beckwith 1970:387-388).

Sterling (1998) compiled many stories of Maui between 1960 and 1970. One of them refers to *The Story of Kihapi'ilani* by Moses Manu, who wrote the story for the Hawaiian newspaper *Ka Nupepa Kuokoa* in July and August 1884. In this excerpt "the forces of Kihapi'ilani and Umi are coming from Hawaii to attack Maui."

**The Story of Kihapi'ilani.** ... it was at this time the first of the canoes landed at Kawaipapa and Waikaakahi. Also at the place called the surf of Keaniini as far as Pueokahi [Hāna Bay] it was choked with the canoes of the Hawaii people, and so it was off Mokuhanu and Naniuakane and Kaibalulu. At Aieama, Haneoa and Hamoa, these places were completely filled with canoes. At Honokalani and at Honomalele and Ula'ino, the boundaries of Hāna and Koolau, the canoes were thick. The last of the canoes landed on further at Opikouia, Nahiku, Waiouue, Waiuaki and Wailuanui in Koolau. When Ho'olae's army saw the numbers of canoes and men, he and his men prepared to fight the men of Hawaii when the Hawaii warriors arranged themselves on the plain of Kuakaba (Sterling, 1998:122).

The following excerpt from Manu's (1884) version of *The Story of Kihapi'ilani*. Umi is instructing Kihapi'ilani "to pave the roads when he finished the *heiau* of Honua'ula" formerly built by the infamous King Haa and located where the Wananalua Church stands today.

After this you will begin to pave the road from Pihele [Kawaipapa] at Hāna as far as Koolau at the forest of Oopuloo, as well as all the other bad places on the roads of Maui. Perhaps some reader has seen this story pertaining to Kihapi'ilani's famous deeds in something which was printed in a book at the College of Lahainaluna concerning the first stop of Lono Captain Cook in Hawaii here. In that book it mentions this road which was built by Kihapi'ilani. Something the person who is writing found are these lines which were printed and which have been memorized also by certain other people who are living now. It is these lines:

#### The stream at Kawaipapa

The ascent at Pihele

The descent at Kohala'oaka

Continuing over a treacherous rocky wilderness

The road where people walk along Honoma'eie

The forest at Oopuloa, -- the ponds of Mauoi

The shell road on Molokai

Kihapiilani remembers Umi's words and advice. ...So, the transporting of the hard 'alā stones by the *ali'i* and the commoners was begun. The construction of the road was begun at Kawaipapa and at Pihele where it would start to enter the lala grove of Kahalaowaka. From here to the forest of Akaiaa at Honoma'eie the 'alā stone paving was set at intervals on the road and the paving has probably not been moved. At Kipahulu the paving of 'alā stone was begun, from Alae-iki to Kukui'ula.

Between some of the lands in this locality some of the paving is gone, having been dug out by the plow of T. K. Clarke. The 'alā stones were scattered about and sugar cane planted at this time. It was thus at Kaupo at the stream of Manawaimui as far as Kumunui. When the chief and men finished the work there, the paving was begun in the forest of Oopuloa in Koolau, from Kawaihinepee at Kaloa to Papaeca to Kaohekanu at Hamakualoa. This was a place made famous by robbers in the olden days. This road was treacherous and difficult for the stranger, but when it was paved by Kihapiilani this road became a fine thing. But in these times the large stones which were set have been dug out again by the road workers of this new era (Sterling, 1998:130).

In Forlander's version of the "Story of Kihapiilani" we see that all the subsequent *ali'inui* of Maui were descended from Kiha and Kumaka, sister of the Kawaipapa chief, Kahuakole.

**Story of Kihapiilani.** Kiha, who thus forcibly succeeded his brother as Moi of Maui, had been brought up by his mother's relatives at the court of Kukaniloko of Oahu.... Having, as before related, through the assistance of his brother-in-law Umi obtained the sovereignty, he devoted himself to the improvement of his island. He kept peace and order in the country, encouraged agriculture, and improved and caused to be paved the difficult and often dangerous roads over the Palis of Kaupo, Hāna, and Koolau--a stupendous work for those times, the remains of which may still be seen in many places, and are pointed out as the "Kipapa" of Kihapiilani. His reign was eminently peaceful and prosperous, and his name has been reverently and affectionately handed down to posterity.

Kiha had two wives--Kumaka, who was of the Hāna chief families, and a sister of Kahuakole, a chief at Kawaipapa, in Hāna. With her he had a son named Kamalalawalu, who succeeded him as Moi of Maui. Koleamoku, who was the daughter of Hoolea, the Hāna chief at Kauriki, with her he had a son called Kaubiokalani, from whom the Kaupo chief families of Koo and Kaituli descended. Kamalalawalu followed his father as Moi of Maui. He enjoyed a long and prosperous reign until its close, when his son set in blood and disaster (when Kahakū lost to Kamehameha I) (Forlander 1880:200-207).

**Ka-heihei-malle.** In *Ruling Chiefs Kamakau* (1992) discusses Ka-heihei-malle Hoa-pili-wahine [sister of Ka'ahumanu and daughters of Ke'e-au-moku] who was born in Kawaipapa, Hāna.

[Ka-heihei-malle Hoa-pili-wahine] was born in 1778 at [Kawapo'eie at Pihele] Kawaipapa, Hāna, Maui, in the days when Ka-lani-'opu'u and the chiefs of Hawaii were at war with the chiefs of Maui and had taken Hāna and the fortified hill of Ka'uiki. Mahi-hele-lima was the governor, and Ke'e-au-moku and his family were living at Hana under his protection. Hana was in those days a noted place famous for the fortified hill Ka'uiki...the yellow-leaved 'awa of Lanakila, the delicious poi of Kuakahi, the fat shell fish (opihi) of Kawaipapa...and the juicy pork and tender dog meat dear to the memory of chiefs of that land, moistened by the 'apukea rain that rattles on the hala trees from Wakiu to Honokalani. [She died in Lahaina and was taken to the mausoleum at Waine'e (Moku'ula)] (Kamakau 1992:385).

**C-2c. Place Name Legends.** The following *mo'olelo* or legends are about various place names within or in the vicinity of the project area. Some of the stories have several place names. Some of the *Pele* stories illustrated Pele's visits to various places in the Hāna district.

**Ka'uiki.** According to some legends, it appears that the origin of many prominent *ali'inui* was Ka'uiki in the *ahupua'a* of Wananalua. Beckwith (1970) explains the significance of Ka'uiki in the following excerpts. Several Hāna place names are mentioned including Kawaipapa.

Many generations before Heleipawa and Haho, on the Ulu line, occur such mythical figures as Ku-hele-i-moana and his wife Mapuna-i-aala, daughter of Haumea, Akalana (Wakalana), the Maui brothers, and the Aikanaka to Laka group. Except for the first, famous names in southern tradition [Tahiti], all centered about the hill Kauiki, in the fertile Hāna district on the rain-washed eastern extremity of the island of Maui, where the sun rises out of the sea and the Kohala coast is to be seen beyond the channel of Ale-nui-haha.

From the time of La'a-mai-kahiki down to that of Umi, East Maui, comprising Koolau, Hāna, Kipahulu, and Kaupo districts, was governed separately from the rest of the island, and its chiefs were grouped about the fortified hill of Kauiki, famous in history, song, and story. Myths are told about its origin. Some say that it sprang from the navel of Hāmoa. Others say that it was born to the parents of Pele or to the hill Kai-hua-kala by his wife Kahaule. Others relate how Ka-lala-walu (The eight branched) brought the hill from Kahiki as an adopted child, but grew tired of its nibbling at her breast and tried to leave it along the way, first at Kaloa, then at Kaena, then at the Ka-wai-papa stream. Hāna is called 'a land beloved of chiefs because of the fortress of Kauiki and the ease of living in that place. Maui chiefs who settled with their families in later days about Kauiki were Kanalao and Kalahumoku, sons of Hualani the wife of Kanipahu, and half-brothers to Kalapana who ruled Hawaii, and Eleio, Ka-la-e-haeha, Lei, Kamohohali'i, Kalae-hina, and Ho'olae (Beckwith 1970:378-380).

**Honokalani.** The most famous legend of Honokalani was the legend of Wai'ānapanapa Cave, which is expanded on elsewhere in this report. Local stories are recounted in the ethnographic section of this report [See also Sterling 1998:125, from synopsis of J.R. McKonkey, 'County Chirps, by a Westside Bird' in *Maui News*, Sept. 5 (18), 8 (12), 12 (18), 1962].

**Kawaipapa.** Kawaipapa is mentioned in several legends of Hāna and was a significant place during battles because of the dense basalt pebbles and cobbles of Kawaipapa Stream. It is also where Umi told Kihapiilani to begin his famous road or trail, because of the hard 'alā stones of the stream of Kawaipapa [In Sterling 1998:130, from Moses Manu "The Story of Kihapi'ilani, *Ka'a Nupepa Kuokoa*, July 12 & Aug. 23, 1884]. However, it was also known for its bountiful fish. "Kawaipapa, too, was a land with fish bred in ponds and with those of the sea.... Ka-wai-puna'alaie in Kawaipapa" 'Ka Moolelo O Umi-a-Liloua,' In *Ka Hoku o Hawaii*, June 10, 1909 (In Sterling 1998:126). In one of the stories of Kihapi'ilani, he is told to go to Kawaipapa to consult with kahuna Ka-hu'akole who lives at Waipuna'alaie, Kawaipapa. Kiha becomes a ward of the *kahuna* and lives at a place called Kinahole in Kawaipapa (In Sterling 1998:129, from Kamakau 1992:24).

**Wai'ānapanapa.** Other than the legend of the murder of Popoala'ea and her maid at the Wai'ānapanapa cave, a story by Forlander mentions that the son of Kihapi'ilani, who was living in Hāna at Wananalua sought refuge at the Wai'ānapanapa cave. "At sight of this great strength, Kamalalawalu was so afraid that he escaped to a pool of water at Wai'ānapanapa (dazzling water) which lies in Honokalani [sic], Hāna, and this pool of water is there to this day" (A. Forlander *Collection* 5:206, In Sterling 1998:126).

**Wakiu.** Wakiu was one of the places mentioned in the legend of the *Battle of Kapalipilo* which resulted because of continuing altercations between the forces of Kamehameha-nui of Maui and Ka-lani-'opu'u of Hawai'i Island.

**Battle of Ka-pali-pilo.** After Kalaiopu'u's return to Hawaii, leaving Puna in charge as governor, Kamehamehanui came to make war upon Puna. This was a famous struggle on both sides.... Ka-pali-pilo is the name of this war because of the multitude of those engaged in it; from Heleikeoho to Nahiku the men were massed. The field of battle extended from Makaolehua in Akiala to Kawaihau in Honoma'ele. The hill of Kauiki was the fortified ground for the Hawaiian forces, a fortress celebrated in ancient days for its strength as a refuge in time of danger. It was ascended by a ladder, the body of which was made of 'ohi'a wood from Kealakomo, fastened with withes of 'ie vine from Paiolepawa. The summit was covered with *kanawao* plants from Kawaihau (to serve as bedding).... The second day of the fight the battlefield lay between Akiala and Kewaikau where waved the coconut leaves of La'ahana and rustles the *hala* leaves of Pi'iholo.... The districts through which he [Ka'ohela, one of Kamehamehanui's skilled warriors] pursued Ka-makau-ki'i were the *ahupua'a* of Honoma'ele, Kawela, two Ku'uku'ukamanu, two Kahalili, two Ka'eleku, Honokalani, Waku, and half of Kawaihau... (Sterling, 1998:124, from Kamakau 1992:80).

**Kapueokahi.** Kapueokahi (*Lit., the single owl*) is the name of Hana Bay. According to legend this owl, Kapueokahi, was a *kupua* or shape-shifter—a supernatural being who could take the form of a human or animal. He wanted to marry a human woman named Kapoulakinau, so in Kawaihau, which borders the bay, he changed himself to a man. This is how the bay got its name (Kalima and Maly 1993:A-2, In Henry and Graves 1993).

**Pele travels in Hāna.** Emerson first published stories about the life and travels of the volcano goddess Pele, her lover Lohiau, and her sister Hiiaka, that he gathered and translated from Hawaiian newspapers and from interviews of *kupuna*, in 1915, as *Pele and Hiiaka*. He considered their stories to be the greatest Hawaiian myth and it was his intention to preserve this legend (Emerson, 1997:v). "*Pele and Hiiaka* is not a single version of the legends, but a synthesis of song and story from many sources" (Leib and Day 1979:16). In one part of the story, just before Hiiaka leaves Kohala to go to Maui, one of the canoe crew makes unwanted advances. She rebukes him with the following *mele* which mentions Honokalani (Emerson, 1997b:63), but Emerson does not translate it as a place name.

A Hono-ma-ele au, i Hono-ka-lani,  
Ike au i ka ua ko'u aina,  
E halulu ana, me he kanaka la --  
Ka ua ku a-o-a i kai.  
Haki kaupaku o ka hale i ka ino, e!  
Ino Ko'olau, ino Ko'olau, e-e!

With pillowed neck I lay, face to heaven:  
The rain, I found, beat on my bed;  
Came a tremor, like tread of a man --  
The slap of a rain-squall at sea;  
Within, the roof-tree broken down,  
My house exposed to the storm

Sterling (1998) notes a story from *Hawaiian Ethnological Notes* (2:985) as told by Moses Manu in *Ka Loea Kalaiaina* in 1899. Manu writes about Pele going to Hāna "under the earth from Hale-a-ka-la to the northwestern side of the peak of Ka-ihu-a-ka-la." Kawaihau, Waku and Honokalani are places "visited" by Pele.

On the northwest side of it is another peak called Hale-o-Pele... from there Pele caused a flow to pour as far as Ka-wai-papa, Waku, Hono-ka-lani, Ka'eleku, and between Honoma'ele and Makapu'u in Ulaino. Between these places is the lava bed of Akiala, a place well known in the olden days as the haunt of robbers. The stone (on Akiala) lies on the upper side of the road that runs from Hāna to Ko'olau. The hills of Olopawa lie above Ka'eleku and were made by the lava. So was the hill of Hina'i, above 'Ula'ino, close to Ke-ala-kona where the image (Kawalakii) of 'ohi'a wood was set up on the fortress of Ka'uiki. The image made during the reign of Kamalalawalu [Kihapilani's son with his first wife, Hāna chiefess Kumaka] and on this hill remained the defenders of the land. The famous war leaders of Maui, according to old accounts, were Kaikipa'anaea, Ho'olamakua, and Mahihelelima. It is also the very same hill on which the young chief, Pe'ape'a was destroyed by the exploding of the powder of the heartless (Sterling, 1998:119).

**C-3. Mele and Oli.** Aside from the mo'olelo, legends or stories of these famous and infamous ali'i, the songs and chants also give glimpses into the lives of the ancient people and places. Research revealed that

there are literally thousands of mele and oli that have been recorded and/or written over the last 170 years. There are several indexes of songs and chants in the Hawaiian Collections at the University of Hawaii Hamilton Library (i.e., Horie 1990; Stillman 1988; 1990; 1993; 1995; 1996). Unfortunately, they just give the first line as titles, and it would probably take several months to go through each mele and oli. Pukui explained that it was common, for chants not to have a title, as it was the composer's role to create the mele, which was then given away. When formal titles were not specified, the first line of verse served as the title (Pukui, 1995:xvii). There are texts of songs and chants compiled and translated by Roberts (1967), Pukui (1995), and Emerson (1997), as well as chants in legends compiled by Fornander (1969). Roberts' Ancient Hawaiian Music only covers mele from the islands of Kauai, Oahu and Hawaii (Roberts 1926/1967:11).

The Hawaiian word *mele* included all forms of poetical composition and sometimes overlap *oli* or chant, the lyric utterance (Emerson, 1997: 254). In regards to Hawaiian poetry or *mele*, "they had no exact word for so abstract a term as our 'poetry.'" The English equivalent to the Hawaiian *mele* means a song. All *meles* were "sung, or rather chanted, or cantillated. This is equally true of all early poetry of whatever race.... The mele is interwoven in Hawaiian culture with the *hula* and the *kaao*--that is, poetry is interwoven with the dance and with mythology.... *Haku mele*, is one who arranges words into song (Plews, 1981:176).

Pukui (1995) classifies chants into three groups: (1) chants for the gods (*pule*); (2) chants for the *ali'i*, descendants of the gods; and (3) chants of activities that involved secular things. In Pukui's (1995) *Na Mele 'Welo* she points out that some *oli* are non-dance chants, but many of the *mele* and *oli* were expressed in dance or *hula* (Pukui, 1995:xvii). Emmerson explains that the *hula* was a religious service, in which poetry, music, pantomime, and the dance lent themselves, under the forms of dramatic art, to the refreshment of men's minds. Its view of life was idyllic and it gave itself to the celebration of those mythical times when gods and goddesses moved on the earth as men and women and when men and women were as gods (Emerson, 1997:11, 12). Helen Cadwell quotes Alexander, but does not name the publication, as classifying *meles* into 4 divisions: (1) religious chants, prayers, and prophecies; (2) *ino*, or name songs, composed at the birth of a chief in his honor, recounting the heroic deeds of his ancestors; (3) *kani kau*, the dirges or lamentations for the dead; and (4) *ipo*, or love songs which includes topical *mele* of a more secular character, now surpassing the others in number, and have survived in better condition "on the lips of the country folk (Roberts, 1967:67, 72).

**C-3a. Maui Chants.** In 1988 Alu Like Inc. Native Hawaiian Library sponsored a research project (Kanahele 1988) *Maui Chants* to compile, translate and record Maui chants for cultural and educational purposes. This research produced sixty-four *mele* and *oli* that represented a timeframe of three hundred (300) years. Of the 64 *mele/oli* three were *mele* of Kaho'olawe, and seven were *mele* of Molokai. The remaining 54 were about Maui, predominantly about Pi'ilani and his 'ohana.

The following are verse or extract from a *mele* from *Maui Chants* (Kanahele 1988) notes a place name of the Kawaihau Ahupua'a. Both Hawaiian and English translations by Big Island chanter Pua Kanaka'ole Kanahele are recounted below.

#### *Kipapa a Kihapi'ilani*

Kipapa a Kihapi'ilani  
Ke kuapa i Mauoni  
Ka nabele i Pihae'hae  
Kahawai i Kawaihau  
Kawaihau i Kahala'oaaka  
Hele aku he ino he nabele  
Uluhaha i kai o Honoma'ele  
Ilaila na pohaku e ano ai.

The pavement of Kihapi'ilani  
The wall at Mauoni  
The forest at Pihae'hae  
The stream banks at Kawaihau  
The stratified path at Kahala'oaaka  
Goes forth breaking through the forest  
Uluhaha is seaward of Honoma'ele  
There were the rocks to be carried.

#### C-4. 'Olelo No'eau and Place Names.

**C-4a. 'Olelo No'eau.** 'Olelo no'eau or proverbial/traditional sayings usually had several layers of meanings. They reflected the wisdom, observations, poetry and humor of old Hawai'i. Some of them referenced people, events or places. The following 'Olelo no'eau were compiled by Pukui between 1910 and 1960 with both translations and an explanation of their meaning (Williamson, et al. in Pukui, 1983:vii), which are often more *kaona* (hidden or double meaning) than obvious. The following proverbs reference place names in the ahupua'a or vicinity of Wai'anapanapa State Park.

'Olelo no'eau: *Kā hālā lau kalakala o Wakiu*  
 Translation: The thorny-leaved hala tree of Wakiu.  
 Meaning: A boast about one who is not to be tampered with (Pukui 1983:141, #1290).

'Olelo no'eau: *Kawaiipapa māki*  
 Translation: Kawaiipapa of sibilant sounds.  
 Meaning: When fishing, the natives of Kawaiipapa, Hāna, Maui made smacking sounds with the lips rather than call out or speak to one another (Pukui 1983:179 #1660).

'Olelo no'eau: *Hāna, mai Ko'olau a Kaupō*  
 Translation: Hāna, from Ko'olau to Kaupō.  
 Meaning: The Extent of the district of Hāna (Pukui 1983:55, #460).

**C-4b. Place Names.** Hawaiians of old generally named everything; from winds and mountains, to rocks, canoes, taro patches, fishing stations, and "the tiniest spots where miraculous or interesting events are believed to have taken place" (Elbert in Pukui et al., 1974:x). They all represented a story, some known only locally, while others became legendary. The list below (Table 3) represents place names from Pukui et al. (1974) with an association to Wai'anapanapa State Park.

**Table 3.** Place names with an association to Wai'anapanapa State Park or vicinity.

Honokalani	Land section, Hāna qd., Maui. <i>Lit., the royal chief bay</i> (Pukui et al., 1974:49).
'Ī-emi	<i>Lit., less great</i> (Pukui et al., 1974:55).
Kawaiipapa	Land section, gulch near Hāna, Maui where Chief Kiha built a path paved with stones (Pukui et al., 1974:99).
Pailoa	Bay in Wainapanapa State Park. <i>Lit., (pai) excite</i> (Pukui & Elbert 1986:301) However, 'Pae-loa' <i>Lit., long cluster/group</i> ; 'Pae-loa-hiki' is the name for the Milky Way <i>Lit. eastern long row</i> (Pukui & Elbert 1986:298-299).
Papalao	Alternate name for the Pailoa Bay. <i>Lit., #1. Flat surface; #8. Stone used as sinker for lūhe'e, octopus lure</i> (Pukui & Elbert 1986:316).
Pali-uli	A cave near Hāna, Maui where Ka'humanu was born in 1768 (RC 309) (Pukui et al., 1974:179).
Pihele	In Kawaiipapa, where Pu'uhonua was located (Kamakau 1992: 309, 385).
Wai'anapanapa	State park and caves, Hāna qd., Maui. <i>Lit., glistening water</i>
Wakiu	Land section near Hāna, Maui. <i>Lit. northwest wind sound</i> (Pukui et al., 1974:229).

#### D. Historic References.

In the June 20, 1931 *Honolulu Star Bulletin*, Kuykendall wrote an article about a missionary's reference to the King's Road on Maui. The following is an excerpt of that article from Sterling, (1998).

The missionary records of 1828 furnish an interesting and suggestive reference to an extensive road on Maui, used by the missionaries Richards, Andrews and Green on a tour around that island, a few months after Chamberlain's tour around Oahu. They write that on August 22, 1828, having descended from the summit of Haleakala, they came down to a small village on the Halehaku seashore. On the next day, proceeding toward Hāna they came upon 'a pavement said to have been built by Kihapiilani, a king, contemporary with Umi, an ancient king of Hawaii. He is said to have built it that his name might not roll out.'

'It extends more than 30 miles, and is a work of considerable magnitude. This pavement afforded us no inconsiderable assistance in traveling as we ascended and descended a great number of steep and difficult paries (palls).'

The historian Fornander says this ancient King Kiha was a brother-in-law of Umi and that 'he devoted himself to the improvement of his island. He kept peace and order in the country, encouraged agriculture, and improved and caused to be paved the difficult and often dangerous roads over the palis of Kaupo, Hāna and Koolau—a stupendous work for those time--the remains of which may still be seen in many places, and are pointed out as the 'Kipapa' of Kihapiilani.' (Sterling, 1998:104) [taken from R.S. Kuykendall, "Who Was Builder of the King's Highway?" *Honolulu Star Bulletin*, June 20, 1931.4].

The following excerpt from Handy in *Hawaiian Planter III* describes the extent of the *hala* or pandanus forest in Hāna (Sterling, 1998:115).

Eastward from Nahiku there are no large streams or gulches in Koolau. The shore is low and the terrain gently sloping and jungle-like. From Ulaino to Hāna extends a *hala* forest, growing upon recent lava flows [the last flow in Hāna was in 1750 A.D] which cover the coast from Ulaino to Hāna Bay (Handy 1940).

**D-1. History of Land Divisions.** It was during the time of Kaka'alaneo of Maui that the division of lands is said to have taken place under a *kahuna* named Kalaihaohi'a. He portioned out the island into districts, sub-districts, and smaller divisions, each ruled over by an agent appointed by the landlord of the next larger division, and the whole under control of the ruling chief over the whole island or whatever part of it was his to govern (Beckwith, 1970:383).

Each island was divided into *moku* or districts that were controlled by an *ali'i 'ai moku*. Within each of the *moku* on each island, the land was further divided into *ahupua'a* and controlled by land managers or *konohiki*. The boundaries of the *ahupua'a* were delineated by natural features such as shoreline, ridges, streams and peaks, usually from the mountain to the sea, and ranged in size from less than ten acres to 180,000 acres (Moffat and Kirkpatrick, 1995:24-29, see also Chinen 1958:3).

Each *ahupua'a* was often divided and sub-divided several times over (i.e., *ili, kuleana, mo'o, pauka, koele, kiha pai*), answerable to the *ali'i* where the lesser division was located. However the *ili kupo* or the *ili ku* was "completely independent of the *ahupua'a* in which it was situated...his tributes were paid directly to the king himself" (Chinen 1958:4). Rights to lands were mutable or revocable; a ruling chief or any "distributor" of lands could change these rights if displeased, or as favors--usually after a victorious battle, and after the death of the *ali'inui* (Chinen 1958:5)

**D-2. Mahele.** During the period between 1839 to 1855, several legislative acts transformed the centuries-old Hawaiian traditions of *ali'inui* land stewardship to the western practice of fee simple or private land ownership. In the first stage King Kamehameha III [Kauikeouli] divided up his lands among the highest

ranking *ali'i* (chiefs), *konohiki* (land managers), and favored *haole* (foreigners) (Chinen 1958:7-14; Moffat and Fitzpatrick, 1995:11, 17). The present district of Hāna was formerly divided into five districts (Moffat and Kirkpatrick, 1995:24-25). However, as stated earlier, the present district boundaries were established in 1909 (Sterling, 1998:4).

The historic land transformation process was an evolution of concepts brought about by fear, growing concerns of takeovers, and western influence regarding land possession. King Kamehameha III, in his mid-thirties, was persuaded by his *kuhina nui* and other advisors to take a course that would assure personal rights to land. One-third of all lands in the kingdom would be retained by the king; another one-third would go to *ali'i* as designated by the king. In 1846 he appointed a Board of Commissioners, commonly known as the Land Commissioners, to "confirm or reject all claims to land arising previously to the 10<sup>th</sup> day of December, AD 1845." Notices were frequently posted in *The Polynesian*. The legislature did not acknowledge this act until June 7, 1848 (Chinen 1958:16; Moffat and Kirkpatrick, 1995:48-49), known today as The Great Mahele.

"The mahele did not actually convey title to the various *ali'i* and *konohiki*; it essentially gave them the right to claim the lands assigned to them--these lands became known as the *konohiki* lands. They were required to present formal claims to the Land Commission and pay a commutation fee, which could be accomplished by surrendering a portion of their land to the government." The government could later sell these lands to the public. Upon payment of the commutation fee, the Minister of Interior issued a Royal Patent to the chief or *konohiki*.

The last one-third was originally designated to the *maka'ainana*, but not acted on--instead it was set aside to the government, "subject always to the rights of the tenants" (Moffat and Kirkpatrick, 1995:41-43; see also Chinen 1958:15-21). *Ili kupono* were the only *ili* [parcel] recognized in this process, all the *ili* and lesser divisions were absorbed into the *ahupua'a* claim (Chinen 1959:20). In 1892 the legislature authorized the Minister of Interior to issue Royal Patents to all *konohikis* or to their heirs or assigns where the *konohiki* had failed to receive awards for their lands from the Land Commission. The Act further stipulated "that these Royal Patents were to be issued on surveys approved by the Surveyor General of the kingdom..." (Chinen 1958:24; Moffat and Fitzpatrick 1995:41-43). Kamehameha III formalized the division of lands among himself [one-third] and 245 of the highest-ranking *ali'i* and *konohiki* [one-third] between January 27 to March 7, 1948. He acknowledged the rights of these individuals to various land divisions in what came to be known as the *Buke Mahele* or 'sharing book.'

### D-3. Land Commission Award (LCA).

An Internet search (Table 4) of the website [www.waiihona.com](http://www.waiihona.com) (*Waiihona 'Aina, Inc.*) for LCAs produced four claims; only one was awarded, but none of the claims were pertinent to the lands of Wai'anapanapa State Park, although a map [see Figure 4] does show a Grant 2641 [Honokalani] and Grant 2405 to Nancy Spalding [Wakiu], both now outside of park lands.

Table 4. Internet search of LCAs in Honokalani, Wakiu, & Kawaiipapa.

Claim	Claimant	District	Ahupua'a	Ili	Awarded
04844	Kuana	Hana	Wakiu	Oiolikea, Kalaulalaea	No
04846	Kahinawa	Hana	Kawaiipapa	Keonihali, Onehale	Yes
05149	Kahinawa	Hana	Kawaiipapa	Puohai	No
05185B	Kaholokai	Hana	Kawaiipapa	Nehali	No

**D-4. History of Wai'anapanapa State Park.** Wai'anapanapa State Park makes up the coastal [high water mark] borders of the *ahupua'a* of Honokalani [parcel TMK: 1-3-05:09] where all of the consultants grew up; the *ahupua'a* of Wakiu [parcel TMK: 1-3-06:09, 10]; and a sliver of the *ahupua'a* of Kawaiipapa [same TMK as Wakiu—E.O. #8900, 80 acres]. Kawaiipapa is quite an extensive *ahupua'a* with a high density of Hāna's current population. The portion of Kawaiipapa that the park extends to, is its extreme northeastern corner, which borders Hawai'i State land. The closest structures are homes along Wai'anapanapa Road [formerly Honokalani Road]; the Hāna School complex [K-12], gym and public/school library facility in the middle of the *ahupua'a* [makai] of Wakiu. The total acreage of the park is 110 acres, but only 18 acres is "developed" (Yent 2002a).

The State purchased the initial 25 acres for Wai'anapanapa State Park from Hāna Ranch through condemnation in 1968. This is the Honokalani portion of the park. The southern portion of the park (Wakiu and Kawaiipapa) was already State land. The additional acreages in Wakiu and Kawaiipapa was added to the park in 1978 for a total of 105 acres. In 1992, the State purchased TMK: 1-3-5:11 from Herriet Sawyer (Grant 2641). This added another 5 acres to the park (Yent 2002b)



Photos 8-10. Wai'anapanapa Road to Park. Park sign off Hana Highway. Perry house next to Park.

According to Wai'anapanapa State Park map (G-8209, Kato 1977), the Final Order of Condemnation (Civil No. B41) Hāna Ranch to State of Hawaii was June 10, 1970 and recorded in book 7097, Page 146 (Land Office Deed 9-25430), net area 105 acres. But it wasn't until a few years later that it was turned over to State Parks. TMK 1-3-06 indicates that parcel (9) [Honokalani] was set aside for Wai'anapanapa State Park by Exec. Ord. No. 2900; TMK 1-3-05 indicates that parcel (11) [Wakiu] was set aside for Wai'anapanapa State Park by Exec. Ord. No. 3579. This is less land than Gorst's (1974) Conceptual Plan (Figure 8), which extended the Park from Kahana Garden (West Honoma'e) to Hana (Kapueokahi) Bay.

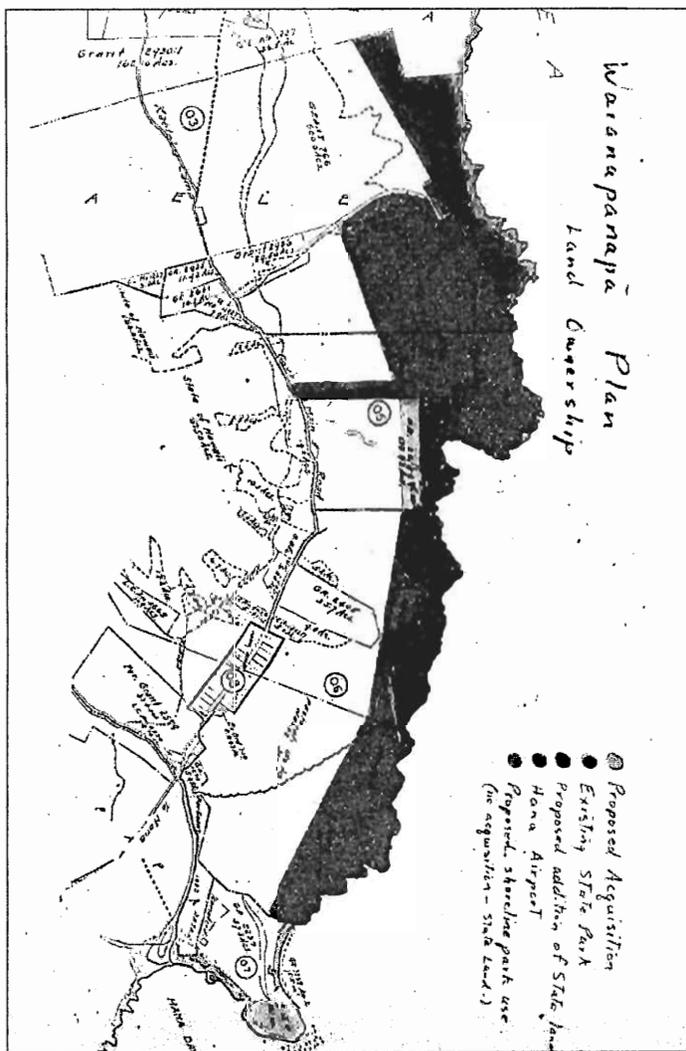
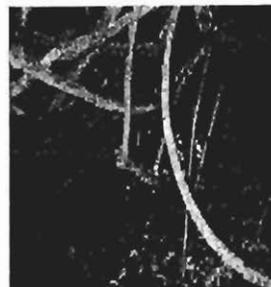


Figure 9. Map from Gorst (1974) Conceptual Plan of Waiānapanapa State Park.

**Waiānapanapa and Vicinity.** As previously mentioned, the name Waiānapanapa refers to the cave in the legend where the Chiefess Popoala'ea was murdered by her husband. This cave and other caves are outside of the Park borders, although there is a sign explaining the cave legend to the Park visitors, as well as a trail access from the Park's parking lots. Also outside of the Park borders is another cave that is not accessible due to the dense *hau* vegetation blocking the entrance. Hau Cave [not its real name] is quite large with several smaller chambers. Local residents say it can hold 150 people. Locals also don't want to expose this cave because of the numerous pictographs located on the walls of the main chamber.



Photos 11-17. Legend; Trail; Hau Cave entrance; Honu figures; Mo'o figure; Multi-figures; Cave exit.



The following is a list (Table 5) in the Hāna section of 'Maui Heiau' (Thrum 1937:122-132):

Heiau	ʻIli/Ahupua'a	Comment
Hale-o-Lono	Paikalani, Hamoa	
Honuaula	Kauiki, Hāna	Portion of foundations only remain
Kaiapuni	Hāna, near beach	In ruins
Kaikaiea	Paauhau, Hāna	Site planted in cane
Kaluanui	Hamoa	In bad condition
Kaniomoku	Hāna	An ancient <i>heiau</i> and alleged place of refuge
Kaulelepo/Kauleoula	Kainalimu, Hāna	Twin <i>heiau</i> open platform 25 feet apart
Kiliniui (luakini)	Kaalae, Hāna	In ruins in cane field
Kuawalu	Kauiki, Hāna	Famed historic <i>heiau</i> , its site not found
Lanakila	Kaalae, Hāna	Medium sized <i>heiau</i> in ruins in cane field
Mokae	Hāna	Platform <i>heiau</i> , not seen
Poohoolewa	Hamoa	Rounded, now house site
Panauku	Honomaile [sic]	No particulars
Pihale	Honomaile [sic]	No particulars
Wananalua	Hāna	War <i>heiau</i> of Hua-a-Pohukaina [Honuaula/Kuawalu]

**Walker's Survey (1931).** In 1929 and 1930 Walker conducted a survey of archaeological sites for the Bishop Museum as part of a statewide survey. The following is taken from his unpublished report.

The *heiau* or temple was the place of worship among the Hawaiians. A total of 230 of these sites have been found on Maui, 48 on the western part and 182 on the eastern part of the island. The structures on many of these sites have, however, been totally destroyed in the progress of the pineapple and sugarcane industries, so that, of the total listed, only 134 remain in a good enough state of preservation to permit being measured and studied.... The *heiaus* are all quite simple in construction, native rock or stones from the vicinity being used without any attempt at cutting or facing.... No mortar of any kind is employed, the stones being fitted together as tightly as possible, both for strength and in order to produce a fairly even wallfacing.... Platforms are built by extending the natural level of some hill or eminence of ground and thus producing a solid rock filled platform with a sheer or terraced front, perhaps many feet above the lower ground....

The very large *heiaus* over 200 feet in length number 11 on the whole island. They are Loa-loa, Keakalauae, Opihi, and Kou, in the Kaupo region; Kanekauila at Kipahulu; Piilanihale near Hāna; Kaihale at Kailua; Poohoolewa at Honopou; Pihana and Halekii at Wailuku; and Puu Kaeo at Honokohau. Tradition speaks of many of these as having been built in times of war and consecrated with bloody human sacrifices. It is quite possible that all were so used, although there is no evidence confining sacrificial rites to this class of *heiau* alone....

The presence of graves on some of the *heiaus* should be noted. In most cases they were found to contain intrusive burials of comparatively recent times. But a burial platform such as the one just outside the *heiau* of Papakea at Nuu may very likely have contained the remains of the last keeper or *Kahu* of the *heiau* (Walker, 1931:97-99).

The following list (Table 6) is compiled from Walker's unpublished manuscript based on his survey of the "Archeology of Maui" in 1929 and 1930. It is followed by a map of Walker's sites (Figure 10).

Table 6. Walker's Hāna Heiau (1929-1930)

Heiau Name	Location	Comment/Description
Kaluakelea	Honoluluui, Nahku	On ridge just west of Makapipi Gulch
Pohoula	Nahiku	East side of Makapipi Gulch
Haleaka	Nahiku	East bank of Makapipi Stream
Unnamed	Lanikele, Ulaino	On bluff west of Lanikele Gulch at shore
Piilanihale	West Honomaele	Largest <i>heiau</i> found on Maui
Kuakealil	Honokalani	3/4mi north of Wa'āpanapa Cave near shore
Ohala	Honokalani	1/4mi east of road
Kaniomoku	Kawaipapa	Where Kaahumanu spent childhood
Kawaipapa	Kawaipapa	Where road crosses gulch-destroyed
Unnamed	Waikaloa, Kawaipapa	In rough lava flow
Unknown	Kawaipapa	On Keanini Point beyond factory (ku'ula?)
Kauleiula	Kawaipapa	On Nanualele Point
Kaulelepo-Kauleiula	Kawaipapa	At Kainalimu--twin <i>heiau</i>
Honuaula-Kuawalu	Wananalua	Two war <i>heiau</i> built by King Hua-a-Pohukaina
Kaikaiea	Hāna	In cane fields-destroyed
Kiliniui	Hāna	In cane fields-destroyed/luakini
Lanakila	Hāna	In cane fields-destroyed/place of refuge
Puuheewale	Hāna	In cane fields-destroyed
Koahaepali	Alaemai	North of Ka iwi-o-Pele
Lumaikaua	Haneoo	500yds south of Ka iwi-o-Pele
Hinaoahi or Kaluanui	Hamoa	Appearance of truncated pyramid
Pakiokio	Mokae, Hamoa	Open terrace platform 40x120 feet
Unknown	Hamoa	Small platform
Hale-o-Lono	Hamoa	In center of cane lands-100 feet square

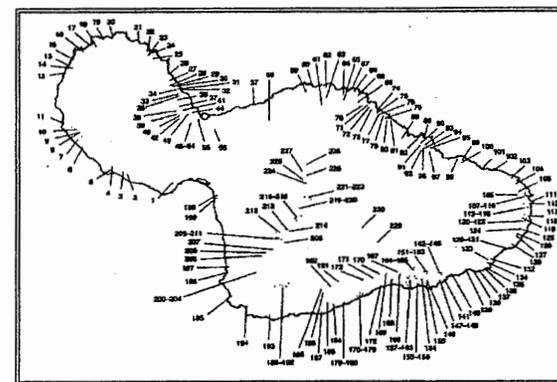


Figure 11. Map of Maui sites Walker (1930). Unpublished Ms.

**Walker Site 103, Kuakealii Heiau (1931:179).** The following description is of a platform *heiau* located three quarters of a mile north of Waianapanapa Cave [Honokalani] on the coast near the shore.

A large open platform not more than 4 feet high. It measures 90 feet on two sides, the other two being 85 and 110. The top is entirely paved with small pieces of lava and pebbles. There is no coral. The edge of the platform is not terraced, but on the east side is a raised terrace 18 inches above the level of the main platform. It is 20 feet wide and extends the whole distance of 90 feet along the east side. There are two pits in it possibly serving the purpose of refuse pits for the sacrificial altar. Around the edge of the *heiau* platform are small pits in several places. These look like image holes. Part of the old Kihapilani paved trail runs close by the *heiau* [In Sterling 1998:126]

**Walker Site 104, Ohala Heiau (1031:126).** The following description is of a platform *heiau* located in Honokalani, a quarter of a mile east of the highway on the south-side of the trail.

A low platform of rough construction 4 feet high. It is 110 feet long and 75 feet wide at the widest part. There is no coral or pebbles in the pavement, which has been disturbed to form pits in many places. Drums are said to be heard from this *heiau* on certain nights [In Sterling 1998:126].

**Walker Site 108, Heiau (1931:185).** The following is a description of a small *heiau* located on Keanini Point, [Kawaiipapa] beyond the factory [destroyed], 100 feet from the shore.

A small *heiau* probably of the Kuula class. It is little more than a level spot in the lava, 30 X 35 feet. The front is toward the bay, and a line of stones marks the edge of a step terrace. On the east a natural rock ledge forms a wall, and there are indications of a small terrace below it. The back is formed by a platform 3 feet high, 10 feet wide and 35 feet long. A large part of the interior of the *heiau* is occupied by a double platform. It is likely a burial platform. Large pieces of a 'a make up the terrace with beach stones used for the divisions. Few pieces of coral seen. Drums heard near here [In Sterling 1998:128].

**Walker Site 109, Kauleiula Heiau (1931:184).** Walker has some doubt as to the name of this *heiau* located about 50 yards east of Site 108 on the point of Nanaualele, but he describes it below.

A stone platform on a rise of ground 6 to 8 feet high. It measures 60 X 95 feet and there is an additional 30 feet of level hill-top, which may have been included in the *heiau*. On the side below the hill is a large pond, one of several in that vicinity. A path of stepping stones leads across this pond and up onto the hill, crossing one corner of the *heiau*. The *heiau* is built of chunks of lava and water-worn boulders. There is a low wall on one end and several terraced platforms...two of these at least, are graves. A house enclosure 12 X 25 feet is set at an angle with the *heiau* platforms and does not seem to conform to the general plan of the *heiau*...many of the terrace edges have been broken and the stones removed for other purposes (in Sterling 1998:129).

**Ashdown (1956).** Not available.

**Soehren, Lloyd J. (1963).** As staff of the Bishop Museum, Soehren conducted a survey of selected sites in East Maui. His report "An Archaeological Survey of Portions of East Maui, Hawaii" (1963) indicated that he concentrated on Kaupo, Kipahulu, Wailua and Kanae, as well as a few sites in Haleakala Crater. In his *Preface*, Soehren qualified the earlier (1928) Bishop Museum surveys conducted on the four major islands: Kauai, Oahu, Maui and Hawaii.

These surveys were devoted almost exclusively to the documentation of surface features--*heiaus*, house sites, fishponds, etc.--with occasional attempts to record local traditions concerning sites or places. While two of the surveys were subsequently published by the Bishop Museum (Bennett, 1931; and McAllister, 1933), all were more or less deficient in the precise recording of the locations of the sites described. Much of this deficiency may be attributed to the rather inadequate

maps available to the field investigators, but not all. The result has been to hamper later investigators in their attempts to relocate the sites for further study. Indiscriminate publication of such details can have serious, even disastrous, consequences by facilitating vandalism; failure to even record such data can lead not only to much wasted effort but also to the inadvertent destruction of a site, through ignorance of its nature and value, as in the course of construction activity. (Soehren 1963:iv).

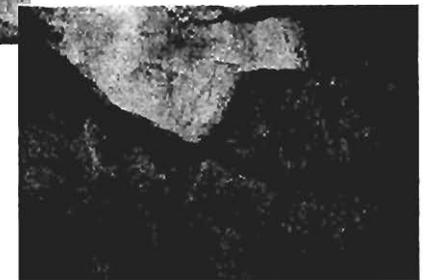
**Pearson (1970).** Pearson and others conducted a five-day survey of Wai'anapanapa State Park in February 1969, facilitated by park caretaker Mr. Frank Oliveira [late father of consultant Mavis Oliveira-Mederios], Pearson commented on the significance of the cultural remains recorded in the park (Pearson 1970:26), including a pictograph (Figure 11), and listed a number of the features (Table 7, Figure 12).

Fragmentary though they are, the remains at Waianapanapa are examples of an aspect of prehistoric human ecology which is not readily evident or easily accessible anywhere else at present. This aspect is the settlement and exploitation of the wet areas of the northeast shores of the islands. In these locations, which face directly into the trade winds, dense pandanus and naupapka thickets along the sea give way to inland luxuriant rainforest, and settlement may be scattered in homesteads instead of nucleated villages. This pattern of living has many points of contrast with that observed at Lapakahi and Kealakekua on the dry leeward sides of Hawaii, and because of the problems of preservation as well as locating the sites in such dense vegetation, remains of this type are more scarce than those in dry areas and should be carefully preserved.

**Figure 12.** Pictograph found in Wai'anapanapa State Park during Pearson's survey.



**Photos 18-19.** Two figures on cave wall; Mystery figure (possibly a dog) on a boulder in Hau Cave.



**Table 7. Sites/features recorded by Pearson in Wai`ānapanapa State Park in 1969 (adapted 1970:8).**

Category	Feature Number
Caves of Wai`ānapanapa	2 large with fresh water
* <i>Heiau</i> with 2 platforms, 2 pavements, wall (126.5m/414.8') & upright stone	1
Cave [associated with <i>heiau</i> ] (13m/43' X 12.2m/39') with small tunnel and chamber, large whetstone & 3 grinding areas, large pounder or pestle; walls	21
Lava bubble shelter (7.4m/24.3' X 82cm/2.7')	9
Cave shelter (3.8m/12.5' X 1.8m/5.9' X 1.74m/5.71')	16
Cave of 400 (est. 10m/33' X 40m/131' X 25m/82') [several pictographs are inside, previously mentioned]	no feature number [not examined]
Cave shelters	22, 28
Trail (stepping stone) [Kihapiilani Trail]	10
Pictograph [near #21 & #22] (13cm) (red ochre, appears to be holding 2 clubs)	23
Ahu [in vicinity of <i>heiau</i> ]	2, 3, 7, 15, 19
Grave cairn [3 cemeteries]	unnumbered, in park
Grave cairns [with associated platforms; basalt crystal (80cm/2.6')]	unnumbered, west side of park
Circle Enclosures [small] (45cm/1.5' high; 10cm/.33' diameter)	13, 14, 17, 18
U-shaped enclosures [2] near Trail #10	5, 8
Short shelter wall [ <i>ka ua pe'e pohaku</i> or protecting wall]	4, 6, 11, 12, 20
L-shaped wall with hearth	6
Boundary wall (core-filled)	24, 26, 27, 32
Platform	25
House platform	31
Walled enclosure, rectangular structure,	33
Enclosure and Platform (15.9m/52.1' X 9.7m/32')	34
Historic cemeteries (2)	29, 30
* <i>Ohala</i> [From Walker (1931)]	



**Ashdown (1970).** Ashdown began compiling the information for *Ke Alalao o Maui* (1970) long before the research group "Hui Hāna Malama" was formed in 1968. The group made at least twenty-four field trips to explore and record sites beginning in 1969, often placing markers on sites in the hopes that the public would recognize their significance and respect them (Ashdown 1970:1). *Ke Alalao O Maui* refers to the "broad highway built by King Pi'ilani of Maui with the willing help of his people" as well as "the Pathway of Life we all travel from birth to death." The original highway or trail originated in Hāna, was from four to six feet wide and followed the coastline, was completed by Pi'ilani's younger son, Kiha-Pi'ilani after Pi'ilani's death in Lahaina about A. D. 1527 (Ashdown 1970:5, 9).

According to Ashdown, "the road was built, along with other engineering feats such as water-canals from forest rain-sheds to the lowlands and the *Heiau* called Hale-o-Pi-ilani at Honomale beyond the Hāna airport, all around east Maui." All along *Ke Alalao* are "*wahi pana* (storied places) including village sites...temples...and home shrines.... Along the coast are numerous shrines called *Ko'a* and *Ko-ula*" (Ashdown 1970:9, 30).

The text *Ke Alalao o Maui* includes several anecdotal stories about life in the early 1900's, as well as *wahi pana* and sites of Maui. Several *heiau* were pointed out beginning in 1908 to Ashdown, who later became the Maui Commissioner of the Historical Sites Commission. The following excerpts from Ashdown (1970) are about some of the *wahi pana* of Hāna.

In the Hui lands of Hamoa where the High Chief Ka-pa-a-kea was born and reared there were many *heiaus* from the beach up to the *Ana Pe'e-kau'a* (War-hiding cave) near Ke-aka-a-manu. This chief was the father of King Ka-la-kau'a and his sister Queen Lili-u-o-ka-lani, and their mother was the high chiefess Ke-oho-ka-lo-le. All that area has been used as cattle range and was plowed also for raising sugar cane (Ashdown 1970: 45).

At Hamoa Bay in Ka-lua-nui the ruins of the *heiau* Pa-i-ka-lani and the temple of Lono, among others, still can be found. On the former land of High Chief Ka-pa-a-kea...stood the *heiau* called Lana-kila (victory) in Kili-nui and Pa'au-hau. Above there was the *ana-pe'e-kau'a* or war-hiding cave and its hidden spring which, perhaps, remain till today in that present pasture of Hāna ranch (Ashdown 1970:53).

[Ashdown later revises this] At Hamoa on a knoll the ruins of the *Heiau* Pa-i-ka-lani are seen. Its lower wall was over thirty feet high and very long, and nearby stood the *Heiau* Ka-lua-nui. A little further *makai* are the ruins of the *Heiau* o Lono with its stone altar for offerings of harvest time and for rain. Part of this temple was a place for treating the sick, and the *kahuna* and dwellers of the area cultivated a medicinal herb garden. The rain *heiau* is the smallest part of this structure. At Pa'au-hau stood the temples of Ka'i-ka'i-ia and Kili-nui which, most people claim, formed a *luakini* po'o-kanaka or place of human sacrifice. Nearby the *luakini* stood the *Heiau* Lana-kila which was the pu'u honua, and here was born High Chief Ka-pa'a-kea, who was the father of King Ka-la-kau'a and other children. Lanakila is about a fourth of a mile away from the other structures, in the land area called Ka'alae. Above there quite a distance near the beautiful hidden spring of water is the tunnel which was a famed war-hiding cave from the time of Kiha-Pi'ilani and his brother Lono who was slain in their battle to possess Maui (Ashdown 1970:56).

The *heiau* of Honua'ula which was built by King Hua-a-po-hu-kai-na at Wa-nana-ula in Hāna, and his other one called Kua-walu in Hāna, have been destroyed. In their place stand the Protestant and the Catholic churches and the tomb of A. Unna on the slopes of Pu'u Ka'uiki. Mr. Unna was one time a manager of Hāna Plantation (Ashdown 1970:52)... The Fortress, or Pa'a Kau'a which stood atop of Pu'u Kau-iki protected all that side of Mauna Ka'uiki. It was built by order of King Hua of Lele (now called Lahaina) while on his way to invade Hawai'i across Ale-nui-ha-na channel (Ashdown 1970:56).

The *heiau* Ka-ni-o-moku was the place of refuge at Hana in the area of Ke-au-moku and all that land was a *pu'u-honua*. It was to this place of safety that the infant Ka'a-hu-ma-nu was brought after her birth in the cave at Pu'u Ka'uiki. Her father, Ke'e-au-moku was, at that time, defending the *pa'a kau'a* or fortress of Ka'uiki (Ashdown 1970:52)... On the boundary of the land [Ka-ni-

o-moku] the *kahuna* set up poles having white *tapa* "pennants" rather than a stone enclosure (Ashdown 1970:56).

At Wai-ka-ki-hi, west of Ka-pu-eo-ka-hi harbor of Hana, stood the twin temples called Kau-lei-lepo and Kau-lei-ula, with a paved path between and these were fishing shrines near the sacred fishponds there. Only ruins remain, and little is left of the round structure named Kai-a-puni, a *ko'a* near the grave of J.A. Ka-wai-nui, who was the editor of the newspaper called *Ku-o-koa* during the reign of King Ka-la-kau'a (Ashdown 1970:53). [Ashdown later says that the grave was "atop" the shrine (Ashdown 1970:56)].

[In another section Ashdown expands on these *wahi pana*] Across the bay [Ka-pueo-kahi or Hana Bay] in later times the large fishponds of Wai Ko-loa were built by Ku-ula-kai of Hamoa. The Kihawahine, or spirits who take their name from a deified chiefess [Pi'ilani's daughter], who was a direct ancestor of Queen Ke'opu-o-lani of Maui, visited Wai-Koloa and many other places on Maui. That deified chiefess, whose name is remembered as Ka-lama-i-nu'u or Kiha-wahine, was so sacred that she was a patron saint [*aumakua*] even after the arrival of Christian missionaries (Ashdown 1970:59).

**Nakkim (1969-70).** In 1969-70 Nakkim [former resident who still has family in Hāna] conducted an archaeological survey of Hāna, Maui. It was the opinion of Nakkim that "the wetlands of Hāna, Maui constitute one of the most important areas of occupation by pre-contact Hawaiians." It was Nakkim's intention that this study be a guide to further archaeological work in Hāna. In the following excerpt, Nakkim explains the attitudes of some of the locals:

The population of Hāna, Maui, today is still nearly ninety percent Hawaiian or part Hawaiian. Local people have a concern and respect for their heritage, and place names of coves, inlets, cliffs, and hillocks are familiar to most of them. Older persons speak freely of house sites, canoe landings, Alii areas, *heiaus*, but most share a reticence in discussing burials or burial sites. Most have always steered a wide circle around acknowledged *heiau* sites, hence perhaps, the good state of preservation of some of these. For the most part, it is not the Hawaiians who have been guilty of tearing down ancient walls or building pre-fabricated houses atop *heiau* platforms. Most destruction has come through economic necessity--clearing fields for cultivation of cane and grasslands--and some has occurred through the ignorance of house-building summer residents (Nakkim 1969-70:1-2).

In discussing La Perouse's (1786) description of "the beauty and lush verdure of the slopes of East Maui" Nakkim concludes that La Perouse is describing the Hāna Plain, which would encompass three miles north of Hāna [the Hāna airport area] to three miles south of Makaalae, and the Kipahulu-Kaupo area. Nakkim calculates that La Perouse is implying a population of 20,000 people in this area (Nakkim 1969-70:24-25).

In Nakkim's discussion of the destruction of archaeological sites, blame goes to the 1819 general *heiau* destruction [i.e., Ka'ahumanu], and church building on *heiau* sites. However, the near-complete destruction is blamed on the "One hundred years of sugar cultivation [that] demolished walls of whole villages" (Nakkim 1969-70:25-26). In discussing previous archaeology, Nakkim states that "not only did Winslow Walker miss many sites...there are still a good number that everyone [emphasis Nakkim] has missed so far." As did Soehren, according to Nakkim (Nakkim 1969-70:27-28). Nakkim's survey was conducted on foot, on horseback and by jeep, with occasional references to aerial photos.

**Cordy (1970).** In 1970 Cordy of Bishop Museum conducted Phase I of a 3-phase project initiated and supported by the Oceanic Institute and the Hāna Community Association: Phase I Initial Survey; Phase II Excavation; and Phase III Restoration. The primary goal of Phase I was to clear, and map Pi'ilanihale *Heiau*. The secondary purpose was to inventory and map surrounding sites within the 60-acre project area as a preparation to Phases II and III. Two weeks were dedicated to clearing the underbrush from the *heiau*; large trees were removed from the western part of the *heiau*. A detailed plane-table map of the entire site was completed along with two profiles; East-West and North-South.

**Emory and Hommon (1972).** In 1971 a survey of endangered sites within Maui was conducted by the archaeology staff of Bishop Museum, at the request of Inez Ashdown and her group *Hui Hāna Malama*. Emory officially began the project in August 1971. Hommon joined in September and in the course of five months, made three trips to Maui to explore and record endangered sites. The following are excerpts taken from their report "Endangered Hawaiian Archaeological Sites Within Maui County," prepared for the County of Maui. Previous archaeological studies beginning with Thrum in 1909 were also reviewed and acknowledged.

Until 1920 little thought was given to recording Hawaiian sites other than *heiau* ruins--the most conspicuous structure. When Thomas T. Thrum began his search for these in 1906, he said he was already 50 years too late; by that he meant that a majority of those which had survived had been converted into cattle pens or raided for their stones. By then, also, those who had known the history, character and function of a *heiau* had long departed this life with having passed on to their successors only a few scant details, such as it's name and perhaps its main function.... Nevertheless, these ruins are the most visible anchors with the past of the land on which they stood.... *Heiau* ruins have another value. The presence of a *heiau* site may indicate that other important remains are in the vicinity through which ancient life and history of the land can be reconstructed (Emory and Hommon 1972:6).

**Bevacqua (1972).** Reconnaissance Survey: Lands of Hāna High & Elementary School, Waikiu.

**Hommon and Connolly (1973).** In 1973 a cursory statewide survey was conducted on the archaeological sites in Hawaii. Hommon and Connolly re-mapped several sites in Hāna.

**Morton and Lum-Ho (1975).** Reconnaissance Survey: Burials of Nananalua, Honokalani and Ka'eleku (NE of Waiānapanapa State Park), between Hana Airport and USGS 1929 marker. Two sisters, Ella Hoopai and Juliana Kekauoha were contacted. They gave the name of their great-grandmother, Kahanaole Ahukiniālaa, who was the last person to be buried in that area. Mrs. Kekauoha believed the ancient burials were in use from A.D. 1600 to 1870. Morton's hand-drawn map notes an ancient trail, platform burials, mounds, as well as a complex of lava tubes and caves

**Tuggle (1976).** Tuggle made a site inspection of Pi'ilanihale Heiau on May 13, 1976 for the purpose of providing recommendations to the Pacific Tropical Botanical Garden (PTBG) regarding the preservation and archaeological use of the *heiau*. He noted a recent collapse of the western end of the north face, apparently caused by visitors or "vandals" walking or climbing on the face. Tuggle stated that Pi'ilanihale Heiau "is an excellent example of the Hawaiian architectural trait of developing a natural feature to create an impression of massive, monumental construction...the *heiau* is basically a facing of the end of a natural ridge with a platform on top." Tuggle pointed out the following when considering its future (Tuggle 1976:1-3):

Pi'ilanihale Heiau must be considered one of the most important archaeological sites in the Hawaiian Islands and any use of the site for whatever purpose (visitor access, garden setting, or research) should take this into consideration...compromise with the archaeological needs should be as limited as possible

**Landrum (1984).** Reconnaissance Survey: Kawaipapa. No surface evidence of prehistoric sites.

**ACHI (1984).** In August 1984 Archaeological Consultants of Hawaii, Inc. conducted a survey of State lands (TMK: 1-3-05:2 and TMK: 1-3-03:26) in Wakiu [more likely Honokalani and Ka'eleku] west of Waiānapanapa State Park between Pailoa Bay and the Hāna Airport, from the ocean and the *hala* forest. A single three-man sweep was done between the sea and the government road. ACHI reported that the current "Waiānapanapa State Park is the previous location of Honokalani Village," which along with burial complex was the focus of the survey. A total of 368 features were recorded at the burial complex including above ground burial platforms, ahu, a circular pile of unworked stones, and a multi-tiered structure with a number of smooth basalt uprights placed around the platforms. ACHI estimated that there

may be over a thousand occupants in these platform burials (ACHI 1984:1-27).

**Cleghorn and Rogers (1987).** In 1987 Cleghorn and Rogers of Bishop Museum conducted preliminary archaeological and historical investigations of Hāna Ranch lands for EDAW, Inc. The focus of Rogers' section of this report was the literature review.

In 1906 M. S. Grinbaum and Co., primarily a mercantile business that owned an interest in Hāna Plantation, decided to concentrate solely on sugar (Maui News 1905:4). The name was changed to Ka'eleku [Sugar Company] at this time (Cleghorn and Rogers 1987:12; see also Conde and Best 1973:241).

Cleghorn reported on the 'Archaeological Investigations of Hāna' section of the report. The two-day field inspection included complimentary use of aerial photographs (Cleghorn 1987:13-14).

**Cleghorn and Flynn (1989).** In 1987 Cleghorn and Flynn headed three teams (14-plus people) in a six-week archaeological and botanical survey in Hāna, Maui. Their project was the first of a 5-year plan sponsored by Earthwatch "to provide information on the precontact settlement and botany of Hāna...to describe the settlement patterns of this windward district and show how these patterns were related to the prehistoric natural environment" (Cleghorn and Flynn 1989:2). Their report, "The Archaeology and Botany of Hāna: A Summary of the 1987 Investigations" was submitted in 1989.

In their study, the vegetation in Hāna was divided into four ecozones: (1) Beach Strand--*Pandanus* forest; (2) Pasture Land--which is extensively modified, but has remnant native vegetation; (3) Rainforest Fringe--the transitional zone between modified pasture and dense rainforest; and (4) Rainforest--the most botanically complex zone (Cleghorn and Flynn 1989:3). Flynn reported on the botanical survey. This study concentrated primarily on the Beach Strand Zone which was divided into four distinct areas: Kalahu Point at Kahanu Garden; Ka'uiki Head and Ka'iwi-o-Pele cinder cones; pasturelands between Hāna and Waioka; and the coastal bluffs (Flynn 1989:6).

**Kennedy (1990).** Inventory Survey: Kawaipapa.

**Kolb (1990).** During the months of October and November, 1989, Kolb conducted preliminary excavations at Pi'ilanihale Heiau. This represented Phase II of the Pi'ilanihale Heiau Project, first initiated by the Oceanic Institute before the development of a botanical park and *heiau* restoration. The following is a synopsis of Kolb's report:

Pi'ilanihale Heiau is primarily a stone platform with a total area of 10, 857 square meters, placed on an 'a'a flow. Building material for the Heiau primarily came from local sources, both the underlying 'a'a lava rock, and the water-worn stones from the coast. Four major building episodes were distinguished: Stage A, the outrock terrace on the west; Stage B, the central terrace, the largest building episode, and the wall; Stage C, east terrace; and Stage D, modification of the wall, and the east and west terraces. Pi'ilanihale Heiau represents one of the earlier sites in the Hana area. Material evidence such as domestic debris and adzes suggests that the Heiau functioned as a chiefly residence (Kolb 1990, 2-3, 7, 20-22).

**Kolb (1991)** In 1991 Kolb submitted his dissertation "Social Power, Chiefly Authority, and Ceremonial Architecture in an Island Polity, Maui, Hawaii" as partial requirements for his doctorate. His data included analyzing archival material and 108 *heiau* on the island of Maui (Kolb 1991:xxiii). One of the *heiau* was Pi'ilanihale Heiau. This has been the most extensive study of Pi'ilanihale Heiau to date. The following excerpts regarding the construction phase of the *heiau* are extracted from his manuscript:

Pi'ilanihale Heiau is 12,126 m<sup>2</sup> in size, and consists of two separate platforms bridged by a large terrace...[and] is situated at 30m AMSL on a large bluff.... Pi'ilanihale Heiau consists of an immense dry laid lava stone platform constructed atop a natural ridge. The ridge was originally bisected by a deep gully now filled with a 13.4m high retaining wall. The boundary and retaining

walls which outline Pi'ilanihale Heiau are irregular and follow the contours of the ridge. The dimensions run 174m east to west and 89m north (*makai*) to south (*mauka*) (Kolb 1991:160).

**Borthwick et al. (1992).** Reconnaissance Survey: Haneoo, Aleamai, Papaauhau, Oloewa. Charcoal collected during this survey produced three radiocarbon dates: AD 1345-1650 (Site 2711), AD 1425-1950 (Site 2835), and AD 1640-1950 (Site 2749).

**Kolb, Orr & Conte (1993).** Inventory Survey: Hamoa

**Henry and Graves (1993).** Inventory Survey: Kawaipapa. Three walls and a complex of two enclosures, a platform and an L-shape were identified

**Masterson et al. (1997).** Inventory Survey: Haneoo.

**Sterling (1998).** Elsbeth Sterling compiled research material about Maui in the 1960s. She organized this material using Walker's unpublished map (see Figure 9). This archival research project was often complimented by field trips accompanied by local informants (including a walk-through with Mathew Kalalau in 1969). Her *Sites of Maui* is cited throughout this report.

**Orr (1999).** Ethnographic Survey and Cultural & Historical Background Review: West Honoma'ele. Extensive archival research regarding the Pi'ilani 'Ohana and Kahanu Garden, along with an ethnographic survey of people connected to the Kahanu family and Kahanu Garden.

**Haun & Henry 2000.** In May 2000, Haun and associates conducted a survey of a 125-acre parcel in East Honoma'ele. The parcel had been "extensively disturbed by historic and modern agricultural and ranching activity" and cattle were grazing during the survey (Haun & Henry 2000:3)

The survey identified four sites with seven features. The sites consist of two complexes of historic sugar cane plantation railroad features (Sites 4963 and 4964), a historic road (Site 4965), and a human skeleton (Site 4966). The skeletal remains represent an isolated late prehistoric to early historic burial. Site 4964, a railroad bed and bridge abutment, were constructed before 1915 and abandoned by the 1920s. A second railroad (Site 4963) consists of three stream crossings were bridge abutments and support piers are present. The second railroad was originally constructed between 1915 and 1923. There is evidence that the bridge support structures were subsequently repaired and rebuilt. The Site 4965 roadbed was probably constructed after the 1920s, possibly as late as the 1960s.

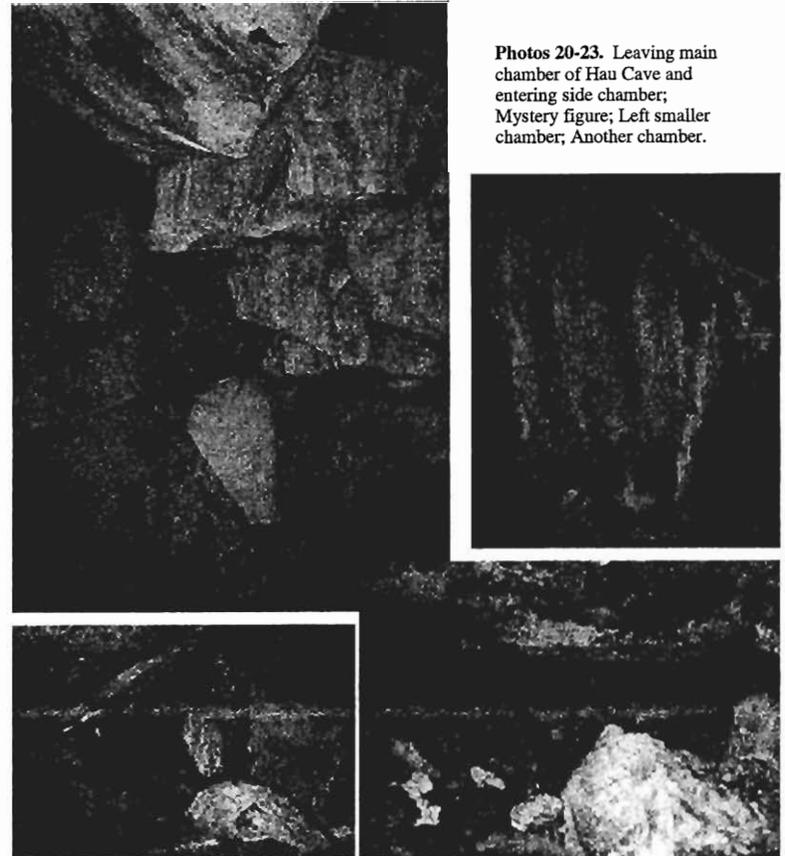
Sites 4963 and 4965 are assessed as significant under Criterion "d". The mapping, written description and photography at the sites adequately document them and no further work or preservation is recommended. Site 4964 is assessed as significant under Criterion "d" and Criterion "c". The Feature B abutment is recommended for preservation. Site 4966 is assessed as significant under Criterion "d" and Criterion "e". The site is recommended for preservation.

**Bushnell & Hammatt 2000.** Not available. [Ka'eleku]

## F. Heiau.

Each family had an ancestral guardian spirit called an *aumakua*, worshipped at the family altar and invoked when help was needed in any enterprise. The main public worship, however, was conducted in an enclosed temple or *heiau*, often embellished with large carved images of the gods, where rites were performed on certain days of each month. Five hundred of these temple sites are known in the islands. Every activity of Hawaiian life, from the felling of a tree to the planning of a military campaign, would be inaugurated by prayer or a religious ritual, usually within the confines of a temple or *heiau*. (Day 1992:10).

In all temples the religious ceremonies were performed in connection with all undertakings from building a canoe or a house or a fish pond, farm land, having a feast, or in later times a celebration after winning a battle. The name *Hai-au* usually is applied to a temple of war where human victims were sacrificed to Ku. *Hei-au* refers to the older temples where schooling, marriages, blessing of crops and fishing were the main activities. Every family of good people had altars at home and some of these simply were *ala* stones standing upright (Ashdown 1970:45). Every village has its own temples to Kane and other deities, from beach to uplands (Ashdown 1970:54).



**Photos 20-23.** Leaving main chamber of Hau Cave and entering side chamber; Mystery figure; Left smaller chamber; Another chamber.

#### PART IV: Ethnographic Research.

Consultants were selected because they met the following criteria: (1) consultant grew up, lives or lived in Honokalani; (2) consultant is familiar with the history of Hāna; (3) consultant is involved with the Wai'ānapanapa State Park; (4) consultant is familiar with the *mo'olelo, oli* and *mele* of the area; and/or (5) *ohana* of consultants are buried in the Park. Six individuals were interviewed—all were over forty years of age. These individuals represent a cross-section of the criteria and resource-knowledge base of the area.

#### Research Themes or Categories

In order to comply with the scope of work of this cultural impact assessment, the ethnographic survey was designed so that information from consultants interviewed would facilitate in determining if any cultural sites or practices would be impacted by any undertakings within or in the vicinity of Wai'ānapanapa State Park. To this end the following research categories or themes were incorporated into the ethnographic instrument: Consultant Background, Land Resources & Uses, Water Resources & Uses, Marine Resources & Uses; Cultural & Historical Resources, and Anecdotal Stories. Except for the 'Consultant Background' category, all the other research categories have sub-categories or sub-themes that were developed based on the ethnographic data or responses of the consultants. These responses or clusters of information then become supporting evidence for any determinations made regarding cultural impacts.

#### A. Consultant Background

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 research consultant criteria.

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 afterthoughts or additions 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. First names will be used as two consultants have the same last name. The following are bios, generally in the words of the consultants themselves (or paraphrased for the most part using their words), give personal background information as well as how or why they are connected to Wai'ānapanapa State Park.



**Gerard Piiiani Lono.** My name is Gerard Piiiani Lono, born and raised in Honokalani... lived for 30 years in Honokalani. My Mom was from the Piiiani line. She don't talk too much about the Piiiani line but I'm pretty sure I'm related to that Piiiani, that big heiau at Kahanu Garden. I'm pretty sure that's the Piiiani line that we're related to. Her name was Margaret Pila and my Dad was Francis Kikaha Lono, Sr. My grandparents (paternal) is Hilo Hanakahi and Ka'umoku Hoopai [w] Hankahi. My great, great I think was a Lono. I had 14 brothers and sisters. I went to school at Hāna High and Elementary School...graduated there. My job when I was growing up all during high school, I worked for Hotel Hāna Ranch. I started off as car maintenance and went to dish washer and promoted to Pantryman. Right now I'm working for my brother and his wife at their flower farm...Na Pua O Hāna [Piiiani].

My name is **Jimmy Pu'uwai Perry.** I come from Honokalani, born and raised down there. August 31, 1946 is when I was born. My parents are same like Ipo. Our grandparents on my dad's side were immigrants from Puerto Rico...came here to work on the Plantation. I don't know much about them... I know my grandfather worked for Ka'eleku Plantation; he used to take care of the irrigation up in the mountains. I don't know how many years he did that. Then he died at a young age.... But growing up I was the fourth child, the fourth boy.... I'm with the I'm with the County for 34 years. I'm the District Supervisor [Jimmy].



My name is **Helen Ka'ipolani [Perry] Cosma.** I was born in Hāna [1952], raised in Honokalani and my parents are Benjamin Martin Perry [Sr.] and Helen Maui Kawahine'aukai Hoopai Perry. My mother was born in Honokalani; my father was born in Wailuku; Kapakalua. He came to Hāna at a young age during the Plantation time. And he lived in Ka'eleku I believe. Met my mother and they got married when my mother was 18 and had twelve of us. I'm number eight. I have eight brothers and three sisters. My grandparents were George Maui Hoopai and Juliana Kamakakulani Nahinu Kalauao. I graduated from Hāna School, and Maui Community College. I work for Kamehameha Preschool. And through the summer school program in Hāna I became very interested in our cultural studies.... You know one of our ancestor's name was Kahalela'au--house of medicine. I always wondered if there was medicine in our family [Ipo].

My name is **Mavis Iwalani Oliveria-Mederios** and I was born in Hana Hospital and raised in Honokalani. My Mom is Ella Maui Ho'opai and my dad is Frank Cabral Oliveria. My dad was the caretaker of Waiānapanapa from 1968, then he retired and my Mom got the job. So we've been down there a long time. My memory is a little more recent than Ipo them. We showed tourist around--that kind of stuff. But I went to Hana School also like Ipo, graduated in Hana and went to MCC for a little while and came back to Hana. What made me interested in research stuff was being in Real Estate and then my Mom forced me to go to a genealogy workshop with her. So I got real interested after figuring out that if you do land research you can figure out a lot of the genealogy because the land sort of goes with the people who live there. I had four brothers and two sisters--there were seven of us. We were raised



in my Tutulady and Tutuman's house; that first house on the corner when you go down to Honokalani. My Tutuman died before I was born, but his name was George Maui Hoopai. And Tutulady's name was Juliana Kamakakulaninahinu Kalauao [Mavis].

**Antonio "Brudda Tony" Bagio.** My real name is Antonio Bagio, but they call me Bradda Tony. Born... September 21, 1925...and raised there [Honokalani] until I was 27 and then I left Hāna. I was raised by my grandparents, not my father and mother. You know Hawaiian style first-born grandson they take it away. My grandparents raised me. I was the first in the Lono family. My mother is Lono. They raised me from small until my grandmother passed away and then I stayed with my father.... [He was] from the Philipines, Cebu...he passed away way back. He worked for Ka'eleku Sugar Plantaion 'til they closed and then he went to HC&S...he was a boiler-cook sugar, I don't know what they call that. That's where they cook the sugar, that was his job....at HC&S. My mother is from Honokalani, part of the Lono family. All the Lono's in Hāna is all my cousins.... I went to school at Ka'eleku and I used to walk from Honokalani to Ka'eleku. It's about a mile or little



over a mile; back and forth in the rain and all.... Ka'eleku 'til the 5<sup>th</sup> grade then after that I went to Hāna School to 10<sup>th</sup> grade.... I don't remember what year [Ka'eleku closed]. So we all went to Hāna School.... But I was raised by my grandparents from when I was about a week old...my grandparents raised me up. Teach me how to fish, how to plant taro you know...that's what we do we live off the land and go fishing. Hānakahi Lono (grandfather); and my grandmother is Kapika Ka'amoku Ho'opai Lono.... Growing up my grandfather that's all he talked to us, only in Hawaiian. I answer back in English they scold us. But they only talk in Hawaiian; that's how I grew up.... I went [Hāna School] 'til sophomore. Then I went out was real hard labor...I went to work at Ka'eleku Sugar. Then after that I went to CCC Camp, I don't know if you remember that CCC Camp. I was 16 when I went in there. Civilian Conservation Corp they used to call em...plant trees. You know all the Keanae trees they plant all that trees up there in that mountain. That's what they do, plant trees.... They had them [CCC, on the] mainland and all over the place...just before the war. When the war came out, us was the last one from there; we were the last group. Then during the war they closed it down. Then I went to work for the Engineers...U.S. Engineers.... During the war after that they closed that Keanae Camp. They bring it down to Pakukalo. We stayed down there...we worked for the Army. That's Hawaiian Homes down there; used to be Army camp down there. The first Hawaiian Homes used to be Army camp, that's where we used to stay over there.... Just supply all the Army camp with food and ammunitions. Then when that closed I went go work stevadore. I went work all over the place. I work EMI...East Maui Irrigation, construction, Maui Pine. That's where I met my wife at Maui Pine...we got married. After Maui Pine I went to Young Brothers and I retired from Young Brothers. I retired twelve years from Young Brothers. 1989 I retired [Tony].

My name is **Ben Perry**. I was born and raised in Hana...spent all of my early life there. I was born in 1942 and I moved from Hana in 1973 to Kahului. Even though I moved to Kahului, Hana is still my principal area that I call home. I'm back in Hana at least three weekends out of the month. And I've been doing that ever since 1973. When I retire I will build my home there and move back and live full-time again. I was educated in Hana School. I went into the service back in 1961...was honorably discharged in 1964. Went back to Hana, sought employment and was employed at Hotel Hana Maui, then Hawaiian Airlines until 1973 when employment dictated that I move. It was a career change for me and an opportunity to move on. Since then I moved to Honolulu where I worked from 1984 to 1990. Even though I was in Honolulu, Maui was still my home and Hana was still the place I needed to go to. When I say Hana I mean Honokalani...we live at a place that directly borders the Park area. Our roots to Hana is through my mother's lineage. Both my grandmother and grandfather, on my mother's side were raised up in this Honokalani/Wainapanapa area. My grandmother's grandmother and her sisters were raised in that very area where the State Park is. My mother's family name is Ho'opai. My mother's parents were George Maui & Juliana Kamakakulani Nahinu Hoopai. My father was Benjamin Martin Perry. His line came from away. He moved to Hana with his parents during the Plantation Era and when Hana Plantation shut down they all moved away to Pu'ūnene. My father chose to remain in Hana and raised his family there. I come from a family of twelve children; eight sons and four daughters. Four live away...the rest of us are all back here, with the larger number living in Hana [Ben].

[Note: An apology to Mr. Ben Perry for inadvertently not taking his photo.]



Photo 29. Banana trees along side Waiānapanapa Road or Honokalani

## B. Land Resources & Use

Land resources and uses change over time. Often evidence of these changes are 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 indications of cultural practices. For the last one hundred and fifty years, the most dominant use of the land in the project area has been for subsistence, recreation and burial of family members.

**B-1. Honokalani Village.** The consultants all grew up in Honokalani and have very fond memories of life in this area. They all participated in a wide range of activities here; many were passed down through several generations. This was the land of their grandparents and great-grandparents.

The most memorable thing about Honokalani is growing up with all my brothers and sisters. Honokalani--that's our home and our playground. I still love that place even though I'm not living there right now; I still call it my home. And being around my mom and dad too. To me they taught all of us to plant and a lot of good stuff--like how to survive on the 'aina. How to fish. Everything. How to prepare. How to cook it; a lot of ways to cook the different types of food [Piilani].

I moved into that house around 1945. It was already up. That house was there long before my time... when my grandparents were young that house was there. I don't know when this area was planted in sugar cane, but when I moved there, sugar cane existed in this area [Honokalani/Wakiu, Hana side of Honokalani Village]. From the road down close to our house. Some time in the early 1950s the Hana Ranch fenced the sugar cane field, put cattle in. Later, bulldozed and planted grass for pasture. Today it's all over grown with trees. So you cannot get a good perspective of what it was like. The Ranch has since sold that acreage. It's changed hands a few times already. The current owner has it listed for sale. Maybe the State wants this one too. This was all Hui land... At one point in time the Hana Ranch hired a surveyor to identify the different parcels that people were living on. My mother's place the guy surveyed half an acre because our deed said we had half an acre. And the rest of the lands left as unclaimed ended up being fenced by the Ranch for their use. In the 1970s when the land cases came up, that particular surveyor, his name was John Sousa testified to this.. Now I don't know if you're going to be able to secure those records, but if you do, it will show you how the lands were--where...different people lived and how the rest went to the Ranch [Ben].

**B-2. General Life in Honokalani.** For most of the consultants, life in Honokalani did not include some of the "modern" conveniences we now take for granted, but never-the-less they enjoyed their life there. They talked about typical chores they had to do as children or things they observed their parents or grandparents doing. And they talked about cultural practices such as poi pounding and *lauhala* weaving.

We grew up without electricity so I know that way of life. I grew up in an era that had no TV.... It was a different life. Some of them will never understand what we went through... even in my own family. I see a division between the older kids and the younger ones because we grew up differently. Our exposure was different and some of the things now when you pass on to the next generation. To them it's unbelievable! It never was that way [Ben].

To me my main job was doing what we were supposed to do--take care of our are--the yard, animals and finding food like fishing. My whole family were fishermen; that's why we love the ocean [Piilani].

Every Saturday we used to pound poi. We pound our own with board and stone; every child had their own stone. The board we used to make our own either from the mango tree or the ulu tree, we make our own pounding board. We used to see who could pound the poi...and every Saturday we used to go over there and pound. If you didn't pound it good, you had to eat it. We pound for the week; that's our food for the week and then we rest. Then if we don't get enough, then in between you had to go pound some more--enough for the week. I have one stone in here [his house]...my good friend gave me. I still can pound if I had a stone and board. And not only taro, we used to pound breadfruit. My grandmother cannot eat rice--gotta eat poi. So if we don't have taro we get the breadfruit and make poi. Once in a while I don't go school and I have to climb the old tree and get the ulu for my grandmother and make poi. That was a good life though. I wish I could go back that time [Tony].

It's [Honokalani] beautiful though. Used to be people pass, walking down and "Helemai 'ai...come eat." We just had fish and poi those days. We used to lay the mat down on the floor and eat on the floor. And everybody no lock the door, we don't lock the house we just let it go. Nobody bother those days. When we go down the beach, the doors wide open, the windows open; nobody go in and do anything. Not like now, shucks if you leave the door open, they rob your whole house [Tony].

My grandmother, when we go down the beach, before we come home we pick up the lauhala leaves on the ground. When we come home, clean all the lauhala leaves, dry 'em. And every summer she make hats for all the kids--her grandkids--she makes lauhala hat. And she made mat for the people sleep on. Before they don't have mattresses so you gotta get mat for sleep on. Every kid had one, my grandmother make a mat they can sleep on. And a mat for eat--everybody sit down and eat. That's what they used to get the lauhala for. So when we go down the beach, on the way home we pick up the lauhala leaves and we dry 'em. In case rain we run outside, pick up all the leaves and put 'em back in the house. Pau rain, take 'em back out again. After dry, for couple of weeks or a month or so, after they dry they roll it up and put it in a bundle. You know big bundle. So as they need they strip it out and that's how they make hat or mat. And my grandmother used to have a rock was for measure the head for the hat--to weave around that rock--that's what they used the measurement for the hat. And my grandmother used to make for everybody every summer. I used to like that. But you know those days, the kids they don't take care and they just throw 'em away because the grandmother going make it for them again [Tony].

Growing up, I was more the outdoor [type]; fishing, hunting and athletics was my bag. So with our Banana Farm--we the boys couldn't wait to get out of high school and get in the Army. That was a lot of work! We used to ship about a ton a week of bananas to Honolulu. Cut all the bananas on Sunday, get it ready to move down to the airport and load it on the Freighter (airplane) and fly to Honolulu. A ton a week! And I was the number four boy so my brothers was always the ones that [said] "You take turn and carry your banana." They always used to get me to carry the biggest bunch because I was the youngest. Yeah but that was hard work and we really enjoyed it [Jimmy].

And after school we come home and our job, my job was clean the lantern, fill up kerosene, make sure it's all clean; clean the yard. Those days didn't have electric had to use lantern eh...kerosene...was my job to clean it. Grow taro or whatever. Saturday we pound poi--harvest. Sunday, free, go swim Waianapanapa, down Pailoa and all that [Tony].

We would cut guava wood to cook taro and ulu. Make pit with rocks...put two iron bars across and put pot on to boil taro and palehu the fish after. I miss my grandparents, they taught me a lot about what life is. That time there were no tourists. The land on the left is conservation; land on the right was agriculture. Now no more ag land they made it residential. All my family living there.... Other things we would gather is kupe'e; and kukui nuts to make kukui nut lei. Grandfather made his own cord with #10 thread and

hau. In the old days the hula skirt was made out of hau fibers. From hau they made twine. Also hau wood were made into floaters for the nets [Tony].

In the evening in Honokalani the pueo (owl) used to fly around; my grandfather said "Oh we'll have good luck." Some superstitions were that you couldn't eat banana and whistle. And if we going fishing, don't tell you going fishing...you tell you going holoholo [Tony].

I remember her and my Mom them pounding poi and stuff in the actual poi pounder board with one stone pounders. And I think they was ah...I don't know what they did it for, but for some reason people used to come and pick poi. Mahi'ai mahele--all the poi--separate, share, divide them up. There were a couple of different boards; one big one where two people pound on each end--pac, pac...pac, pac [rhythm]. And my Tutulady, every morning I used to wake up to her slippers on the lauhala mat going shhhh, shhhh, shhhh, shhhh. And when we woke up she was doing something with lauhala--always. She made her own mats and everything [Mavis].

**B-3. Local Flora.** For the consultants the 'local flora' was what grew naturally in Honokalani or what they all had growing in their back yards. Two siblings grew up working on their parent's banana farm. The consultants all gathered resources from Honokalani to as far as Honoma'ele and Ulaino, from the time of their grandparents.

We had mango trees, milo and false kamani...we had gardens [with] taro and sweet potato-- most time we plant it in the full moon season; we make a mound, a dirt mound and put the plant in it. The taro we can eat almost everything of the taro. And when it's ready we boil it and make poi or just boil it and eat it like that. We pound; my dad is a good poi pounder. He pound his poi and to me he make the best poi [Piilani].

We grew taro right around the house. As you go down Honokalani, you know the Nahiku end, there's an old house I think it's all covered with bush now. Anyway that's where we was raised and used to get taro, banana, fruit trees. That's where we used to plant taro. And we used to go down Ulaino plant taro down there. And that's where we get our poi from, Ulaino and Honokalani. We used to walk and we used to get a donkey, ride the donkey or horse, go down Ulaino, plant taro, potato--nice place down there --dryland taro. Over there [Honokalani] there's no water. Only can plant dryland. Even Ulaino is dryland [Tony].

When we were growing up my mother was a collector of all kinds of ti-leaf plants; Kalakaua and Bone ti-leaf--the ti-leaf had a bone on the leaf; a hard bone and you could see 'em. It was red and the bone is white. Recently I had two from an old lady in Keanae so I hope the thing grow. But today you don't see those ti-leaves around; they're all gone. And I got the black t-leaf; that was an old ti-leaf that my Mom had. And she had all kinds of crotons. Another thing that she used to make us do was go find all kinds of seeds for seed-leis. Wainapanapa had ukus [slang for plenty] of that *kakali'o*, black-eye susan, canna--small little black seeds. And we got all that down at Wainapanapa. Red seeds, black seeds--there's one that they call the White Heart. It's a small black seed with the shape of a heart on it. And there's still some in Wainapanapa. It's a red one with a black dot. The other one like a sheep-eye is the kae'e; there was the striped kae'e and the regular color and one with tiger stripes. All of this used to be in Wainapanapa. That was fun collecting. We got that [sheep-eye] at Kawaiipapa. So when that stream run, then the guys go on the beach and look for 'em cause that thing grow way up in the mountain [Jimmy].

We had a banana farm all over here--this whole place was bananas. And across the road over here was all banana over here; banana fields. The whole area was banana fields.... No sugar cane [in Honokalani]--just a lot of bushes that we had to clean; guava trees, vines, plum, ink berries [Ipo].

There's a small grove of milo that's in that area...not necessarily on the State

land...that's all gone from the State land. But there are remnants of a grove in the State Park. The milo wood people came a take that...they made different stuff. My brother Jimmy can share that better than I can. Through the years...see we grew up with the land. Whatever could be used, we used. Whether the name comes to me now or not; doesn't matter if I can't identify a lot of things by name, but if I saw it I can tell you yes that's good, no that's not good [Ben].

Other things gathered: would pick watercress [from Ulaino]; from the Ulaino area, Honomaele by the heiau, we would gather red mamaki to make tea. Now there's only the white mamaki [Tony].

Well there's hala that my Tutulady and their Mom [Perry's] Auntie Helen [used to gather] [Mavis].

Lots of pohole ferns [Note: Maui name for hō'i'o fern]...lots of stuff we used for lei-making. Like the common laua'e, plenty noni which is the medicinal tree that people have a craze for now. Those thing are there all the time. There's a lot of what some would consider weeds. I don't remember the names but I can tell you whether this one was good for your high blood pressure, that one was good for you if you have diabetes, I remember that. Another would be good for you if you had a cut [Ben].

**B-4. Local Fauna.** Local fauna in the project area consisted mostly of family hunting dogs, working donkeys or horses, chickens, goats, cows, domestic pigs, as well as feral pigs.

Oh we had all kinds [of animals], chickens, pigs, I'm pretty sure we had ducks too. [The pigs] kalua yeah. We put it in the ground, the imu [Piilani].

[We also hunted] for pig up the mountain [Tony].

We mostly went [pig hunting] in the Nahiku area. In those days we used to walk like eight hours. And we came home and my Dad made all kind smoked pork, sausages and I guess when you get one big family they keep you going yeah. So that was really helpful for us and we learned that at an early age. And until today we still doing that. My sons still go hunting, smoke pork and all that. Also growing up we used to hang around my grandfather's house a lot too. And I think that's where my Dad had that inspiration of raising pigs. For every occasion we had kalua pig and my grandfather used to do that all the time. And my father taught us how to do that. And every kid that graduated had a big luau. My father gave the pig and taught us how to kill the pig and make the imu. And you know to us that was an easy job. And 'til today we still doing that.... The old days we used to dig the imu, burn all the charcoal everything. Then you cover the whole mound with dirt. Today we use plastic; cover the whole imu and just scoop the dirt right around the edges. [On top put] banana leaves, ti leaves, burlap bag and then the plastic cover. And it cooks real good. And then another thing; I don't like this way but lot of guys doing it this way now. They put in the pig overnight, take em out the next morning. To me it's not as tasty as when you put em in and take em out and eat em [Jimmy].

My father also raised pigs. The pigpen was maybe right here--a big one. We raised pigs and sold them [Ipo].

This cave, Waima'u Cave used to have the red shrimp. Well both caves used to have the opae 'ula. But I don't see them any more. Somebody put puppies in there [Mavis].

My Dad raised a lot of pigs and we sold the hogs as an income resource.... We used a lot of that acreage around there, and we raised a lot of animals. Mostly pigs, but we also raised some cows. At one time we had goats, lots of chickens...typical of what somebody in the rural country would do [Ben].

Another thing we did when we were young was raise donkeys [Tony].

**B-5. Waiānapapa State Park.** The park did not exist when the consultants were growing up in Honokalani Village; that land was part of the village, a place where `ohana were buried, a place they went to gather or access the marine resources. It was a place where they played and made some observations; but also a place of ownership controversy.

Waiānapapa State Park was a hala forest. There wasn't any Park and you didn't need any camping permits to camp out [Pīlani].

[Waiānapapa State Park was] all hui lands that time--undivided. Not divided or segregated to how it is now. It was Hui land. It was undivided interest. Many names. We were the Ho'opais--my grandfolks George & Juliana. We were probably the largest users of the land living there. I know at one point in time Hana Ranch made an effort to fence off the lands that were not being used. And thus their opportunity came in the 1970s when this land was being divided; through adverse possession they get a claim on the larger share because of their so-called usage as pasture-land [Ben].

That was a good life until the 1960s when the State came in--you know I hate to say this but I was one of the original workers. I was hired by the County in 1968. That was one of my first projects, to go cut a trail so the bulldozer could come in. And a lot of the rock walls that were there, I cut a trail for the bulldozer so it wouldn't knock down the rocks walls [Jimmy].

Yeah when I was growing up the area was eight to ten feet road--very rough road. Very few people came down there. And the County would come in and grade the road about once every two months. Cars very seldom came down there because there was just trails down to the beach. But once you got down there it was real nice. To me I still think it's one of the most beautiful areas in the County with all its natural rock formations, the beach, the caves and all that. It went like that until about 1968. That's when I started working for the County; that was our first project; to improve the road and open up the land for the State to make a park. Most of the area by the Caretaker's house, to your left towards the cave, was done by the County. I was a trail man, making sure that they don't push down all the stone walls. And we worked on the road from the main Hāna Highway down to the cabin area. With that improvement came a lot more tourist and Wainapanapa became more exposed to the public. And you know I see that place as peaceful and people can come there and relax and to learn more about the history of the early Hawaiians [Jimmy].

My father--before this place became a State Park, took care of this place. My Dad, for your information, this was his dream to have a park here at Honokalani & Waiapanapapa one day. He didn't envision it to be a park in the magnitude it is today. Back in those days my father only worked ten days a month and trying to raise a family of twelve. Spent time on welfare. Those days you didn't just stay home and collect your welfare check...you had to go work. His assigned area was to clean up from our house down to the beach...and keep it open for whoever came visit the place. So this is where we spent our summers as kids helping Dad clean up this place...from a place we call Popo'o which is in here [F28--Pearson map (1969) see Figure 13]...all the way down to Wainapanapa. So that qualifies me as knowing all the trails and almost all the names of the places. I've since forgotten a few, but I still have a list given to me by my grandmother of the names of all the different places here in Honokalani [Ben].

[Waiapanapapa State Park had] bushes, cane grass, kamani trees. But the walls were all there--I remember the walls. You know my father was on welfare before and before one of the things he had to do was I guess work for that money. So he knew I guess how everybody used the beach area so he made the trails and planted flowers. Wainapanapa was beautiful before; he did all the flowers and kept it clean so that we could go down and be safe. He planted the coconut trees. There were a lot more colorful flowers. Right now there's gingers and there's a lot of bushes over there now. There were impatiens; the

gingers were there. There are still a lot of gingers there. But right by the mango tree right as you come down the stairs towards the Waiapanapapa Cave; he used to plant all these different color impatiens [Ipo].



Photo 30. Part of the many ancient rock walls that exist in Honokalani.



Photo 31. Offshoots of impatiens planted by the first park caretaker.

You go down there, you see a lot of coconut trees. The taller and older trees were planted by my Dad. We carried those trees down there during his welfare work days. The younger trees were planted by the State Park people. But I can identify all the trees that my Dad planted--topside. Along the beach area most of those were planted by the State Parks people. But in Wainapanapa area, on top of Pailoa and on top of Popo'o all was started by my father. A lot of those trees that grow along the side, you see them now. They are the offspring of the original trees my father planted almost 50 years ago and you expect those trees to be as tall as they are today [Ben].

You know after you get older, you kind of see the dangers and all; that's why I hardly go Wainapanapa now. If you go down to the cave you'll see a key rock up there just waiting to fall. And every time you go you see em just like moving one inch, one inch. But it's a key rock, if that rock falls down the cave collapse [Jimmy].

There's a crack there that wasn't there when we were little [Ipo].



Photo 323. Park visitors going for swim in legendary Waiānapapa Cave.

Where my grandmother had [land]...you know I remember it was a Grant because it had to go before the Judge and he threw it out. He didn't accept it because it was in Hawaiian—they had to have it translated [Ipo].

I think it was twenty-seven or thirty-one people or something...that was when they were fighting the Ranch [Mavis].

Had a big land court [case] against Hana Ranch. I don't know how Hana Ranch went get in there. There were holding more land than the residents were. So all our parents went to Court. That was a long battle; over a month in Court [Jimmy].

**B-5a. Memories.** The consultants had many memories of time spent in the area now called Waiānapapa State Park. However, it wasn't always called Waiānapapa. They also had names for various favorite spots--some old names; a few made up.

No just the cave was [Waiānapapa] ... it was always Honokalani [Piilani].

Kewaiki, Highland Rock was jump off place...that was our playground. Another spot was Popo'o, Pailoa, Crab Pond and Turtle Pond by [F-28] [Piilani].



Photo 33. Favorite diving rocks and swimming areas; coconuts trees in background.

We have just wonderful childhood memories yeah. When we were young we would have to do our jobs first...clean yard or whatever it was. For some reason I remember something about taro, but maybe I was a little bit too young and I was just watching them...I don't know. So as soon as we finish doing our chores we could go swimming. This is mostly during the summer. We used to hurry up and finish our chores so we could go swim and we would walk down. It was stone road...the road wasn't paved. And every house that we came to we would yell "Huuui!" or "Ahaahaahhhh!" and everybody would come out and we would go down to the next house and they would come out. And all the way down to the beach was like that. And we would end up with a whole bunch of people swimming down at the beach and jumping off the rocks...Haili Rock and Diving Rock-- now our kids call it Bunny Ears.... This is Pailoa, this is Popo'o right here, then this is where Diving Rock is. Haili Rock is sort of like that; behind it is two other rocks. Moku Popolo was one of the rocks [Mavis].

There's another beach over here when you're young that's where you go. Cannot swim...that's where you go...Popo'o. I don't know if that's a shortened version for Popoalaea or what [Ipo].

**B-5b. Pailoa, Black Sand Beach & Lava Tube Cave.** These were the main places where the consultants went for recreation and for subsistence, as children and now as adults.

All the kids played out in there...played hide and seek. We used to sleep on that Black Sand Beach. You know that cave...we used to sleep in that cave. Used to get all our canoes over there. Used to sleep over there. Go fishing, catch akule whatever and sleep down in that cave. Plus my grandfather had a canoe house over there on the Black Sand Beach...but the tidal wave 1946 took the house down. We slept in that canoe house...that's where they used to leave their nets in there. We slept in that canoe house. 1946 that tidal wave went wipe that out. Used to get a water well in the back of that canoe house. And it's all covered up because of that tidal wave. We used to sleep in that canoe house.... My grandfather went build that...he and his uncle...I don't know what his uncle name was. The one I'm talking about is my great-grandfather, Kepano, John Kepano Lono. That's my great-grandfather...that's the one owned the canoe...that's the one I'm talking about. He owned the canoe house and went out fish on the canoe...not my grandfather, but my great grandfather. He and my uncle built it, that canoe house...out of lauhala leaves and bamboo rafters and the rocks; to hold each side of the building had rocks. They still have the picture in one of the Hawaiian books [Tony].



Photo 34. Lava Tube/Cave at Pailoa Bay.



Photo 35. Inside lava Tube/Cave facing ocean.

And growing up in Honokalani was extra special. I remember going with my dad, going to the beach...Black Sand Beach...which was so full of fish and opihi and crab and those were the days when very few people came down there. And most of the people who came down there were either related to those that lived down there, like my Uncle Sol Ho'opai, Uncle Kekaha Lono, and they would go down and throw their nets or use their nets to surround the fish. And they would always come up and come to our house and drop off some fish or opihi. So at that early age, about five or six, we were already following my dad who would go along with our other older uncles and their family and do all their fishing and opihi picking. During the night we would go down and catch crab and lama lama with the light. Going with the light and the spear and just going through the water and you know you see the fish, you just harpoon the fish. And that was real fun [Jimmy].



Photo 36. Black Sand Beach at Pailoa Bay, favorite place of Consultants.

Every Sunday all day that's what we used to do go swimming down there at Black Sand. After Black Sand we used to go rinse ourselves in fresh water at Waianapanapa so we go swim over there. That was our day off from doing chores eh. Swimming, pick mangoes on the road, eat guava for lunch, mangoes. That's one thing nice about Waianapanapa, they have lot of mangoes. We used to eat mangoes over there, and go swim. Tired swim, go lay down on the sand. But now lot of tourist over there...I don't know what's happening [Tony].

We spent a lot of time down at the beach growing up; picnicking and swimming with all the aunts and uncles--especially my Mom, Aunt Ella, Uncle Frank, the kids in the neighborhood, all the Lonos, the Oliverias, and everybody who came visiting. We had a banana farm down there and whenever we were able to leave work we all usually went down to the beach and had a big hallabalo with the whole neighborhood. We camped on the beaches with all the family. We went fishing, we went opihi picking and pipipi picking and everything else...we were crazy kids. And we loved it [Ipo].

I remember camping too with Ipo them too when we were much younger and waking up on the sand on the beach...you know. Waking up and diving in the water.... That was like some of the best memories we had [Mavis].

**B-5c. `Īeme Heiau [Ohala].** On the southern end of Waianapanapa State Park are a number of features previously recorded by Pearson (1970), which some of the consultants mentioned, including a heiau at a place the consultants call `Īeme.

There's another heiau up here some place. I don't know maybe there's some ancient ground that people used to live. But I know people used to live over there because I see the kind rock formation... up by the heiau [T'eme]. So I ask my grandfather "What is that?" You know Hawaiian style they don't say nothing other than..."Oh don't bother that." So we didn't bother. But I know that somebody used to live over there--ancient people used to live there. But we didn't want to disturb you know [Tony].

In `Īeme there's a rock feature that looks like the Lion King. There's a pictograph, the one painted red. Near that heiau, there's a large cave. It's a large cave and the thought is that the heiau keeper might have lived there. When you go there, you can just feel it. You know chicken-skin. When I go there, I know that this is someplace special. And you can see the rock features like if where I'm sitting is the mouth of the cave...you can see the rock features that lead in--like separators, as you enter that place. I hope they don't ever touch that spot. In other words that whole heiau area is sacred grounds. That heiau, you can see the front part where people put up ho'okupu representations, which are really nothing but rocks in ti-leaves and I think that's an abomination. More exposure will mean more trashing at our once sacred grounds and pretty soon you'll hear "Oh, that's a local custom." How awful.... What is the purpose: rocks in ti-leaf wrap?? They're trashing our once sacred heiau. Today only the front part of the heiau is exposed. We were privileged as we were growing up to see that whole area exposed. On the back side, it actually rises up again. All of that is part of the heiau. In the book *Sites of Maui* there is a description of that heiau. Of course you can't see the whole now because it's all overgrown. I still don't understand what the platform in the front is for.... The trail kind of goes like that and you go up a little knoll. This is part of the platform that you can see...where you get all those false ho'okupu up there. There's a stone wall back here that goes like that. And as this trail comes around here, there's a little opening here. Right inside there's a flat platform. And if I did this...it's up here. This part is up and this is kind of down here on a different level. But it has all this smooth stones like that [Ben].

**B-5d. Ancient Trail.** Remnants of an ancient paved trail extends the length of the Park and beyond to the north.

I walked all the way down to Ulaino on this trail -- to the airport and down to Ulaino go fishing [Tony].

You know my Dad, he was one of the greatest turtle catchers. I used to go help him. We had a trail from Wainapanapa to the airport. And he said that was an old Hawaiian trail. But the guys cannot find em too. But it still has those stepping stones--they know the one by the coast, but there's one up [Jimmy].

You want to walk the King's Trail at Honokalani, go towards Waikalua--it's a good walk; you cannot loose the trail, the trail is wide open. I cannot say well-maintained, but you know it's the trail. There's a segment in there, I don't know if you've seen it. You know the round stones are all set in place like a pace apart. That begins at this place we call `Īeme [near Paina Pt.] which is just past here...(looking at map). But through the years the high seas come and slowly those stones are losing their place. Today the high water mark during the high seas is almost at the heiau's stone wall. It was an interesting era that we lived in to see all these different changes [Ben].

**B-5e. Park Burials.** Prior to the existence of the park, it was a burial place for the `ohana of the consultants who shared who was buried where by pointing to areas on Pearson's (1969) map.

The cemetery is right here, here and one over here. That's my great grandparents buried over here [F-30]. Kipano Lono buried over here. And my mother, grandmother, my brother, grandfather, my uncle, aunt [C-1] all buried over there. The caretaker's right here--that's another grave--that's where the Perry grandparents are buried [F-29].... The grandparents, his grandparents--Ho'opai--that's my grandmother's brother...buried over

here [F-29]. And then over here that's another cemetery [C-1], that's where all my grandparents buried over here [Tony].



Photo 37. Cemetery C-2 easy access to Campers. Photo 38. C-2 burial place of Consultants ohana.

My Tutuman Hilo Hanakahi is buried there. That's where campers walk all over the graves [C-1]. That's where the Ho'opai family is buried [F-29]. That's Ipo's Mom's family...grandfather and grandmother. Margaret and Francis Lono (Mom & Dad) are buried there, and Uncle Ben Perry Sr. [F-30]; and Dad's Mom Ka'umoku Ho'opai Hanakahi [Piilani].

People talk about ghost stories, but this area, I belong there. It's like our grandparents and their connection to the past protects us if you believe that. I spent many nights by myself way back here fishing. Sleep overnight, the next morning walk all the way back home. No it never bothers us because I believe that our connection to the past protects. Here, I go any place—night or day—no problem by myself or with company...walking, fishing, count stars at night, you name it. Some places you cannot do that. Not the same feeling. It's that warning or that feeling that says 'you do not belong here.' When we go to Honomale I don't have that feeling; I go to Ulaino I don't have that feeling because that's where our roots are. That's where my grandfather came from, Ulaino. And his father and grandfather is buried down there [Ben].

[Uncle] Kanaku Pei they used to call him. P-e-i his last name. My grandfather raised him too. He was blood but I don't know how. You know Hawaiians tell you your "uncle" or your "aunty" but they don't tell you how you related to them.... He has another brother that passed away too. And another sister they call her Queenie Pei, passed away too; buried over there too at Honokalani [Waianapanapa State Park]...where my grandmother and my grandfather them. My mother is buried over there, my brother is buried there, my uncle, my aunts...all buried over there.... A lot of these graves don't have marker on 'em. You know all my grandfather's, my grandmother's and my mother's...don't have any marker on them. And we don't know what year they died or what day they born. It's really hard you know [Tony].

Today there's three different cemeteries right where the caretaker's residence is. I remember my grandmother telling me that one, which is closer to the bathroom at the Park...that was for one branch of the family. Another one, in the middle, was designated for my grandfather's line. And then another one which is for another branch of the family. And those cemeteries are still in use, except for one that's closest to picnic and camping area. In my lifetime there's been several burials there. The most recent were my dad, a baby nephew, an aunt and uncle who lived up the road from us. And my aunt who was caretaker at this Park.... Off the top of my head, but I cannot assure accuracy on this: The cemetery closest to the picnic area has family of Mrs. Lucy Van Loon's [Take Matsuda's mother-in-law] family--Lono family too. The middle one is my grandmother and grandfather's families. On the other side, the one that's on the Hana side of the

caretaker's residence is a mixture of the same family lines. Names have changed over time, you know, you see all different names. The roots come from the same people. All these people...almost all these people on this list [Note: list given to interviewer by Ms. Lauren Tanaka, from State Parks], tie in because of four sisters who lived there long time ago. And those are my great-greats...might be great-great-great [Ben].



Photo 39. Cemetery F-29 above.

See something that's not on this map here...when you come around this Bay like this...right around here ..in this area where it says cave, the cave is underground...all over here where this stone wall is, there's all burials in there. Covered today with hau trees and nobody knows anything about that [Ben].

Used to see rock mounds, my grandfather said those were burials. They were put in weave mat in a sitting up position. Whenever you go down to the beach and you want to relieve, yourself you say "kala mai i'au 'oi" --excuse yourself. When you walk on a heiau say excuse me [Tony].

There was a man named Kane'ela who lived near that area [Kahanu Gardens] and I was told, but I have no way of confirming it, the people who can confirm it are all dead--he might have been the last caretaker of the heiau [Hale O Pi'ilani Heiau]. I know where he is buried and I share that story whenever I can [F30] [Ben].

**B-6. Other Burials.** The consultants shared that there are other burials north of the park boundaries. Most are very ancient burials, but one is a family member.

And another point over here there's another cemetery way down this other end.... You have to walk through the black sand go all the way down until this point over here...that's another trail right here...go to the airport...it's a grave yard over there. I don't think everybody knows that.... You go to Pailoa, you go across and there's a trail; go down through here...all burials [C-3] and over here [C-2] there's a grave over here too...right on the trail. I don't know who's grave is that but, some kind of relative, but I don't know who. If I walk through there I can find it [C-3] that's all ancient that [Tony].

Growing up I never paid much attention to the names. Even today I have a hard time remembering without looking at the documents that spell out who these people were and where their buried. I can tell you that one of them is buried in the cemetery out on the peninsula at Honokalani where we call Ma'ke Place. (Looking and pointing at a map) The Park encompasses Pailoa Bay and somewhat all down in here someplace. And I don't know how far along down in here. But this great-great-grandmother of mine is way out here.... Just past (N) that station [VABM 49] is the survey marker. There's a really large area where people were buried and the remains of the cemeteries are back there [Platform Burials]. My great-great-grandmother's grave is one of the newer ones there. I was told that she was one of the last people to be buried out there [Ben].

I also know of another cemetery that existed but has since been bulldozed in the area near Cabin 1. As a youngster I played in that area and I had many opportunities to see what was around [Ben].

**B-7. Waiānapanapa Cave.** Waiānapanapa Cave [just outside of the Park boundary] was a legendary place, but it was also a favorite recreation place for the consultants and still is for some today. However, when the consultants were growing up, only the cave where the chiefess died was referred to as Waiānapanapa.

The cave that's where we used to swim. There was a chair or ledge you could sit on.... There's a chair in there for the legend of the Princess, actually there's two chairs. But right now it's dangerous to go in there because the cave is falling. Well I don't know too much about the cave [Piilani].

And growing up in Waiānapanapa we did a lot of swimming. We used to swim in the salt water. And there were just small trails that would lead to one bay to the next bay. And then our last stop would be at Waiānapanapa Cave. And we all would race to get to Waiānapanapa because those days tourist would come and flip money in Waiānapanapa. And we would go there and you know dive for the money; that was fun. Sometimes you pick up one dollar you were so happy--all in quarters or dimes and pennies. We also did a lot of exploring in Waiānapanapa; there's three chambers and we all always would go in different chambers. The chamber on your right is the one with all the big bones. Somebody told us was animal bones--horse bones. And the one in the middle is the one with the chairs. And there's one on your left. You know today I think about it and I think we was real crazy when we were young. You know there's a ledge over there inside the cave and the ledge from the cave goes down yeah. So you gotta go in and you gotta dive down and come up the other side and when it's high tide you cannot come up. Well we used to find one opening and come up for air; then we would walk, go out and do it again. That was fun. And the trails weren't as wide and big as it is today, but there were very few tourist that came down in those days. They usually would ask questions of all the kids that were there....and they would tell them. And the kids were so happy to take them and show them the caves [Jimmy].

My mother told us about the legend and that there was an altar under there where her grandparents would go and do prayers whenever there were special occasions. And that she always took a hala lei whenever she went in there.... Usually hala means an ending of something. I've never seen it, I'm too chicken to go in there. But I've talked to other people who have [Ipo].



Photo 41. Wai'amau Cave where red shrimp can also be found.

**B-8. Wai'amau Cave.** There are actually two main wet caves, which the consultants identified and talked about, Waiānapanapa and Wai'amau.

My grandmother used to go down there to wash their clothes. Not in Waiānapanapa ...there's another pond they call that Wai'amau--right across Waiānapanapa ...there's water and that's where my grandmother used to wash their clothes [Tony].

Oh yeah there's another pond besides the cave ...and you can go in there...there's tunnel that you can dive through and come out the other pond. That's where get that Hawaiian red shrimp...opae yeah [Piilani].

**B-9. Ka'eieku.** Because of the age difference of one of the consultants, he went to Ka'eieku School instead of Hāna School like the others. He describes what the are was like when he went to school.

It was the Plantation--used to be sugar cane over there. All on the side over there had sugar cane. We used to make our own lunch, we meet up there [and] we exchange lunch. You know kids we eat under the tank; the water tank. The Japanese bring their own food and Hawaiians we bring our own food and we eat together--everybody sit in a circle. Everybody eat what the other children have; was good you know. And Ka'eieku used to have a theatre, they had a store, they had a restaurant--used to be a big camp, Ka'eieku Sugar Company. They had a silent theatre though silent movies. Those days didn't have [sound]; when we went Hāna had movie [with sound].... Had a church too at Ka'eieku. But the church burned down, I don't know what year it was. Had a Catholic Church down there. We used to walk from Honokalani down to the church. Burned down cause they were burning sugar cane and the sparks went to the church and burned it down. I forget what year it was [Tony].

### C. 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. There were no permanent streams in Honokalani, Wakiu or Kawaipapa, although Kawaipapa has a rather large stream bed of boulders indicating that run-off from Haleakala can have a very high velocity. Consultants mentioned springs in the caves, as well as at Pailoa Bay.

They used to get water from the rain eh. They didn't have pipe water in those days...always catch from the rain [Tony].

Our water came from the County tank (from 1940s) and piped ¼mile down to our house. But there were summers when there was no water and the County hauled water in on the portable tank. And they rationed us as to how much you could take. When that time came we went down to Wainapanapa for our baths. Down there in Pailoa and the caves at Waiānapanapa. Plenty of fresh water. In Pailoa Bay there is a fresh water hole. Covered up now, but I still know where it is. Pailoa well and the caves at Waiānapanapa and Waima'u were the only known water sources in the area. The old people believed that the water well is connected to the ponds in the caves. There is a second water hole in the immediate area, it was used and I saw it, where they used to water the horses. Today it's covered but I know where it is. My grandparents had horses. It was their only mode of transportation with donkeys being beast of burden ...pack animals to the second home in Ulaino. In immediate vicinity of water well was a house. In Peter Buck's book of *Houses...* "House of Lono"--I was in that house. In 1946 a tidal wave destroyed it and covered the water well. The well was ancient...definitely before the Plantation days. Maybe that's why the houses were congregated in the area of the State Park. As a young boy, I remember that each home had a catchment system to collect rain water. At the house I grew up in, there was (and still there) a large concrete water tank. Water to the entire village and Park is currently via County transmission lines [Ben].



Photo 42. Area where consultant said a well and *hale wa'a* once existed prior to 1946.

#### D. Marine Use & Resources.

The sea can be a great resource to people with access to its bounty. Most of the consultants benefited from the resources of the nearby coastal environs. Many went fishing there or had family members who went fishing or gathering.

**D-1. Fishing Spots.** Some of the consultants talked about their favorite fishing spots, places where their parents and grandparents also went fishing.

There's a heiau near 'Ī emi...that's where we went ulua fishing (near F-23) [Piilani].

My favorite was Popo'o, our swimming area. Popo'o that's a good fishing ground; and Pailoa, that was another place that we call our fishing ground...there's one more...oh Lepahu (near F-29) [Piilani].

**D-2. Fishing Methods & Catches.** The consultants talked about various methods of fishing employed by themselves or family members, such as their fathers, uncles and grandfathers. They also provided the names of the fish caught. The consultants and their families also subsisted on turtles or *honu* that use to frequent the area.

Shore fishing, night fishing and day fishing. We go catch moi like that. Only in the day. Moi, uhu...all kind fish. We used to catch akule over there too--surround. My grandfather used to get canoe.--he used to go surround net--akule. Plus he go out--I don't know what they call that--*ka'ili*--by himself, on a one-man canoe. *Ka'ili* is bottom-fishing. Come back he get lot of fish. He give em all to the neighbors. 'Cause those days they didn't have any refrigerator...you had to either dry em or salt it. So that was the best thing to do, to give them away [Tony].

They had uhu, inenui, all kinds of fish. That place [Pailoa] had all kinds of fish. And at night the fish would be sleeping and they would spear them and put it in the bag. And we would be the ones walking behind them with the bag. And every time they poke the fish and put them in the bag. So at a young age I learned to do a lot of stuff just by following them. And as we grew older, beside swimming and all that we started snorkeling. And the next thing you know we were carrying the spear. And we learned to skin-dive around there and that became our tromping ground [Jimmy].

You hang it down the line and instead of lead they use rock...pebbles they find down Pailoa. Pailoa has that round rock, so we used to go collect for my grandfather and put on his canoe and that's what he used to use for lead. When the fish bite he pull his line and the rock go off and he bring the fish up. So we have to go collect all that rock before he go out; if he going out tomorrow we have to go get today...this afternoon. Put all the rocks on his canoe. In the morning he push the canoe out and go out fishing. By about noon he be back and oh lot of fish! We give to the neighbors...whatever. Instead of lead he use the rock. When the fish bite you pull the line and the rock slide off and the fish come up. Those days they didn't have any lead anyway. As you pull, the rock gone so you have to get a new rock. You have to get a lot of rocks. Plus he has a calabash with all his equipment in there...his fishing equipment. In case the canoe flip over...the calabash will float and it stays in the calabash-- gourd. And if the canoe flip then it floats around and he can collect it and flip the canoe back over and he still get his fishing equipment. That's how they use that. And they used to go ah that kind ko'a... they fish for red fish. And there was a map in there [the calabash]...the kind land map ah landmark.... Mark to the land and to the ocean and to the land... and you know what spot you're in eh. So he just paddle to there and put his line down. And that [the calabash] I think my uncle took it to Honolulu...even the canoe my uncle took it. Used to get lot of canoe down Black Sand...you know to catch akule. They had lot of canoes. And us go...little young kids...we used to go swim over to the canoe and they take us go fishing [Tony].

Beside fishing and laying nets and all that...we did a lot of pole fishing-- ahole, moi...a lot of good fish. That area [Pailoa] was so abundant with fish. Today it's all fished out and a lot of people go there and the fish don't even come around anymore.... Yeah so besides swimming, and skin-diving and everything else that we did was all learned from my father and my uncles and we just kept it up and now we teach my sons, and my sons teach their sons [Jimmy].

We did all kinds of fishing...pole, diving, throw net. Had opihi, limu. Not too much today...too many tourist [Piilani].

Once in a while we go hukilau over there [Pailoa Bay]. You know when they go, these two guys they pull up long line with the ti leaves hanging down and they put a net in the back and they pull it up.... [The ti leaves hang] from the rope...just to scare the fish to get in the net. That's what they call hukilau. They used to make a lot of ti-leaves hanging down on the cord/line... long...'cause you have to go the rocks to chase the fish out on the side, on the end of the bay. You know two sides come together and we call them lau. Scare the fish, bring 'em together and the net in the center and everybody pull together. They catch oio, papio.... Once in a while...we surround hukilau, if get akule then we go surround akule [Tony].

You want to know what kind fish? Ulua, moi, aholehole, manini, papio, oio, popa'a, hinalea, enenu, humuhumu, the days when you could catch turtle we survived on turtles. There are others but we never kept them we threw them back--the junk fish. And I still know the spots that were shown to me. And you can add lobster to that list if you want. Crabbing, a'ama, pipipi which is shell, kupe'e, leho, there's this other one I just call it pupu but I don't know the exact name--pupu shells [Ben].

This is Pailoa here. I fish all that shoreline...from Ulaino all the way up to my grandfather's. And the old days we used to catch a lot of turtle; those days was legal. That's what we live on--turtle and fish and poi. And my grandfather teach me how to hook a turtle. My first turtle I caught 'em in the eye...I hook 'em in the eye. He told me I was going to be a good fisherman. That's what he told me. And he tell me when you eat fish, eat the eye so you get good eye. So the fish...all my grandchildren I tell them, I tell my daughter, you eat the eye from the fish, you can get good eye especially for fish. My grandkids they fight for the eye [Tony].



Photo 43. Crab Pond, like Turtle Pond were good resource areas and wading spots.

I used to go catch turtle right around this side. That's what we used to live on--turtle. Just one turtle could last you a couple of days. Down the airport side...I don't know what they call that place--they call 'em the airport--we used catch turtle. We used to go all the way to Nahiku even to Kaupo we used to catch turtle. You know Ben Perry's father, he used to go catch turtle. Those days was legal eh, so that's what we live on. Can't catch fish so you catch turtle. Or we hunted [Tony].

Oh I love the fishing, I love fishing, that's number one, these all that my grandfather taught me, fishing, how to make my own hook too...lobster hook. Made out of spring...bed spring or car spring. You know the kind car seat, the spring. Bend it and make it straight and make my own hook. I still have some I think in the house. My grandfather teach me to make the hook and at night we go down, when the night is good we go down fishing, we catch lobster. That's how we do, we catch with hook...even turtle we catch em with a hook. Some hooks were made smaller. The kind of fish used to catch was ulua, moi; used crab bait--paiea crab to catch moi. Made palu which we would chew first then throw in the water to catch the moi.... Catch *puhi inikiniki* or eels that were about twelve inches. Made palu ha `uki`uki; put nylon stocking on hands and put hands under the rocks, and catch the eel. Used the nylon so the eel wouldn't slip out. After catch the eel, put it in a bag [Tony].

My grandfather said the first fish you catch (from a canoe), mark it; you have to cook and eat it yourself. He prayed in Hawaiian and made me eat the fish. He said you're going to be a good fisherman. The first thing I caught from the shoreline was a turtle. I hooked it in the eye. Turtle oil is good for burns, it won't leave a scar. We boil the turtle fat and save for burns. I hope they allow turtle again--at least once a month--that's enough for a family. They, Native Americans can get whale why can't we get turtle? All the old people used to eat turtle. The mountain people used to exchange food [Tony].

**D-3. Ocean Gathering (Limu and `Opihi, etc.).** The gathering of seaweed or *limu* was appreciated by all who got to eat and enjoy this delicacy. The consultants and their families consumed it, and they gave it as gifts to friends from away. *`Opihi* or limpets were another delicacy the consultants and their families enjoyed picking off the rocks; as were *pipipi* (mollusk) and *kūpe`e* (snail).

[Grandmother] go pick limu, pick opihi...housewife eh used to be. She pick limu, opihi, get the food ready for the kamali`i, the grandchildren to eat.... I know limu koho, lipepe`e, and a lot...I can't think of the names... other limu. She shell the opihi, put the

limu inside and mix and we eat opihi and limu eh. Honokalani has a spot that has limu koho you know, by `Feme. Must be still there. That's one little spot had limu koho. Oh I love limu koho. You can eat it any way. You can eat with opihi, with the fish--the oio. You know when we go hukilau, get the oio and that's what we use you know. Mix with limu koho and oio. Some get lomi salmon inside. That's a meal right there, with the poi, 'nough. That's a meal. Don't have to go McDonald's, Burger King. We call that fast food [the limu mix]. Mix 'em with oio and limu koho. Cod fish--that's a main dish. Cod fish and lomi salmon--that's luxury that. Those days was cheap, the cod fish. You can buy quarter one whole cod fish [Tony].

If we wanted to get opihi--a safe place with all our kids following us--we go over this bay; [near F25] Poukohulu. That's where it's safe to get opihi, pipipi. And at night time if you're lucky that's where you find the kūpe`e [Ipo].

We all used to get opihi and kūpe`e, pipipi, fishing; pole mostly. And the only thing I ever caught was a enenui. My brothers caught a lot more stuff than me. I was happy to catch one [Mavis].

## E. Cultural Resources

This category represents Traditional Hawaiian cultural remains and practices and other ethnic resources and practices. The Traditional Hawaiian cultural remains and practices, includes archaeological remains from the pre-contact era, as well as cultural practices after contact. The sub-categories or sub-themes under this category were developed based on the information shared by the consultants.

### E-1. Ancient Sites.

I remember when my Dad was a Caretaker, his boss Harry Gibson used to come over to look for any historic sites. And I remember my dad taking them over to `Feme. I guess you guys know about the heiau down there. When you come off the loop trail it's not that far...and this is the loop road [where cabins are], I know you just walk down a little bit and then you kind of look up and you see em [Mavis].

There's a pictograph over there [near `Feme] [Ipo].

I know of the remains of house sites. There's some of them right within the Park boundaries, right next to the caretakers residence. Back in the 1970s I saw a map that was made of that area in the early 1800s. A total of 17 house sites were identified. Of the 17, two remain near the camp and picnic grounds in the Park. (Looking at the map) Take [Tah-kay] may have referred to another house site where you see this Kewa`iki Bay...it's right above that area. An aunty of mine who has since passed away remembers that place in semi-use when she was a child. I also know of another cemetery that existed but has since been bulldozed in the area near Cabin 1. As a youngster I played in that area and I had many opportunities to see what was around [Ben].

When my grandmother was still alive she showed me and my father the remnants of a road that went from Waianapanapa Cave and (Referring to a map) I take that to be Waianapanapa Cave, the pool...that went from here in a somewhat direction out to this point where we call Kapakaulua and I believe it's that triangular station [VABM 49]. To me it went like in this direction but you come out right near there at the burial ground [Ben].

Near this place, if I came down, like I said had sugar cane; right where the sugar cane ended, there's a large platform over there...lots of `ili`ili. My Tutu-lady said that used to be a heiau. Some of the `ili`ili still there. I remember this place. The end was terraced and the ground kind of comes up; there was stone wall along the front with an opening....

This was on our parcel (referring to map). No more the stone wall, but the part with the ili'ili is still there.... See the significance of all this is only now being recognized. Today everybody saying "Oh you gotta save this, save that." Because it's our only connection to the past. In the 1950s, 1960s who cared. There's another one where our old house was...there was a stone platform like that. Coconut trees bordered this. But those coconut trees were from more modern times. This was all moss and fairly high platform. They were building the road...straightening the road, the highway...and my grandfather who owned this place wanted this pile of rocks out of there. So the County men came and took all those rocks and it went into the road. Some years later my grandfather became gravely ill and my Tutu-lady said Tutu-man like that because he went fool around the heiau--take all the stones. When all the rocks came out it was only dirt underneath there so that rock pile didn't belong there. But it was never there to begin with. This part is gone, but there's still another long platform that goes back here like that. And then we come to this part which is up in here. Were they all connected in one time? Who knows. Now where this pile is, we had all this, they're not in line, but there were all these round mounds of stone that I said I thought that when people clean up they put in there; maybe big like this right inside here [9X10']. Had plenty. Then further back here there's another terrace pile. Was it all connected at one time? Am I wrong in my determination in thinking that they were just stones that were all piled up? I don't know. [Today] they're gone...bulldozed flat. Even where some of these guys were...had stone wall and had opening in the stone wall...why? I don't know. Put the bulldozer in there clean up the land. It had no significance at that time versus today. Today you do that you can go jail. But this is still there--this 'ili'ili part is still there. Every time I go there I feel something. The 'ili'ili we see here we seen it other places. If you ever go to Ulaino and we cross paths I could show you a few places down there too [Ben].

**E-2 Artifacts.** Some of the consultants talked about personal artifacts that were passed down; others mentioned artifacts once found in the Park.

[My father's poi pounder ] was passed down from his dad. I think my oldest brother has it. [The poi board], that thing too old already so my oldest brother just got the poi pounder...the stone. I think the one my dad was using before [poi board] was mango [Piilani].

There was a poi pounder there and they stole it (near 'Teme) [Ipo].

They stole the big stone, the medicine stone [Jimmy]

Had one [stone with an] arch; had one hole inside they used to pound.... [Features] 11, 12, 13, 14... around there are petroglyphs [Mavis].

**E-3. Historic Sites.**

The Kanekoa's was up here.... There's one other thing I remember about collecting; my Mom was a bottle collector, by the train tracks--the railroad--it seems like there was all house sites in there because that's where we would go look for bottles. Where ever there was a house site there would be a big thing with trash; where everybody used to throw their trash and we would go dig 'em up [Mavis]

**E-4. Current Gathering & Subsistence Practices.** The consultants indicated that as their parents and grandparents did, they still continue to gather land and marine resources, and fish the waters off Waiānapanapa State Park.

Definitely, still fishing...[gathering] lauhala, pole [fishing], throw net, a'ama [crabs], even akule...they catch akule once in a while, limu [gathering] limu lipoa way down by the hole. And then there's the purple one [limu] but I don't know what it was called...

kohu the purple one. I'm sure there're other things but I can't think of them right now [Mavis].

[Gathering] was constantly going on. "Til today I still go pick limu, opihi, I still go fishing, throw net and so does a lot of my family. I was not much for hala gathering, but this area is known for hala gathering. My mother practiced that art until recently. She no longer does it because she walks with a cane now. My grandmother and other Tutus used to gather a lot of lauhala. Select what they want at the beach, clean the thorns, bring home--roll 'em up, put outside to dry. She made mats for floor covering, place mats, and in her later years she was providing it to friends and classes where people needed the hala. Ulana is the term for lauhala crafting. Grandma and her relatives also wove hats. It was fascinating to watch [Ben].

**E-5. Place Names.**

**Table 8. Place names in Waiānapanapa State Park as recalled by Consultants.**

Placename	Location/Description
Honokalani	Village; from Hana Highway to the beach; Road
Waiānapanapa	Name of legendary wet cave
Wai'amau	Name of other wet cave
Kewaiki	Bay, north of Park
Kapukaulua	[VABM 49] Point near burial grounds
Highland Rock	Jumping-off place
Moku Popolo	Rock behind Diving Rock
Popo'o	Swimming place, before Diving Rock [near F-28]
Pailoa	Name of main bay; fishing place
Black Sand Beach	Sandy beach at Pailoa Bay
Crab Pond	Pond for younger children
Turtle Pond	Pond for younger children [near F-28]
Haili Rock/Diving Rock	Jumping-off place in Pailoa Bay
Bunny Ears	Also called Haili or Diving Rock
Blow Hole	Natural Feature at Pailoa Bay
'Teme	Place where heiau is located
Lion King Rock	Feature at 'Teme
Pa'ina Point	Near 'Teme
Lepahu	Down from F-29
Fall-down Stone	At Pokuhulu Bay
Poukohulu	Bay, north of Park [ulua fishing]

**F. Anecdotal Stories.**

Consultants usually have many stories to share. However, some of these stories are not always germane to the research categories. Yet they are too precious not to share as they give a broader view of the plantation camp era and lifestyles of the consultant.

**Spook Story.** There's spooks down there. Never happen to me, but happened to my two other brothers. One night they went fishing and as they were coming back they had two ulua with them and they hit a spot by "Fall Down Stone" --Pokohulu Bay, and they came to that--there's a big rock on the side of the trail. Well they hit solid wall and they just couldn't go forward. Just like something was trying to take the fish away from them. So

they prayed and they did everything that they was supposed to do, but it just wouldn't let them go. They stayed over there and they prayed; pray, and pray and pray. I don't know how long they were there and finally the barrier went move, but they came home, but they was all scared [Jimmy].

**Fireball Story.** We used to go night fishing for lobster. I was with my Dad that time and we used to see this fireball; you know shoot up. And he used to tell us "Oh! When you see that, swear!" so that thing would ma-ke (die). But I was young, I was scared myself! [We were] by the cemetery below—close to the Blow Hole [Jimmy].

**Lost Dogs Story.** My Dad used to raise pigs too, so our pigs used to run away and I was the one who would go with the dogs and find the pigs and bring em back home. Sometimes we had pigs loose like one year over and they had babies and was still out by the Īeme side by the heiau...all that area where the High School is now. And that's how far our pigs would go and I would go with the dogs and catch what I can and bring em back home. One time I had the experience of the dogs catching the pig...and me and my brother was there. And the dogs just disappear...two dogs. There were real good dogs... they never would die from a pig because they were too smart and experienced. But they just didn't come back. Every day I went looking for them...didn't come back, didn't come back. About five days later my brother was down at the beach where that cave is...the one with that stone. He told me "Eh I see flies coming out from that cave." He told me "I bet the dog got down there." So I went home and got flashlights and he and I went under that cave. Was real interesting...we went through the first chamber...there's an opening you can go in (Īeme Cave). And you know the stench still was coming out. Then we went another chamber...we found where the rocks was down. We went through that chamber...we was real close we could smell em now real good. Oh we could hear the dogs...they were so happy to hear us. They had killed the pig in there and couldn't find their way out because they went through small opening eh. Get the wall all the way...the wall from the top to the bottom...and just some rock down where they went through. I was happy to get the dogs out. And then the next chamber was the ocean so that was some kind of run-away cave or you know. Cause you can come from the ocean side; there's a big cave. But then you hit these chambers; three different chambers. Had big opihi shells and everything all in there. But I was just so happy to get my dogs back. But they were the ones that took me in there [Jimmy]. [Note: The entrance to the cave is all covered now; they built a wall. And my other brother says "Don't EVER go in there." (Ipo)]

**Mo'o Lady Story.** I just heard or seem to remember vaguely that there might have been a story about a mo'o. But I guess when we used to feel something rub against us...that we always mentioned that it might be a mo'o lady, but we don't know. I don't know for sure. I kind of wrote it off as the rock; my thigh went against the rock but then after hearing a lot of people telling the same story I was like "Oh!?" [Mavis].

## G. Concerns/Issues.

Honokalani and Waiānapanapa State Park are close to the hearts of the consultants so they have some concerns about the future of the Park and vicinity; and any activity that would impact their lands, their lifestyle, and the resting places of their 'ohana.

Here's something for consideration and a concern of mine and others who were with me at that meeting that we had a couple of months ago.... The road from the highway down is currently known as Waiānapanapa Road. As far as I can go back it was always Honokalani Road. Somewhere along the way it got changed to Waiānapanapa Road. To us it's Honokalani. In fact we still have the sign of Honokalani Road and it's one of those...not something that we made...it's one of those State approved signs. We say...or our position is give us back Honokalani Road. Honokalani Road starts from the highway and comes all the way down to the Park boundary at the caretaker's residence. At that

intersection you can make it Waiānapanapa Road because it more correctly addresses Waiānapanapa and Waiānapanapa State Park [Ben].

They could have a sign like how they have down at the Kipahulu Church you know "These grounds are sacred..." you know nice signs [Ipo].

My concern is just you know leave it as it is. No need build anything else. My concern too is the cemeteries. Somehow they should fence it off. The State should put barriers around. But other than that I think everything else is okay. What they got now is good enough to me [Piilani].

If they make another road they just going destroy another part of the area. I would stick with the existing road. Another big concern is the restroom. I'm pretty sure some of that thing is polluting our ocean right there. It's been there so long that water is seeping right through the ground. If somehow the State can come up with a better system, than that... I'm pretty sure they got other ways to make restroom than don't need to use the water... Something that compost. I mean they can use it for something else. I'm pretty sure they have those toilets around. It's better than the water toilet because I know that someday it's going to destroy our fishing grounds. [Piilani].

This cemetery...and over here is the camping ground eh right here. A lot of these guys in the camping ground they walk right on the grave you know. They have to stop it.... The camping ground you know, where the guys go through the grave yard, they go through the grave yard, they walk on the graves, go to Black Sand Beach. Now that's not right! They should block up over there you know. Guys walking through the grave yard, stepping on the grave yard; there' no respect. People know there's a burial ground. Why they walk over it? The State needs to put a fence. Not to block the view, but just so they don't trespass or something [Tony].



Photo 44. Camp grounds and public toilets next to cemeteries.

We're having so much tourist come in there, I'd like to see the State—you know the parking lot on your right going toward the cabin—pave that section that's unpaved. Maybe put a bathroom over there. And also improve the bathroom on the other side. I think it's over twenty years old; giving the guys a lot of problems. And a lot of tourist come there and use em. It's not able to handle the flow. But as far as adding more cabins and stuff like that; no, I think they should just maintain what they get. Maintain and preserve what they have [Jimmy].

I wish there was a way that they could stop trampling all over the cemeteries.... And also there used to be an access to all three cemeteries from right here...see where it goes down over here. You could go down and come around to this cemetery. And you could go down and drive up to that cemetery. Or you could just park right next this cemetery. And the State put up a gate and locked it. So really there's no real access right now. But we just drive through the caretaker's house...and drive. There's an opening that says "Nobody enter" and we go 'cause we're supposed to have access to the graves. So we just drive back to the grave, but we don't have access. We have access to this one, but we don't have access to all three anymore because they have a gate and it's locked. [Note. No access to F30] I'm sure they put it there because tourists used to drive down and go down by the ocean by the blow hole. [Note: TP1 at Point] [Mavis].

Especially the part Ipo said about them not taking any more land, because I remember helping my Mom and her sisters fight for the second time they were going to condemn. They were going to condemn for the buffer zone and we wrote to Ariyoshi and all our Senators and everybody. And Nagata--Ralston Nagata--I guess he was a DLNR guy back then. And pretty much told them that the Hawaiians hardly have any land and leave us alone because this is all we have. Stop taking it away--we need our land. 'Cause they own right over here--this area right over here...going up towards the cabins...all up in here this side. That's where they had 19 acres and then when they fought the Ranch I think they lost five to the lawyer.... And here they want to take some more. We keeping hearing about this buffer zone...and it's like buffer zone for what!? You know there's nothing down on this side. The cabins are way over here. The picnic area camping grounds are on this side so. But they agreed that they weren't going to try that again; and we pray that they don't. But Mahukona...they still have land right over here. It's for sale right now [Mavis].

An issue...some years ago, not too many, there was an effort by DLNR to create a buffer zone between the State Park and the privately owned lands. It was going along pretty strongly. Then through the effort of OHA and some others that the families were able to get to help us...the issue died. But every now and then it comes up. So my concern and I always try to make whoever wants to listen, aware of this.... Now the people who came to this meeting we had recently said the idea was to separate the Park from the people. My question was what people you talking about? I know you mean developers, but when you say the people...wrong! How does that relate to me? My mother's family owns land that borders the Park. If this proposal ever comes to be, we stand to lose land. We're always giving or it's being taken away. Another threat--I consider it a threat--not coming to fruition yet, but it can happen. Different ideas from different people who you talk to "Oh we going condemn an acre-strip right down to here between the Park." Hey...you going take away plenty!! The most recent idea one was "Oh we only thinking about three hundred yard-wide buffer zone." We border right there! What brings it even closer to me is that my mother's family has land which border the Park. Even if you take just once acre, its land that you take away forever from us. Everything we worked for that's in this area down here, would be gone forever. That is a big concern of mine you know. We will be opposed to that to the extent that we can (taking land for any Park purpose).... Here's our property. If the buffer zone idea goes through and they take even if it's only 300 yards, that's 300 yards of us that they taking away. What's going to hurt even more...we have a little house in here that's surrounded by a stone wall and we fixed this place up over the years--we are in the proposed buffer zone [Ben].

There was a map I saw a long time ago...there was an old Government Road down here someplace that went down and turned into this road. And I think that was before this other road came into being. I forget the gal's name who came. She said she couldn't find any map that showed anything like that.. But as a youngster in my teen years, I remember walking that road and there was a road in there [Ben].



Photos 45-47. Burials of various relatives of the Consultants, overlooking Pailoa Bay.



Photo 48. "No Camping" sign doesn't deter campers from walking through this cemetery.

## PART V: SUMMARIES

The following summaries are based on the information presented in the previous sections: the traditional and historical literature and the ethnographic data. References are not cited unless it is new information and not already cited in the text above. These summaries condense the information above, but also serve to focus on a few significant individuals and events in Hāna's history in relation to Waiānapanapa State Park and Honokalani Village, as well as give a broad overview of the patterns of land and marine use in the general area.

### Summary of Significant People and Events.

According to traditional and historical material, the Hāna District, especially the area between Pu'u Ka'uiki and Ulaino, has been witness to the comings and goings of many significant people over the span of more than eight centuries. These people contributed significantly not only to the history of Hāna, but of Maui and the rest of the Hawaiian Islands. There were several people and events noted in the oral histories and later recorded by explorers, missionaries, native Hawaiian scholars and ethnohistorians, from prior to the warring King Hua who was the ancestor of Hanala'anui and Hanala'aiki from whence came the Hawai'i Line and the Maui Line respectively, to Kamehameha I who caused the various island kingdoms to come under one realm. These significant people who either lived in Hāna or spent time there; were responsible for land modifications, shifts in polity and commerce, and the gene pool of Hawaii's monarchs.

### Mythical Residents

The mythical residents of Hāna were Mauiloa and his mother Hina who resided at Pu'u Ka'uiki in the heart of Hāna town. Mauiloa was a navigator who first settled in Hāna, and later was elevated to "god" status because of his many accomplishments. His feats were recounted and became legends. The island of Maui is named after him. Mythical visitors were Kanaloa who contributed to the progeny of Maui, Pele and Hi'iaka. Volcano or fire goddess Pele left evidence of her visits in the form of *pu'u* which dot the landscape, as well as legends connected to these *pu'u* or volcanic cinder cone vents. Also of note, is Ku'ula and his son A'ia'i. Ku'ula is credited with building the very first *lokoi* or ocean fishpond of the Hawaiian culture, in Leho'ula. He was raised to the status of fishing god, and many *ko'a* or fishing shrines are also known today as 'ku'ula.' His son A'ia'i carried on his work. He created several fish houses in Hāna, including *aweoweo* (*Pracanthus boops*) houses and *ulua* houses. The *pohaku A'ia'i*, was turned over to the Hāna Cultural Center museum in 1983 by Inez Ashdown. However, the Trask Family now has cultural claims on it as *'ohana* of Howard Cooper's wife (Eade, 1999).

### Ali'inui

One of the first legendary *ali'inui* was the warring or infamous Hua who was credited with many atrocities, and who also built at least two *luakini* heiau in the heart of Hāna town which are now the foundations for the Protestant and Catholic churches. More significantly, he is the ancestor of the twins Hanala'anui and Hanala'iki. These two men became the progenitors of prominent *ali'inui* or ruling chiefs of the islands of Hawai'i and Maui, but also of many *ali'i* of Oahu, Kauai, Molokai and Lanai. Hawai'i *ali'inui* Liloa and his son 'Umi-a-Liloa, and Maui *ali'inui* Kawaokaohele, Pi'ilani, Lonoapi'ilani, Kihapi'ilani and Kamalalwalu to Kahekili II and his son

Kalanikupule, as well as Kamehameha I, from his supposed biological father Kahekili II, are all descendants of Hua through descendants of his sons Hanala'anui and Hanala'aiki.

It appears that the *ali'inui* or ruling chiefs of Maui had a long and continuous relationship with Hāna. Pi'ilani's *'ohana*, from his great-great-great grandfather Kaulaheanuiokamoku I held court in Lele or Lahaina and Wailuku/Wahe'e, but retained family lands and ties in Hāna, especially Pu'u Ka'uiki in the *ahupua'a* of Wananalua. Pi'ilani's father Kawaokaohele is credited with uniting the polities of Maui, and creating a relatively peaceful realm. Kawaokaohele also made regular visits to the Hāna district to relax and to check on personal resources, as did his son Pi'ilani. Pi'ilani his famous as a very peaceful and productive ruler. He built and maintained fishponds in Kawaipapa, was a noted water manager--creating many complex *'auwai* in the Hāna district, and started the famous stone-paved King's Trail which made trekking to Hāna much easier. Pi'ilani's sister Popoalaea became the subject of a well-known legend in Hāna, 'The Legend of Wai'anapanapa.' It is in this legend that we first become acquainted with Pi'ilani the person, said to be a quiet, and gentle person who cared very much for his sister.

Pi'ilani's aunt and mother-in-law Kelanuhoana'api'api was a distinguished surfer who favored the surf of the Hāna District, as did Koleamoku, daughter of Hāna *ali'i* Ho'olaemoku, who was betrothed to Pi'ilani's first son and heir, Lonoapi'ilani, but became his younger brother Kihapi'ilani's second wife. Pi'ilani's sons Lonoapi'ilani and Kihapi'ilani disrupted the peace after their father died in Lahaina. Their constant competition became more than sibling rivalry. Kihapi'ilani wanted to rule from the first time he met his father in Lahaina, after leaving his mother's family on Oahu where he was born and raised. The brothers' conflict escalated to life threats. Kihapi'ilani took shelter in Hāna where he married Kumaka, the daughter of Hāna's *ali'i* 'ai moku Ho'olaemoku, who was a distinguished *ali'i*, known for his ingenuity, strength, bravery and loyalty to his *ali'inui* Lonoapi'ilani. His son Kahuakole, was a chief of Kawaipapa.

This time forward were turbulent years in the history of Hāna as brother fought brother, and uncles and cousins from across the seas fought each other on the soils of Hāna as well as on Hawai'i Island, and other parts of Maui. There was a short respite from war during part of the reign of Maui *ali'inui* Kamehamehanui when he "gave Hāna up" to his relatives from Hawai'i Island and lived in peace in West Maui. However the peace ended when he died. The battles took on new fervor, as relative fought relative, each vying for paramount power.

It was during this period that Ka'ahumanu, the future wife of Kamehameha I, was born in a cave at the base of Pu'u Ka'uiki. She lived for a while at the Pu'uhoona Kaniomoku [somewhere above the present Hāna Medical Center] in Kawaipapa. Her parents Namahanaikaleonalani [Hāna chiefess and widow of Kamehamehanui] and Keeaumoku fled to the Big Island for safety. Big Island *ali'inui* Kalaniopu'u repeatedly raided and devastated the Hāna District, much to the consternation of his brother-in-law Kahekili. Kamehameha I first came through Hāna as a young warrior of Kalaniopu'u. He was in the Hāna District when Captain Cook briefly anchored off the Maui coast in 1778. After the death of Kalaniopu'u, the battles continued. Kamehameha I came through Hāna again, but this time he came with newly acquired paramount power of Hawai'i Island, as well as western technology and western advisors.

Hāna was able to maintain its traditions until the missionaries came in the late 1820's. Hāna Hawaiians joined the rest of the realm in becoming educated in the western language and culture. Two western men in particular contributed greatly to significant changes in Hāna's economy and landscape as explained in the following summary of land use.

## Summary of Land Resources and Use

Various land use patterns are physically evident as well as recounted in the literature. The physical evidence remains in the form of stone ruins that are fortunate to have been preserved relatively intact. Clues regarding function and use can sometimes be extrapolated from the stories, songs, chants and ethnohistorical observations that were also fortunately recorded, as well as from the cultural remains identified during surface and sub-surface studies. Several of these stone cultural remains were recorded during studies of Waiānapanapa State Park and discussed by the consultants [i.e., *heiau*, caves, platforms, mounds, *ko'a*, walls, enclosures, and numerous burials.

## Ancient Land Use

According to the literature, the Hāna District was well known and sought after for its abundant resources, the food crops, as well as the products from the various ecological zones. Both wet and dry methods of growing taro were employed; other traditional crops grown were sweet potatoes and bananas, as were breadfruit, *mamaki*, *awa*, and *noni*.

Kawaipapa was known for the `alā stones used in war implements, stone paths and other structures. An extensive *hala* forest from Kawaipapa, through Wakiu, Honokalani to `Ulaino was a tremendous resource and a place where people hid at times. The *hala* was used to craft canoe sails, baskets, mats and hats—a craft that continued to the lifetime of the consultants. A paved trail that went along the extent of Waiānapanapa State Park and beyond was also frequently used in antiquity as well as in modern times. Structural evidence of an ancient village are all that remain to indicate that a group of people lived in antiquity in the area now called Waiānapanapa State Park.

A few of the consultants mentioned that their grandfathers and father bulldozed and cleared many ancient stone platforms, enclosures and walls to build modern wooden houses in what they all refer to as Honokalani Village [on both sides of the current Waiānapanapa Road. However, remnant walls still exist, as well as a couple of stone platforms, hidden under overgrown native, Polynesian-introduce, but mostly alien vegetation.

## Historic Land Resources and Use

**Hāna.** This farthest part of Maui on the very eastern end of Haleakala is one of the wettest and most verdant coastal areas in the Hawaiian Islands. It has no flatlands along streams; in the upper reaches there is much boggy land. Yet a great deal of upland taro was grown there, as well as bananas, yams, *wauke*, and *olona*. Hāna is famous for its *awa*. ...There are rich level lands lying between the shore and the gently sloping *kula* land, which was, in the 1930's planted with sugar cane, then later sold as ranch land (Handy, Handy, Pukui 1978:502)

The lands of Waiānapanapa State Park were obviously once home to many ancient Hawaiians, and the final resting place of both Hawaiians of antiquity, and modern Hawaiians whose descendants still live in Hāna today. They subsisted on and utilized both the natural flora as well as their introduced crops such as coconuts, *ulu*, sweet potato, banana, *wauke*, *mamaki* and taro. Coulter (1853) made some interesting observations about taro and its by-product, *poi*. "Poi, made from taro, was the staff of life of the Hawaiians" and an average of five pounds of poi was eaten

by adult Hawaiians every day. The taro plant also provided the favorite 'greens' (*luau*) of the Hawaiian people. And taro also supplied part of the food for foreigners (Coulter 1931/1971:7, 10). Coulter stated that "foreigners engaged in agricultural pursuits with the idea of reaping a profit from the land, in contrast with the Hawaiians, who carried on, in general, subsistence agriculture.

Many of the consultants fondly recalled observing and participating in the weekly practice of "pounding poi." One consultant stated that he has a poi pounder and can still pound poi. Taro [dryland] was grown around the family homes in Honokalani. The Perry siblings talked about their chores involving the family banana farm of Honokalani—banana clusters are still growing there today. The consultants also mentioned their grandmother's processing and making floor mats, place mats, sleeping mats and hats out of *hala*, which as children, they used to gather for her. They also spoke about their mother's favorite *hala* stand, which was recently burned and chopped up by Park employees because of the Dengue threat; the *hala* was a breeding ground for mosquitos (Cosma 2002). Other plants still gathered are *kukui*, coconut, *ulu*, *wauke*, *mamaki*, *noni*, false *kamani*, mango, guava, ferns and *ti*.

**Table 9.** List of Resources from the lands of Waiānapanapa State Park and Honokalani Village.

Cultigen	Species	Use
<i>Kalo</i> or Taro+	<i>Colocasia esculenta</i>	Staple food: poi, luau leaves, pae`ae, Rx
<i>Ulu</i> or Breadfruit+	<i>Artocarpus altilis</i>	Staple food: baked, poi, glue,
Coconut+	<i>Cocos nucifera</i>	Food, drink, haupia, Rx, crafts [leaves/trunk]
<i>Kukui</i> or Candlenut+	<i>Aleurites moluccana</i>	Condiment, Rx, dye, lei, oil, fishing
<i>Hala</i> or Screw Pine*	<i>Pandanus odoratissimus</i>	Mats, hats, pillows, fans, baskets, lei, Rx
<i>Mai`o</i> or Banana+	<i>Musa spp.</i>	Fruit, economic export, imu cooking,
<i>Mamaki</i> *	<i>Pipturus albidus</i>	Tea, dye, kapa
<i>Ti</i> +	<i>Cordyline terminalis</i>	Cooking, hula, leis, hukilau fishing,
Guava**	<i>Psidium guajava</i>	Cooking, jams/jellies, juice, Rx
Mango**	<i>Mangifera indica</i>	Fruit, pickle, dry, wood crafts
Hau+	<i>Hibiscus tiliaceus</i>	Outrigger, net floater, Rx, cordage fiber, dye
Fern* Hau pu`u	<i>Cibotium chamissoi</i>	Ornamental
Fern* Maiden hair	<i>Adiantum sp.</i>	Ornamental
Fern* Pohole/Ho`i`o	<i>Athyrium arnotti</i>	Ornamental, salad
Fern*+ Laua`e	<i>Microsorium scolopendria</i>	Ornamental
Milo+	<i>Thespesia populnea</i>	Calabash, dye, medicine, oil,
Kamani+	<i>Calophyllum inophyllum</i>	Oil, Rx,
Gourd+ or Ipu	<i>Lagenaria siceraria</i>	Receptacle, Rx
Sweet potato+ `uala	<i>Ipomoea batatas</i>	Staple food
Noni+	<i>Morinda citrifolia</i>	Rx, dye, famine food
Kukaipua	?	Rx
False Kamani	<i>Terminalia catappa</i>	Snack (nuts), dye, Rx
Java Plum**	<i>Eugenia cuminii</i>	Snack
Gingers**	Zingiberaceae	Ornamental
Impatiens**	<i>Impatiens sultani</i>	Ornamental
Assorted seed plants	<i>Spp</i>	Crafts, leis

August Unna, though not the first to bring the sugar industry to Hāna, certainly created the most change in Hāna's landscape and agricultural practices. Under the leadership of this former resident of Denmark, the sugar industry expanded in Hāna, radically modifying the landscape, and completely destroying a large percentage of Hāna's cultural remains (i.e., *heiau*, *kauhale*, shrines, walls). The traditional settlement was relocated and replaced as extensive fields of sugarcane displaced Hāna Hawaiians. The Hawaiian culture was modified again as foreign laborers were brought in to keep up with the demands of the sugar industry. Part of the landscape was also modified to build camps for the various ethnic laborers, as well as a rail system that traversed the *moku* of Hāna.

The grandfathers and/or fathers of several consultants came to Hana to work on the sugar plantation and married women from Honokalani Village. One consultant talked about walking from Honokalani to school in Ka`eleku where children of the plantation camp went to school and exchanging lunch with them. Ka`eleku was cleared to accommodate sugar plantation families as fields, camp houses, stores, restaurants, theatre, schools, playgrounds and railroad tracks soon dominated this rural landscape. The railroad tracks traversed the *ahupua`a* of Kawaipapa, Wakiu, and Honokalani, but *mauka* of the Old Government Road [now Hana Highway]. According to one consultant, sugar cane was grown in the lands south of Honokalani Village in Wakiu. This "plantation lifestyle" continued until 1945 when the last plantation in Hāna closed down operations.

The majority of the ethnic laborers moved out of Hāna on to other plantations. The plantation camps were relatively abandoned. The cane fields were then replaced by alien pasture grasses by Paul Fagan who had bought the dying sugar plantation in the late 1930's. He converted his sugar holdings to a cattle ranch, and as an aside began to operate a 10-room visitor lodge, called Hotel Hāna Maui. To this day, Hana Ranch and Hotel Hana Maui are the largest local employers of Hana residents.

### Summary of Water Resources and Use.

The only apparent fresh water in Waiānapanapa State Park is in the wet caves of Wai`amau and Waiānapanapa. There once was a fresh-water well located in Black Sand Beach but it was covered by sand during the 1946 tidal wave. Resident water was trucked in or rain catchment, but water for both residents and the Park now comes from the County.

### Summary of Marine Resources and Use

The native Hawaiian residents carefully cultivated the marine resources like they did the land resources. The prevalent attitude was to only take what was needed--never to take so much that any were thrown away. In 1853 Coulter noted that fish was the main protein food of Hawaiians. "It is interesting to note...that poi and fish have remained the staple foods of the Polynesians in Hawaii" (Coulter 1931/1971:10). However, during the plantation era we see a different behavior when fishermen sometimes used dynamite to catch fish the "easy" way and to catch lots of it. This may have been the result of commercial ventures rather than home use. According to the consultants, fishing was both a necessity and a favorite pastime. Fish, turtle and other marine resources such as *`opihi*, *limu*, and crab were a large part of the subsistence and lifestyle of the consultants for many, many generations. Although the stocks have dwindled due to over-fishing and turtle catching has been banned, the consultants continue to fish and gather, and pass those practices to their children and grandchildren.

Table 10. List of marine resources, past and/or present.

Marine Resource	Cultural Practice/Use
<i>Kupe`e</i>	Gather from shore rocks: food, lei
<i>`Opihi</i>	Gather from shore rocks: food
<i>Pipipi</i>	Gather from shore rocks; food
<i>Limu</i>	Gather from shore rocks; food
Turtle	Hook and line; subsistence food; medicine,
<i>Ulua</i>	Pole shore fishing; food
<i>Moi</i>	Pole shore fishing, throw net; food
<i>Uhu</i>	Diving, spear; food
<i>Akule</i>	Surround Net, throw net; food
Misc Fish	Canoe; ka`ili or bottom fishing; food, bait
<i>Enemue</i>	Diving, spear, pole; food
<i>Ahole</i>	Pole shore fishing; food, bait
<i>O`io</i>	Hukilau, surround net; food
<i>Papio</i>	Hukilau, surround net; food
<i>Aholehole</i>	Hukilau, surround net; food
<i>Manini</i>	Hukilau, surround net; food
<i>Popa`a</i>	Hukilau, surround net; food
<i>Hinalea</i>	Hukilau, surround net; food
Lobster	Diving, lobster trap; food
Crab	Trap; food
Eels	Hand; used for fish bait

### Summary of Survey Findings [Cultural Practices]

It is quite evident that at one time Waiānapanapa State Park and the adjoining lands were part of an ancient Hawaiian life system. Archaeological surveys indicate a multi-use of the land because of the *heiau*, burials, enclosures, house platforms and walls. What is not readily apparent is the context of its use, such as their function(s) over time, and the length and extent of their use over time.

It is evident that Honokalani and the lands of Waiānapanapa State Park were very significant with a plethora of resources that people still utilize to this day. It was and is the final resting place of ancient Hawaiians and for the families of Honokalani Village. Table 11 is a list of people buried at the various cemeteries.

**Table 11.** List of people buried in the various cemeteries in the Park & vicinity (incomplete).

Person	Cemetery	Source
Tony's Great-grandparents	F-30	Tony Baggio
Tony's mother (Lono)	C-1	Tony Baggio
Kipano Lono-k	C-1	Tony Baggio
Kapika Ka'amoku Hoopai Lono-w	C-1	Tony Baggio
Hanakahi Lono-k	C-1	Tony Baggio
Tony's brother	C-1	Tony Baggio
Tony's uncle	C-1	Tony Baggio
Tony's relative	C-1	Tony Baggio
Perry's grandparents	F-29	Tony Baggio
Perry grandparents (Hoopai)	F-29	Tony Baggio
Tony's grandmother's brother	F-29	Tony Baggio
Hilo Hanakahi-k	C-1	Piilani Lono
Hoopai Family	F-29	Piilani Lono
Margaret Lono	F-30	Piilani Lono
Francis Lono	F-30	Piilani Lono
Uncle Ben Perry, Sr.	F-30	Piilani Lono
Ka'umoku Hoopai Hanakahi-w	F-30	Piilani Lono
Uncle Kanaku Pei	C-1	Tony Baggio
Queenie Pei	C-1	Tony Baggio
Victorine line [Lucy Van Loon fam]	C-1	Ben Perry
Kane'ela [Kahu of Piilani Heiau]	F-30	Ben Perry
Ancient burials	C-3	Ben Perry, Tony Baggio
Great-great-grandmother	C-2 [near VABM49]	Ben Perry, Tony Baggio
Ancient burials	F-2, 3, 4, 7, 15	Tony Baggio
Ancient burials	Near F-25	Ben Perry
Ancient burials	Near Cabin 1	Ben Perry

(w = wahine; k = kane)

### Summary of Consultants Concerns.

The following Table 12 condenses and lists the concerns of the resident consultants of Honokalani Village. Several consultants had the same concerns; these were consolidated.

**Table 12.** List of Concerns expressed by the Consultants.

Subject	Concern
Waiānapanapa Road	Re-name to original name: Honokalani Road
New Road	A new road would take away land from owners, and destroy areas
Cemeteries	Needs better signage and barriers to keep people off of the graves
Toilet Facilities	Polluting ocean, destroying fishing grounds; use compost toilets; not adequate number of facilities for the size of the Park; Toilets located right next to cemetery; Make improvements on existing facility or replace it
Parking Lot	Pave the section nearest the cabins
Cabins	Don't add any new cabins, just maintain what's already there
Access	Families don't have convenient access to graves; gates are locked
Buffer Zone	Families can't afford to have any more land taken away or condemned for buffer zones
Government Road	What happened to the Old Government Road in Wākiu

### Cultural Impact Assessment Summary.

According to the OEQC Guidelines, the types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs.

Funerary practices are probably one of a peoples most sacred cultural practices. The lands of Waiānapanapa State Park have obviously been part of these practices for centuries. Current activity within the Park lands are infringing on the both the funerary practices of the Honokalani Village families and their rightful expectation of respect for their departed loved ones. While past activity has destroyed some of the ancient burials, current Park activity infringes on these ancient burials by the relatively easy accessibility to these burials grounds, and placement of foreign objects on the various features [mounds, platforms, *heiau*, etc.].

Fishing, ocean gathering and recreational practices have been impacted over time by the easy access to the traditional fishing grounds of the Honokalani Village families. These fishing grounds and recreation areas are also affected by the large numbers of visitors who use the toilet facilities, and swim in the ocean wearing sunscreen lotions.

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**APPENDIX A**  
**Act 50 SLH 2000**  
A BILL FOR AN ACT RELATING TO  
ENVIRONMENTAL IMPACT STATEMENTS  
[UNOFFICIAL VERSION]  
HOUSE OF REPRESENTATIVES H.B. NO, 2895 H.D.1  
TWENTIETH LEGISLATURE, 2000  
STATE OF HAWAII  
A BILL FOR AN ACT  
RELATING TO ENVIRONMENTAL IMPACT STATEMENTS.  
BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The legislature finds that there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawai'i's culture, and traditional and customary rights.

The legislature also finds that native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the "aloha spirit" in Hawaii. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.

Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.

The purpose of this Act is to: (1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and (2) Amend the definition of "significant effect" to include adverse effects on cultural practices.

SECTION 2. Section 343-2, Hawai'i Revised Statutes, is amended by amending the definitions of "environmental impact statement" or "statement" and "significant effect", to read as follows:

"Environmental impact statement" or "statement" means an informational document prepared in compliance with the rules adopted under section 343-6 and which discloses the environmental effects of a proposed action, effects of a proposed action on the economic [and] welfare, social welfare, and cultural practices of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects.

The initial statement filed for public review shall be referred to as the draft statement and shall be distinguished from the final statement which is the document that has incorporated the public's comments and the responses to those comments. The final statement is the document that shall be evaluated for acceptability by the respective accepting authority.

"Significant effect" means the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic [or] welfare, social welfare[,], or cultural practices of the community and State."

SECTION 3. Statutory material to be repealed is bracketed. New statutory material is underscored.

SECTION 4. This Act shall take effect upon its approval.

**Approved by the Governor as Act 50 on April 26, 2000**

**APPENDIX B  
SCOPE OF WORK**

**Scope of Work**

**A. Cultural Impact Assessment** [in accordance with OEQC Guidelines]

1. identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua'a; or with knowledge of the area potentially affected by the proposed action;
2. receive information from or conduct ethnographic interviews and oral histories with person(s) having knowledge of the potentially affected area;
3. conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;
4. identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
5. assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

**Methods**

The specific tasks listed below expand on the above scope of work:

- ◆ Conduct historical and cultural background research (e.g., archival documents, literature, reports, letters, photographs, journals, newspaper files) to locate material that will provide broad patterns of the history of the project area such as subsistence, religious, recreational, and commercial uses of the land; as well as settlement and residential patterns of the area and region; major family groups that inhabited, used or controlled lands within the project area and region; documented legends, myths, or traditional histories associated with the area; and descriptions of traditional practices, customs and beliefs associated with identified traditional cultural practices;
- ◆ Prepare a semi-structured ethnographic research instrument that will include general biographical information, association with and knowledge of the project area, its history and use
- ◆ Prepare a consent form to be used as written agreement with any individual interviewed concerning the project, review of transcripts, and use of information recorded during the interview
- ◆ Identify individual(s) knowledgeable with the project area (e.g., Wainapana residents and/or State Park Employees, Cultural practitioners)
- ◆ Conduct and record ethnographic interviews with knowledgeable individuals. If feasible individuals shall participate in site visits; Makana (token gift--a traditional practice) to be given to interviewees
- ◆ Transcribe recorded interviews
- ◆ Prepare a report that will include an overview of the archival material and an analysis of the ethnographic data

**APPENDIX C  
Guidelines for Assessing Cultural Impacts**  
Adopted by the Environmental Council, State of Hawaii  
November 19, 1997

**I. INTRODUCTION**

It is the policy of the State of Hawaii under Chapter 343, HRS, to alert decision makers, through the environmental assessment process, about significant environmental effects which may result from the implementation of certain actions. An environmental assessment of cultural impacts gathers information about cultural practices and cultural features that may be affected by actions subject to Chapter 343, and promotes responsible decision making.

Articles IX and XII of the State Constitution, other state laws, and the courts of the state require government agencies to promote and preserve cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups. Chapter 343 also requires environmental assessment of cultural resources, in determining the significance of a proposed project.

The Environmental Council encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area. The Council provides the following methodology and content protocol as guidance for any assessment of a project that may significantly affect cultural resources.

**II. CULTURAL IMPACT ASSESSMENT METHODOLOGY**

Cultural impacts differ from other types of impacts assessed in environmental assessments or environmental impact statements. A cultural impact assessment includes information relating to the practices and beliefs of a particular cultural or ethnic group or groups.

Such information may be obtained through scoping, community meetings, ethnographic interviews and oral histories. Information provided by knowledgeable informants, including traditional cultural practitioners, can be applied to the analysis of cultural impacts in conjunction with information concerning cultural practices and features obtained through consultation and from documentary research.

In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment. Thus, for example, a proposed action that may not physically alter gathering practices, but may affect access to gathering areas would be included in the assessment. An ahupua'a is usually the appropriate geographical unit to begin an assessment of cultural impacts of a proposed action, particularly if it includes all of the types of cultural practices associated with the project area. In some cases, cultural practices are likely to extend beyond the ahupua'a

and the geographical extent of the study area should take into account those cultural practices.

The historical period studied in a cultural impact assessment should commence with the initial presence in the area of the particular group whose cultural practices and features are being assessed. The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs.

The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural, including submerged cultural resources, which support such cultural practices and beliefs.

The Environmental Council recommends that preparers of assessments analyzing cultural impacts adopt the following protocol:

1. identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua'a;
2. identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;
3. receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;
4. conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;
5. identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
6. assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Interviews and oral histories with knowledgeable individuals may be recorded, if consent is given, and field visits by preparers accompanied by informants are encouraged. Persons interviewed should be afforded an opportunity to review the record of the interview, and consent to publish the record should be obtained whenever possible. For example, the precise location of human burials are likely to be withheld from a cultural impact assessment, but it is important that the document identify the impact a project would have on the burials. At times an informant may provide information only on the condition that it remain in confidence. The wishes of the informant should be respected.

Primary source materials reviewed and analyzed may include, as appropriate: Mahele, land court, census and tax records, including testimonies; vital statistics records; family histories and genealogies; previously published or recorded ethnographic interviews and oral histories; community studies, old maps and photographs; and other

archival documents, including correspondence, newspaper or almanac articles, and visitor journals. Secondary source materials such as historical, sociological, and anthropological texts, manuscripts, and similar materials, published and unpublished, should also be consulted. Other materials which should be examined include prior land use proposals, decisions, and rulings which pertain to the study area.

### III. CULTURAL IMPACT ASSESSMENT CONTENTS

In addition to the content requirements for environmental assessments and environmental impact statements, which are set out in HAR §§ 11-200-10 and 16 through 18, the portion of the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

1. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.
2. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.
3. Ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained.
4. Biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.
5. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.
6. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.
7. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project.
8. An explanation of confidential information that has been



[NOTE: This part of the interview, #5-7 reflects information sought for the following research categories: "Significant Properties," "Significant People," "Significant Events," "Traditional Cultural Practices," "Traditional Arts/Crafts," and Oral History/Folklore/Place Names." The questions are open-ended so as NOT to "put words in the mouths" of the Consultants.]

5. *Can you tell me what you know about the lands of Honokalani? Specifically the area known as Wai`ānapanapa State Park?*

[NOTE: Generally when people share information about a specific topic/place, they usually state where their information came from. If it isn't volunteered, it is asked as a follow-up question(s). A map of the project area should be available to confirm that investigator and consultant are talking about the same place. Photos would also help if a field trip is not possible. The best scenario would be to be "on-site" at some part of the interview...although this is not always practical.]

6. *What are your recollections and/or personal experiences of this area?*

[NOTE: If Consultant is related to any Land Commission Awardee [LCA] or subsequent land-owner in the project zone, or former resident of the lands of Wai`ānapanapa State Park, the follow-up question(s) is asked.]

7. *How are you related to the Awardee? Or subsequent land owner? Or former resident?*

8. *Do you know any stories/legends/songs/chants associated with these areas?*

[NOTE: Possible follow-up questions for Wai`ānapanapa State Park:

- How are you or your family connected to the lands of Honokalani/Wai`ānapanapa?
- What year(s) were you and/or your family associated with the lands of Honokalani/Wai`ānapanapa?
- What was this place/area called when you were growing up?
- Can you describe what the area looked like--what kinds of natural and/or man made things?
- To your knowledge what kind of activities took place in this location?
- Do you know of any traditional gathering of plants, etc in the area?
- To your knowledge please describe any fishing, gathering [i.e., limu, etc.] practices nearby?
- Any other land/water use?
- What was the historic land use? Sugar Cane? Agriculture? Habitation? Dwellings?
- What can you tell me about the caves?
- Where were these "features" located? [Have map ready for marking.]
- Can you describe any stream/fresh water use?
- Do you know about any burials in the project area?

9. *Is there anyone you know who can also tell me about the project area?*

[NOTE: Usually in the course of the interview, Consultants suggest other people to interview.]

10. *As soon as I have transcribed this interview I will send you two copies. Please review the transcript, make any corrections and/or additions. If you're satisfied, please sign the attached third page of the Consent Form thereby releasing the information. Then mail one set back to me in the enclosed stamped addressed envelope.*

MAHALO NUI LOA

APPENDIX E  
Consultant Agreement Form

Agreement to Participate in this Cultural Impact Assessment

Project Title: **Wai`ānapanapa State Park-Honokalani Ahupua`a  
Hāna, Maui**

Investigator: **Maria E. Ka'imipono Orr, M.A.**

You are being asked to participate in a cultural impact assessment [study] conducted by an independent investigator contracted by Dr. Alan Haun of Haun & Associates as part of a larger Environmental Impact Study of Wai`ānapanapa State Park. The investigator will explain the purpose of the study, the procedures to be used, the potential benefits and possible risks of participating. You may ask the investigator any question(s) in order to help you to understand the study or procedures. A basic explanation of the study is written below. If you then decide to participate in the study, please sign on the second page of this form. You will be given a copy of this form to keep.

I. *Nature and Purpose of the Study:*

The purpose of this cultural impact assessment is to gather information about the lands of Honokalani Ahupua`a [especially Wai`ānapanapa State Park], through interviews with individuals who are knowledgeable about this area, including traditional and historic information such as legends, songs, chants or other information. The objective of this study is to facilitate in the identification and location of any possible pre-historic and/or historic cultural resources, or traditional cultural practices in the area mentioned above, in accordance with applicable historic preservation laws, regulations, and guidelines, including:

*Office of Environmental Quality Control [OEQC] Guidelines  
and Act 50 HB2895 [A.D.2000], HRS Chapter 343*

II. *Explanation of Procedures*

After you have voluntarily agreed to participate and have signed the consent page, the investigator will tape record your interview and transcribe it later. Data from the interview [ethnographic research] will be used as part of the background history summary for this project. The investigator may also need to take notes and/or ask you to spell or clarify terms or names that are unclear.

III. *Discomforts and Risks*

Foreseeable discomforts and/or risks may include, but are not limited to the following: having to talk loudly for the recorder; being recorded and/or interviewed; providing information that may be used in reports which may be used in the future as a public reference; knowing that the information you give may conflict with information from others; your uncompensated dedication of time; possible miscommunication and/or misunderstanding in the transcribing of information; loss of privacy; and worry that your comment(s) may not be understood in the same way you understand them. It is not possible to identify all potential risks, however reasonable safeguards have been taken to minimize risks.

IV. Benefits

This study will give you the opportunity to express your thoughts (mana'o), and your opinions will be listened to and shared; your knowledge may be instrumental in the preservation of significant resources and information.

V. Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected if you so desire. You may request, for example, that your name and/or sex not be mentioned in write-ups, such as field notes, on tape, on files (disk or folders), drafts, reports, and future works; or you may request that some of the information you provide remain "off-the-record" and not be recorded in any way. In order to ensure protection of your privacy, confidentiality and/or anonymity, you should immediately advise the investigator of your desires. The investigator will ask you to specify the method of protection, and note it on this form below.

VI. Refusal/Withdrawal

You may, at any time during the interview process, chose to not participate any further and ask the investigator for the tape and/or notes. Please note that you will be given an opportunity to review your transcript, and to revise and/or delete any part of the interview.

VII. Waiver

Part I: Agreement to Participate

I, \_\_\_\_\_, understand that Maria E. Ka'imipono Orr, an independent investigator contracted by Haun & Associates, will be conducting oral history interviews with individuals knowledgeable about the lands of Wai'anapanapa, Honokalani Ahupua'a. The oral history interviews are being conducted in order to collect information on possible pre-historic and/or historical cultural resources associated with these lands, as well as traditional cultural practices.

I understand I will be provided the opportunity to review my interview to ensure that it accurately depicts what I meant to say about any of these lands.

\_\_\_\_\_ I am willing to participate.

\_\_\_\_\_ I am willing to participate, under the following conditions:

\_\_\_\_\_  
Interviewee Date

\_\_\_\_\_  
Investigator Date

MAHALO NUI LOA

Part II: Personal Release of Interview Records

I, \_\_\_\_\_, have been interviewed by Maria E. Ka'imipono Orr, an independent investigator contracted by Haun & Associates. I have reviewed the written transcripts of tape recordings of the interview, and agree that said documentation is complete and accurate except for those matters specifically set forth below the heading "CLARIFICATION OR CORRECTIONS."

*I further agree that Haun & Associate may use and release my identity and address and all other interview information, both oral and written, for the purpose of using such information in a report to be made public, subject to my specific objections, to release as set forth below under the heading "SPECIFIC OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS."*

CLARIFICATION OR CORRECTIONS:

SPECIFIC OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS:

\_\_\_\_\_  
Interviewee Date

\_\_\_\_\_  
Investigator Date

MAHALO NUI LOA

APPENDIX F  
Signed Agreement to Participate Forms

IV. *Benefits*

This study will give you the opportunity to express your thoughts (*mana'o*), and your opinions will be listened to and shared; your knowledge may be instrumental in the preservation of significant resources and information.

V. *Confidentiality*

Your rights of privacy, confidentiality and/or anonymity will be protected if you so desire. You may request, for example, that your name and/or sex not be mentioned in write-ups, such as field notes, on tape, on files (disk or folders), drafts, reports, and future works; or you may request that some of the information you provide remain "off-the-record" and not be recorded in any way. In order to ensure protection of your privacy, confidentiality and/or anonymity, you should immediately advise the investigator of your desires. The investigator will ask you to specify the method of protection, and note it on this form below.

VI. *Refusal/Withdrawal*

You may, at any time during the interview process, chose to not participate any further and ask the investigator for the tape and/or notes. Please note that you will be given an opportunity to review your transcript, and to revise and/or delete any part of the interview.

VII. *Waiver*

**Part I: Agreement to Participate**

I, GERARD PULANI LOW understand that Maria E. Ka'imipono Orr, an independent investigator contracted by Haun & Associates, will be conducting oral history interviews with individuals knowledgeable about the lands of Wainapanapa, Honokalani Ahupua'a. The oral history interviews are being conducted in order to collect information on possible pre-historic and/or historical cultural resources associated with these lands, as well as traditional cultural practices.

I understand I will be provided the opportunity to review my interview to ensure that it accurately depicts what I meant to say about any of these lands.

I am willing to participate.  
 I am willing to participate, under the following conditions:

Interviewee	<u>Gerard Pulani Low</u>	Date	<u>08-07-02</u>
Investigator	<u>Maria Orr</u>	Date	<u>8/3/02</u>

MAHALO NUI LOA

IV. Benefits

This study will give you the opportunity to express your thoughts (mana'o), and your opinions will be listened to and shared; your knowledge may be instrumental in the preservation of significant resources and information.

V. Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected if you so desire. You may request, for example, that your name and/or sex not be mentioned in write-ups, such as field notes, on tape, on files (disk or folders), drafts, reports, and future works; or you may request that some of the information you provide remain "off-the-record" and not be recorded in any way. In order to ensure protection of your privacy, confidentiality and/or anonymity, you should immediately advise the investigator of your desires. The investigator will ask you to specify the method of protection, and note it on this form below.

VI. Refusal/Withdrawal

You may, at any time during the interview process, chose to not participate any further and ask the investigator for the tape and/or notes. Please note that you will be given an opportunity to review your transcript, and to revise and/or delete any part of the interview.

VII. Waiver

Part I: Agreement to Participate

I, Jane R. Orr, understand that Maria E. Ka'imipono Orr, an independent investigator contracted by Haun & Associates, will be conducting oral history interviews with individuals knowledgeable about the lands of Wainapanapa, Honokalani Ahupua'a. The oral history interviews are being conducted in order to collect information on possible pre-historic and/or historical cultural resources associated with these lands, as well as traditional cultural practices.

I understand I will be provided the opportunity to review my interview to ensure that it accurately depicts what I meant to say about any of these lands.

I am willing to participate.  
 I am willing to participate, under the following conditions:

Jane R. Orr 8/02/02  
Interviewee Date  
Maria Orr 8/2/02  
Investigator Date

MAHALO NUI LOA

IV. Benefits

This study will give you the opportunity to express your thoughts (mana'o), and your opinions will be listened to and shared; your knowledge may be instrumental in the preservation of significant resources and information.

V. Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected if you so desire. You may request, for example, that your name and/or sex not be mentioned in write-ups, such as field notes, on tape, on files (disk or folders), drafts, reports, and future works; or you may request that some of the information you provide remain "off-the-record" and not be recorded in any way. In order to ensure protection of your privacy, confidentiality and/or anonymity, you should immediately advise the investigator of your desires. The investigator will ask you to specify the method of protection, and note it on this form below.

VI. Refusal/Withdrawal

You may, at any time during the interview process, chose to not participate any further and ask the investigator for the tape and/or notes. Please note that you will be given an opportunity to review your transcript, and to revise and/or delete any part of the interview.

VII. Waiver

Part I: Agreement to Participate

I, \_\_\_\_\_, understand that Maria E. Ka'imipono Orr, an independent investigator contracted by Haun & Associates, will be conducting oral history interviews with individuals knowledgeable about the lands of Wainapanapa, Honokalani Ahupua'a. The oral history interviews are being conducted in order to collect information on possible pre-historic and/or historical cultural resources associated with these lands, as well as traditional cultural practices.

I understand I will be provided the opportunity to review my interview to ensure that it accurately depicts what I meant to say about any of these lands.

I am willing to participate.  
 I am willing to participate, under the following conditions:

Helen K. Casma 8/2/02  
Interviewee Date  
Maria Orr 8/2/02  
Investigator Date

MAHALO NUI LOA

IV. Benefits

This study will give you the opportunity to express your thoughts (*mana'o*), and your opinions will be listened to and shared; your knowledge may be instrumental in the preservation of significant resources and information.

V. Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected if you so desire. You may request, for example, that your name and/or sex not be mentioned in write-ups, such as field notes, on tape, on files (disk or folders), drafts, reports, and future works; or you may request that some of the information you provide remain "off-the-record" and not be recorded in any way. In order to ensure protection of your privacy, confidentiality and/or anonymity, you should immediately advise the investigator of your desires. The investigator will ask you to specify the method of protection, and note it on this form below.

VI. Refusal/Withdrawal

You may, at any time during the interview process, chose to not participate any further and ask the investigator for the tape and/or notes. Please note that you will be given an opportunity to review your transcript, and to revise and/or delete any part of the interview.

VII. Waiver

Part I: Agreement to Participate

I, Mavis Oliveira-Medinas understand that Maria E. Ka'imipono Orr, an independent investigator contracted by Haun & Associates, will be conducting oral history interviews with individuals knowledgeable about the lands of Wainapanapa, Honokalani Ahupua'a. The oral history interviews are being conducted in order to collect information on possible pre-historic and/or historical cultural resources associated with these lands, as well as traditional cultural practices.

I understand I will be provided the opportunity to review my interview to ensure that it accurately depicts what I meant to say about any of these lands.

I am willing to participate.  
 I am willing to participate, under the following conditions:  
That we get to go over information before published and know when published.  
Interviewee: Mavis Oliveira-Medinas Date: 08/02/02  
Investigator: Maria Orr Date: 8/2/02

MAHALO NUI LOA

IV. Benefits

This study will give you the opportunity to express your thoughts (*mana'o*), and your opinions will be listened to and shared; your knowledge may be instrumental in the preservation of significant resources and information.

V. Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected if you so desire. You may request, for example, that your name and/or sex not be mentioned in write-ups, such as field notes, on tape, on files (disk or folders), drafts, reports, and future works; or you may request that some of the information you provide remain "off-the-record" and not be recorded in any way. In order to ensure protection of your privacy, confidentiality and/or anonymity, you should immediately advise the investigator of your desires. The investigator will ask you to specify the method of protection, and note it on this form below.

VI. Refusal/Withdrawal

You may, at any time during the interview process, chose to not participate any further and ask the investigator for the tape and/or notes. Please note that you will be given an opportunity to review your transcript, and to revise and/or delete any part of the interview.

VII. Waiver

Part I: Agreement to Participate

I, Antonia Bagio, understand that Maria E. Ka'imipono Orr, an independent investigator contracted by Haun & Associates, will be conducting oral history interviews with individuals knowledgeable about the lands of Wainapanapa, Honokalani Ahupua'a. The oral history interviews are being conducted in order to collect information on possible pre-historic and/or historical cultural resources associated with these lands, as well as traditional cultural practices.

I understand I will be provided the opportunity to review my interview to ensure that it accurately depicts what I meant to say about any of these lands.

I am willing to participate.  
 I am willing to participate, under the following conditions:

Interviewee: Antonia Bagio Date: 8/2/2002  
Investigator: Maria Orr Date: 8/2/2002

MAHALO NUI LOA

IV. *Benefits*

This study will give you the opportunity to express your thoughts (*mana'o*), and your opinions will be listened to and shared; your knowledge may be instrumental in the preservation of significant resources and information.

V. *Confidentiality*

Your rights of privacy, confidentiality and/or anonymity will be protected if you so desire. You may request, for example, that your name and/or sex not be mentioned in write-ups, such as field notes, on tape, on files (disk or folders), drafts, reports, and future works; or you may request that some of the information you provide remain "off-the-record" and not be recorded in any way. In order to ensure protection of your privacy, confidentiality and/or anonymity, you should immediately advise the investigator of your desires. The investigator will ask you to specify the method of protection, and note it on this form below.

VI. *Refusal/Withdrawal*

You may, at any time during the interview process, chose to not participate any further and ask the investigator for the tape and/or notes. Please note that you will be given an opportunity to review your transcript, and to revise and/or delete any part of the interview.

VII. *Waiver*

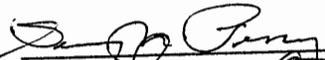
**Part I: Agreement to Participate**

I, \_\_\_\_\_, understand that Maria E. Ka'imipono Orr, an independent investigator contracted by Haun & Associates, will be conducting oral history interviews with individuals knowledgeable about the lands of Wainapanapa, Honokalani Ahupua'a. The oral history interviews are being conducted in order to collect information on possible pre-historic and/or historical cultural resources associated with these lands, as well as traditional cultural practices.

I understand I will be provided the opportunity to review my interview to ensure that it accurately depicts what I meant to say about any of these lands.

I am willing to participate.

I am willing to participate, under the following conditions:

	8/10/02
Interviewee	Date
	8/1/02
Investigator	Date

MAHALO NUI LOA

## **Appendix E: Wai‘ānapanapa State Park Final Master Plan**





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## **1. INTRODUCTION**

### **1.1 Purpose of the Master Plan**

The purpose of this plan is to provide a guide for the management, enhancement and development of Wai‘ānapanapa State Park for a twenty-year planning period extending from 2005 to 2025. Although Wai‘ānapanapa State Park was established more than 30 years ago in 1968, a comprehensive master plan has never been completed for the park. Key components of the park’s facilities and infrastructure are nearing the end of their expected life and a comprehensive master plan is desired before funds are invested for facility reconstruction or replacement. This Master Plan addresses issues relating to preservation and management of natural, cultural and scenic resources, public use and recreational activities, park facilities and infrastructure, and improvements required to comply with Department of Health, Building Code, and Americans with Disabilities Act requirements.

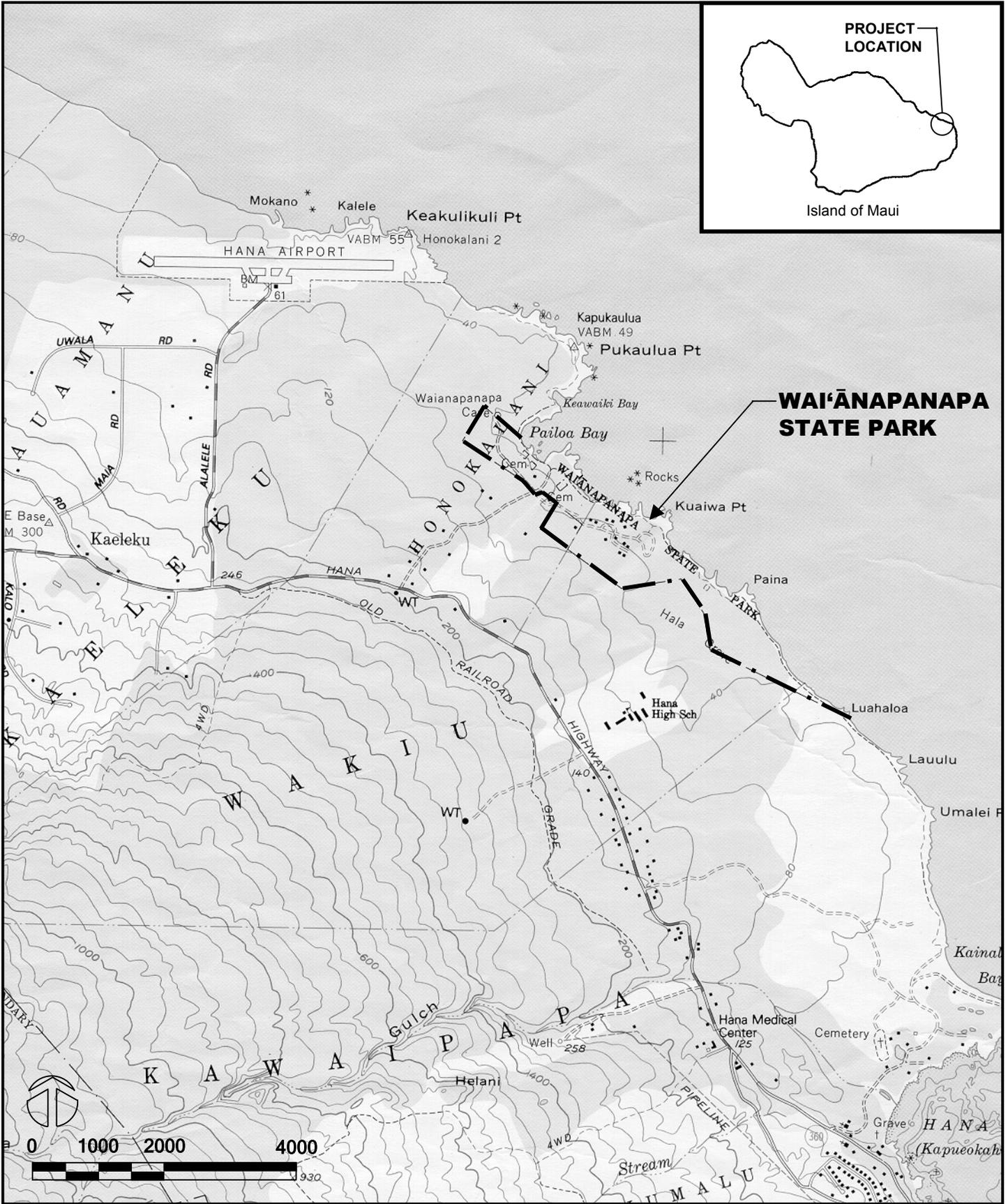
### **1.2 Park History**

The value of establishing a park in the Wai‘ānapanapa area was recognized in at least two potential park planning studies in the 1960’s; Mauka and Makai prepared by the National Park Service in 1962 and Hawai‘i’s Shoreline prepared by the Department of Planning and Economic Development in 1965. Wai‘ānapanapa State Park was established in 1968 when the State of Hawai‘i acquired parcel 09 of tax map key (TMK) 1-3-05 from Hāna Ranch through condemnation. Proceeding in 1978, 105.3 acres were set aside to the Division of State Parks under Executive Order No. 2900 (E.O.) for Wai‘ānapanapa State Park and in 1993, 5.0 acres were added under E.O. 3579, for a total of 110.3 acres. The park apparently was named after Wai‘ānapanapa cave, one of the park’s natural attractions (see Section 4.2.2 for the legend of Wai‘ānapanapa). According to the Draft Wai‘ānapanapa State Park Conceptual Plan (DLNR, 1974), visitation was light but in 1972 to 1973, the use of the park doubled as tourism rapidly expanded in the Hāna area. During its early years, recreational use was heavily oriented towards overnight use, which included tent camping and use of the cabins that were constructed in the early 1970’s. Since then, use of Wai‘ānapanapa State Park has gradually shifted towards day-users, who are primarily visitors traveling along the Hāna Highway.

### **1.3 Park Location and Surrounding Uses**

Wai'ānapanapa State Park is located in the Hāna district of the island of Maui approximately one-mile southeast of Hāna airport (see Figure 1). The approximately 110-acre park spans across the ahupua'a of Honokalani, Wākiu, and Kawaipapa and is comprised of TMKs: (2) 1-3-05: 9, 11 and (2) 1-3-06:9. Access to the park is provided by Honokalani Road off the Hāna Highway.

The Hāna region is characterized by large expanses of natural forests and agricultural lands with scattered rural residential lots. With the exception of a few residences located along the northern border of the park and along the park's access road, lands immediately adjacent to the park are undeveloped. Major facilities located in the vicinity of the park include Hāna airport to the north, a County refuse site about ½-mile to the south, and Hāna High and Elementary School ¼-mile to the west. Hāna town is about one-mile south of the park. A number of attractions and uses that are outside of the park's boundary are accessible via the park. These attractions/uses include Wai'ānapanapa cave, the coastal trail, and three private cemeteries located within the park.



Wai'anapanapa State Park Master Plan

Figure No.

# Location Map



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## **2. REGULATORY CONSIDERATIONS**

State statutes and administrative rules pertaining to State Parks provide the “ground rules” for the Master Plan. Chapter 184 of the Hawai‘i Revised Statutes (HRS), sets forth the role of the Department of Land and Natural Resources for managing State Parks. Unlike county parks, which primarily serve an active recreational function, State Parks are intended to preserve areas of natural, aesthetic or historic value with opportunities for passive use. This master plan, therefore, promotes uses and policies that will protect the natural, aesthetic, and historic resources at the Wai‘ānapanapa State Park. The master plan also promotes uses consistent with the provisions of the underlying State land use district and County zoning.

### **2.1 Hawai‘i Revised Statutes**

Chapter 184, HRS, empowers the Department of Land and Natural Resources to designate state parks and manage the State park system. Section 184-6, HRS, specifies that the duty of the Department is to “preserve the parks and parkways in the state park system in their natural condition so far as may be consistent with their use and safety, and improve them in such a manner as to retain to a maximum extent their natural scenic, historic, and wildlife values for the use and enjoyment of the public.”

The emphasis on preservation of scenic, historic, and wildlife values provides the guiding theme for the master plan. Recommendations provided in the master plan are consistent with this theme.

### **2.2 Hawai‘i Administrative Rules**

Chapter 146, Title 13, Hawai‘i Administrative Rules (HAR), Hawai‘i State Park System, provides the rules that implement the policies set forth in Chapter 184, HRS. The rules specify the permitted and prohibited uses within State Parks, required permits for camping, lodging, group use, and special uses, and limitations on commercial and private operations.

### **2.3 State Land Use Districts**

The State Land Use Law, Chapter 205, HRS, is intended to preserve, protect, and encourage the development of lands in the State for uses that are best suited to the public health and welfare of Hawai‘i’s people. All lands in the State are classified into one of four districts: Urban, Agricultural, Rural or Conservation. The majority of Wai‘ānapanapa State Park, approximately 95 acres, is in the Conservation district

and approximately 15-acres is in the Agricultural district. The purpose of the Conservation district is to protect and preserve areas that possess natural, historic, and scenic resources and also to provide park lands, and wilderness and beach reserves. The primary purpose of the Agricultural district is to reserve lands for agricultural pursuits, although the district also contains lands that are unsuitable for agriculture but have value as open space. The State Department of Land and Natural Resources regulates uses in the Conservation district while the County of Maui regulates uses within the Agricultural district.

## **2.4 Mission Statement and Goals for Wai'ānapanapa State Park**

Based on the provisions of section 184-6, HRS, and consistent with the park's underlying land use district classification and zoning, the following mission statement was developed to establish a reference point for evaluating alternatives and formulating recommendations of the master plan:

***Preserve Wai'ānapanapa State Park in its natural condition while providing appropriate opportunities for public education and enjoyment that will have a minimal impact on the park's natural, cultural, and scenic resources.***

The emphasis on preservation and the association of public use and enjoyment with scenic, historic and wildlife values is the basis for defining the goals for Wai'ānapanapa State Park.

### **Goal 1: Preservation**

Wai'ānapanapa State Park's natural, cultural and recreational values include rare, unique or representative species and habitats, representative geological features, archaeological sites, cultural resources, scenic qualities and recreational opportunities. Examples of its important species and habitats include the intact native *hala* (*Pandanus tectorius* S. Parkinson ex Z) forest to the north of the park, which is also the habitat for the endangered Hawaiian hoary bat (*Lasirus cinereus semotus*). The park's shoreline (coastal) geological features include sea caves, a blow hole and sea arches. An abundance of archaeological sites have been identified within the park. Native Hawaiian cultural values are associated with ancient and contemporary gravesites, and traditional fishing and gathering activities in the park. The park's scenic qualities include spectacular coastal views. Recreational opportunities include sightseeing, picnicking, swimming, hiking, camping, and fishing. Based on these resources and values, the first goal for Wai'ānapanapa State Park is:

*Protect and preserve rare and representative species, habitats, geological features, archaeological sites, cultural resources and activities, scenic qualities and natural recreational opportunities within Wai‘ānapanapa State Park and adjacent State owned lands that may be included in the park in the future.*

**Goal 2: Public Use and Enjoyment**

The relationship between the public’s use and enjoyment of Wai‘ānapanapa State Park and preservation of the park’s natural, cultural, and recreational values provides the context for the second park goal. The public’s use and enjoyment of the park can be achieved by providing managed access to resources, providing supporting facilities for park activities, and enhancing public enjoyment by promoting greater appreciation of the resources and their natural and cultural values. Providing access to these resources and accommodating their use, however, must be balanced with the goal of resource protection and preservation.

The goal of providing access and accommodating public use of the natural, cultural and recreational resources at Wai‘ānapanapa State Park reflects the demands and needs of park users. Existing park user demand at Wai‘ānapanapa State Park include activities such as sightseeing, picnicking, swimming, hiking, camping and fishing. Based on this user demand and, in consideration of the goal for preservation, the goal for public use may be stated as:

*Provide access and facilities accommodating park users and activities consistent with the protection and preservation of rare and unique species and habitats, geological features, archaeological sites, cultural resources and activities, scenic qualities and natural recreational opportunities.*

**Goal 3: Public Understanding and Stewardship**

The public’s enjoyment of Wai‘ānapanapa State Park’s resources and values can be enhanced through an understanding, awareness and appreciation of these resources and values. This understanding and appreciation can occur by providing access, sensory cues and signage. Interpretive and educational programs centered on the themes of geology, ecology, archaeology and culture can promote the goal of understanding, as well as the goal of preservation and stewardship. Hence, a goal to promote public education and stewardship of the park resources and values may be stated as:

*Promote the understanding, appreciation, and enjoyment of the park's natural, cultural, scenic, and recreational resources and values as a means of encouraging a sense of stewardship for these resources by park visitors and users.*

**Goal 4: Revenue Generation**

Financing of park improvements and operation and maintenance of park facilities will require a continuous commitment of funding. Due to the State's limited financial resources, appropriate user fees should be considered in order to offset costs. While fees are currently charged for use of the cabins and for camping permits, fees may also be considered for commercial vehicles, parking, and entry fees. Other potential sources of revenue, such as food concessions, may also be considered. The goal for revenue generation may be stated as follows:

*Implement equitable user fees to assist in funding programs and to offset staffing, operation and maintenance costs.*

### 3. EXISTING USES AND FACILITIES

#### 3.1 Existing Uses

The location of primary uses and facilities at Wai‘ānapanapa State Park is illustrated in Figure 2, Site Plan. As shown on the plan, most uses are located at the northern portion of the park. Primary day-uses include sightseeing, hiking, swimming (when waters are calm), and picnicking. The park is also a popular rest stop for travelers and tour buses traveling along the Hāna Highway. Cabin lodging and overnight camping is allowed on a permit basis. The following provides a brief description of these uses.

##### Sightseeing and Picnicking:

Sightseeing is the most popular activity for visitors to the park. Scenic coastal views can be enjoyed along the entire coastline of the park although the most popular area for sightseeing is near Pailoa Bay. Picnicking in a grassed area between the parking lot and campgrounds is also an activity associated with sightseeing.



*Typical coastal view.*

Hiking: Hiking along a trail that extends along the park’s coastline is a popular activity for visitors. Except for a portion of the trail near Pailoa Bay, the trail is unimproved.

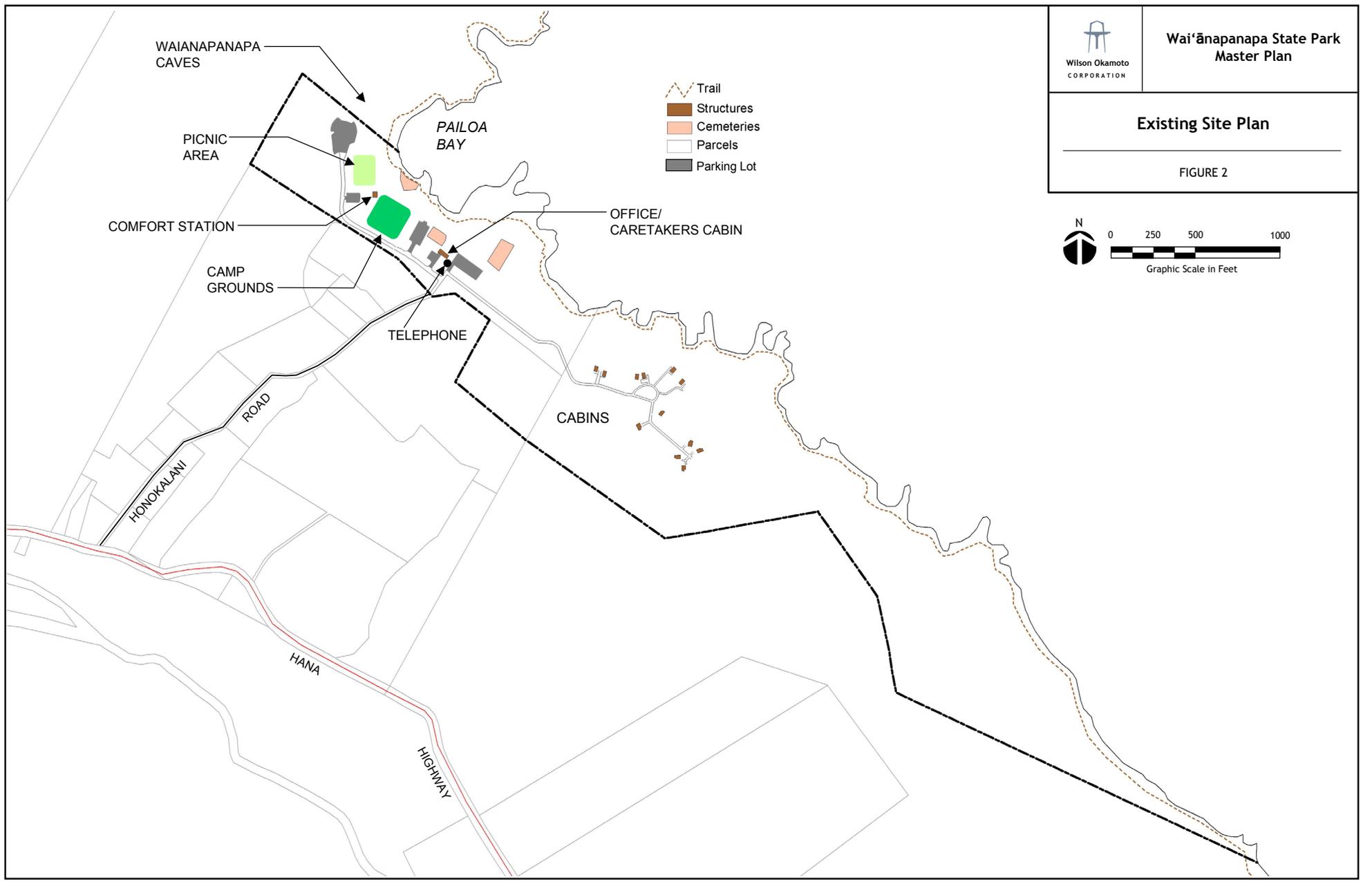
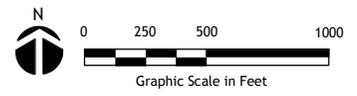
Swimming and Sunbathing: The black sand beach in Pailoa Bay is one of the few accessible areas for swimming and sunbathing in the Hāna area. However, due to strong currents and rough ocean conditions, swimming at the park is discouraged.

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Existing Site Plan

FIGURE 2





Camping: Camping on a permit basis is allowed at an approximately one-acre campground. There are 6 unmarked camping sites and up to 10 campers may use each site.



*Existing campgrounds.*

Cabin Lodging: There are 12 identical one-bedroom cabins available for overnight use on a permit basis. All of the cabins are equipped with a full kitchen and one full bath and can accommodate up to 6 persons.

Fishing: Shoreline fishing is pursued primarily by Hāna residents and Hawai'i residents visiting Hāna or camping at the park. The most popular fishing areas appear to be in the central and southern portion of the park, away from heavily used areas.



*Typical Cabin.*

Cultural Activities: In addition to fishing, ongoing cultural activities at the park include gathering marine resources such as *limu* (seaweed), crabs, and ‘*opihi* (a limpet). Plants that are gathered at the park include *kukui* (*Aleurites moluccana*, L.), *niu* (coconut, *cocos nucifera* L.), ‘*ulu* (Breadfruit, *Artocarpus altilis*), *wauke* (*Broussonctia papyri fera*), *māmaki* (*Piptuus albidus*), *noni* (*Morinda citrifolia*, L.), false *kamani* (*Terminalia catappa*, L), mango (*Mangifera indica*, L.), guava (*Psidium guajava*), ferns and *ti* (*Cordyline fruticosa terminalus*, L.)

### 3.2 Supporting Facilities

Water System: The County of Maui Department of Water Supply provides water service to Wai‘ānapanapa State Park. The County system consists of three deep wells, storage tanks in Hāmoa and Hāna, and a surface water source located on Wailua Stream. The surface water source on Wailua Stream, however, is presently not used. Water for Wai‘ānapanapa State Park is



Existing comfort station.

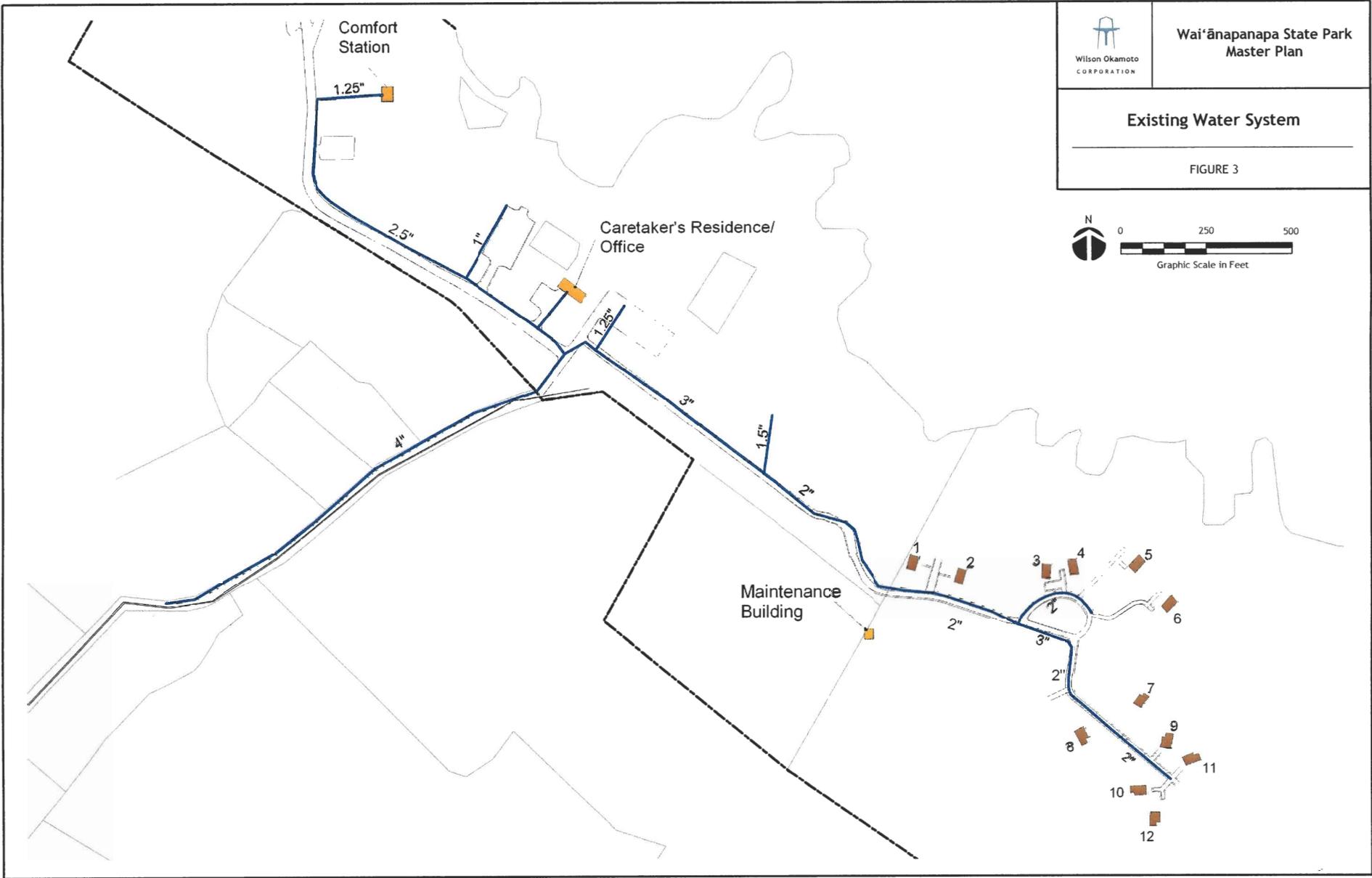
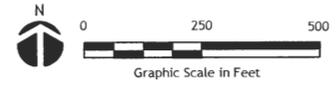
provided from a 0.5 million gallon (MG) concrete storage tank located at the 325-foot elevation. A 6-inch waterline conveys water from the 0.5 MG tank to a 4-inch pipe located in Honokalani Road. The park’s water meter is installed on the 4-inch pipe near the park’s entrance. At the entrance to the park, the 4-inch line splits into a 2.5-inch pipe to the north that provides service to the caretaker’s residence/office, and the comfort station. A 1.0-inch lateral provides water service to the caretaker’s residence/office while a 1.25-inch lateral provides service to the comfort station. A 3-inch line runs to the southeast for about 275-feet before transitioning to a 2-inch “drisco” line. The 2-inch line, which was installed about 5 years ago, provides water service to the cabins via one-inch laterals. There are no fire hydrants within the park, although the 4-inch pipeline in Honokalani Road may be capable of providing water flow to standpipes for fire protection. Figure 3 illustrates the existing water system.

Comfort Station and Wastewater System: The park has one comfort station located in the vicinity of the campgrounds. The comfort station and caretaker’s residence each have one cesspool that are located immediately *makai* of the structures. The 12 cabins are grouped in pairs with each pair of cabins sharing a cesspool.



Existing Water System

FIGURE 3



Roadways: Access to Wai'ānapanapa State Park is provided off of Hāna Highway via Honokalani Road. Honokalani Road is a privately owned roadway maintained by the State. The State has an access easement that allows use of the road for entry into Wai'ānapanapa State Park.



*Office / Caretaker's Residence.*

A two-lane paved roadway provides circulation within the northern half of Wai'ānapanapa State Park. There are no improved roadways in the southern half of the park.

Parking: The park has three paved and two unpaved parking lots. One of the unpaved parking lots is located near the park entrance and is approximately 75' x 175'. The second unpaved lot, which is reserved for recreational vehicles, is located *mauka* of the comfort station and is about 60' x 100'. Of the three paved parking lots, one is reserved for campers, the second is located in front of the caretaker's residence/office, and the third is located near the lookout area. The paved parking lot reserved for campers has 16 marked stalls while the parking lot near the lookout has 22 standard parking stalls and 1 handicap stall. During peak visitor hours at the park, which is generally from 10:00 a.m. to 3:00 p.m., the parking lots are usually filled to capacity and visitors park along the roadway within the park.

Park Office/Caretaker's Residence: The Park Office and Caretaker's Residence share a single structure south of the campgrounds near the park entrance. The Caretaker's Residence is about 890 square feet and consists of three bedrooms, a living room, dining/kitchen area, and a bathroom. The Office is about 480 square feet. The building also has a 490 sq. ft. carport and a covered patio area for a washing machine, dryer, and a service sink. The building was renovated in 2002.

Maintenance Building:

A maintenance building used to store tools, equipment, and various material is located on the *mauka* side of the access road between the park entrance and the cabins. The maintenance building has a gross floor area of about 473 sq. ft.

## 4. PARK RESOURCES AND MANAGEMENT CONSIDERATIONS

Management considerations for achieving the goals set forth for Wai‘ānapanapa State Park are presented at three tiers. At the first tier, management considerations focus on achieving the goal for preserving the park’s natural, cultural and scenic resources. At the second tier, management considerations focus on achieving the goal of public use and enjoyment by accommodating and enhancing public use of the park’s natural, cultural, and recreational resources. At the third tier, park infrastructure and facilities required for the park’s operation are discussed.

### 4.1 Preserving Natural and Scenic Resources

#### 4.1.1 Flora

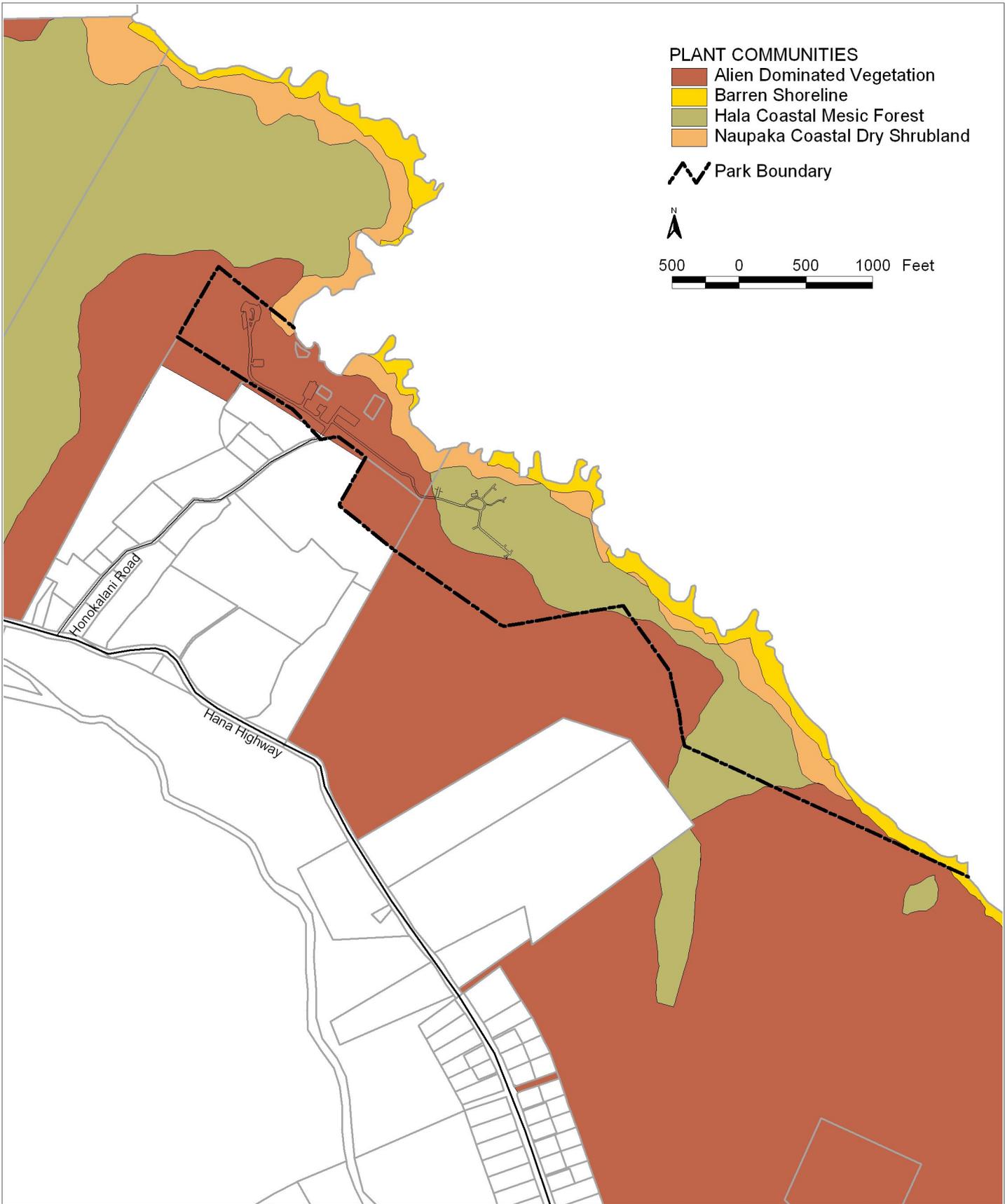
Although much of the vegetation at Wai‘ānapanapa State Park consists of introduced species, there are significant plants and plant communities within and in the vicinity of the park that require consideration. These botanical resources include stands of *hala* in the central and southern portion of the park, the large *hala* forest immediately north of the park, and the *naupaka* coastal dry shrubland community present along much of the park’s coastline. The large *hala* forest north of the park deserves special consideration as it is one of the few intact *hala* forests in the state and is representative of a native coastal forest ecosystem. In addition, a survey conducted by the Hawai‘i Heritage Program in 1992 identified one “rare” plant species in Wai‘ānapanapa State Park, *Pua pilo* (*Capparis sandwichiana*, L.), and another “rare” plant, *Ischaemum byrone*, outside of the park boundary near Pailoa Bay. A botanical survey conducted for the master plan in September 2002, however, did not find *Capparis sandwichiana*, L. or *Ischaemum byrone*, although the survey did not include the area where *Ischaemum byrone* was found in 1992. Plant communities identified by the 1992 Hawai‘i Heritage Program survey are shown in Figure 4.

**Objective:** *To protect, enhance and provide opportunities for public enjoyment and appreciation of significant plants and plant communities at Wai‘ānapanapa State Park.*

**Guidelines:**

Protection and Preservation

- Preserve the remaining stands of *hala* forest within the park and maintain their integrity by controlling the spread of alien species into these stands of *hala* forest.



Wai'anapanapa State Park Master Plan

Figure No.

**Plant Communities**



- Preserve the native coastal plant communities within the park.
- Promote restoration of native vegetation where appropriate and use native vegetation that would occur naturally in park landscaping.
- Consider extending the park boundary to include the large *hala* forest adjoining the park to preserve this significant resource.

#### Access and Use

- Avoid development of new park facilities that encroach into the remaining stands of *hala* forest within the park.
- Manage park user activities to avoid trampling and disturbing native coastal plant communities within the park and along coastal trails beyond the park. This could be achieved by designating and marking paths that reduce impacts on native vegetation, providing directional signage and educating users.

#### Enjoyment and Appreciation

- Feature existing native vegetation and use appropriate native vegetation in park landscaping along paths, roads, parking areas, etc. A landscape and planting plan for the park should be prepared based on the natural occurrence of native species and the phasing out of exotic species, such as false kamani (*Terminalia catappa* L.) and African tulip (*Spathodea campanulata* P. Beauv.).
- Provide an educational/interpretive program that promotes greater appreciation of native vegetation through displays and signage.

#### **4.1.2 Fauna**

There are several faunal species that have been observed at Wai‘ānapanapa State Park that require special consideration. These species include the endangered Hawaiian hoary bat (*Lasirus cinereus semotus*) which has been observed foraging over the *hala* forest and near-shore areas, the endangered endemic Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened Newell’s Shearwater (*Puffinus auricularis newelli*) which has been observed in the Hāna region. In addition, the native shrimp *Metabetaus lohena* may be present in the wet caves at Wai‘ānapanapa.

At least four Hawaiian hoary bats were observed foraging over the *hala* grove and near-shore areas of Wai‘ānapanapa State Park during a faunal survey prepared in 2003 for the master plan. The detection of the Hawaiian hoary bat is considered

significant because historically there have been very few documented sightings of the bat on the island of Maui. The apparent scarcity of the bat on Maui, however, may reflect a lack of data rather than the true status of the species on Maui.

Steps that can be taken to minimize impact to the bat may include minimizing disturbance to the *hala* forest, as this appears to be a regular foraging area for the species. According to the faunal survey, the existing structures and construction of new structures at Wai‘ānapanapa State Park are unlikely to have a deleterious impact on the bat.

Although neither the Hawaiian Petrel nor the Newell’s Shearwater were observed during the faunal survey, both of these species have been reported to fly over the Hāna area. Nocturnal seabirds, such as the Hawaiian Petrel and Newell’s

Shearwater, can become disoriented by exterior lighting and often collide with manmade structures, resulting in injury or death to the bird.

The native shrimp *Metabetaus lohena*, commonly called ‘Ōpae ‘ula, is a candidate for listing as threatened or endangered by the U.S. Fish and

Wildlife Service and has been reported within the

anchialine ponds at Wai‘ānapanapa as recently as 1992. During recent site visits to Wai‘ānapanapa State Park, however, it appears that alien fish species, including guppies, have been introduced to the ponds and the native shrimp were not observed. In addition to the shrimp’s status as a candidate for listing as a threatened or endangered species, the shrimps are also culturally significant because of its association with the Legend of Wai‘ānapanapa.



*Hawaiian Hoary Bat.*



*Hawaiian Petrel.*



*Newell's Shearwater.*



*‘Ōpae ‘ula.*

The Green Sea Turtle (*Chelonia mydas*) is known to frequent waters immediately offshore of Wai‘ānapanapa State Park. The green sea turtle is a federally listed threatened species.

**Objective:** *To protect endemic and indigenous faunal species at Wai‘ānapanapa State Park and their habitats, particularly those that are threatened, endangered or culturally significant.*

**Guidelines:**

Protection and Preservation

- Preserve remaining stands of *hala* forest within the park as foraging areas for the Hawaiian Hoary bat.
- Protect and restore ‘Ōpae ‘ula within the anchialine ponds. This may include efforts to remove alien fish species in the pond.

Access and Use

- Assess the impact of recreational swimming in the Wai‘ānapanapa Caves on the ‘Ōpae ‘ula as basis for developing management policies regarding this activity.
- Minimize the use of outdoor lighting and provide shielding, as appropriate, to minimize impacts to nocturnal seabirds.

Enjoyment and Appreciation

- Provide an educational/interpretive program that promotes greater appreciation of native flora and fauna through displays and signage.

#### **4.1.3 Scenic Resources and Geological Features**

Coastal views within and beyond Wai‘ānapanapa State Park are a valuable scenic resource and includes impressive geological features such as Pailoa Bay, inlets and promontories, sea caves, rocky islets, sea cliffs, two spectacular sea arches, and a blowhole. The anchialine pools and caves are also valuable scenic attractions. Integral to the scenic qualities of the park is the abundance of natural vegetation, including forested areas within and beyond the park. Within the park, plant communities intermixed with landscaped areas complement and enhance the scenic attractions.

**Objective:** *To preserve viewplanes and significant geological features at Wai‘ānapanapa State Park and enhance opportunities for public enjoyment of these resources.*

**Guidelines:**

Protection and Preservation

- Preserve scenic *mauka* and *makai* views and the scenic character of Wai'ānapanana State Park, including the coastal geological features and forests.
- Establish a shoreline setback to preserve the natural setting and views.

Access and Use

- Site new park facilities to avoid obstruction of scenic view planes.
- Design new and renovated park facilities to complement the natural character of the park through appropriate architecture and landscaping.
- Locate roads, parking areas, walkways and trails to accommodate access to scenic points based on level of demand and protection of natural and cultural resources. Design access routes to complement the natural settings in which they are located.

Enjoyment and Appreciation

- Provide an educational/interpretive program that promotes greater appreciation of sightseeing opportunities and geologic features.
- Promote photographic opportunities.

**4.1.4 Water Resources**

Surface water resources in the vicinity of Wai'ānapanapa State Park include anchialine ponds and coastal waters offshore of the park. The anchialine ponds, which are located near Pailoa Bay at Wai'ānapanapa cave, are outside of the park's boundary but accessible through the park. The anchialine ponds provide a habitat for the native shrimp *Metabetaus lohena*, a candidate for listing as threatened or endangered by the U.S. Fish and Wildlife Service.

Coastal waters off of Wai'ānapanapa State Park are designated as Class AA waters by the State Department of Health. The objective of Class AA waters is that they remain in their natural pristine state as nearly as possible with an absolute minimum of pollution or alteration of water quality from any human-caused source or actions.

**Objective: To protect water resources and maintain a high level of water quality at Wai'ānapanapa State Park.**

***Guidelines:***

Protection and Preservation

- Direct stormwater runoff from parking lots, roadways, and paved surfaces to detention basins, drywells, and swales to minimize discharges into coastal waters.
- Consider installing oil/water separators in parking lots to reduce the potential for petroleum contamination to underlying aquifers and coastal waters.
- Consider using pervious paving material for parking lots, pathways, and other paved surfaces at Wai'ānapanana State Park to reduce stormwater runoff.
- Replace all cesspools at the parks with septic systems to minimize leaching pollutants into coastal waters.

Access and Use

- Maintain access to the anchialine ponds and coastal waters.

Enjoyment and Appreciation

- Monitor swimming in the anchialine ponds and if necessary, implement measures to prevent adverse impact to this resource.
- Maintain the shower facilities at the comfort station near Pailoa Bay.

**4.2 Preserving Historic/Cultural Resources**

**4.2.1 Archaeological Resources**

An archaeological inventory survey conducted in 2002 for the master plan identified numerous archaeological features within the park. The features consist of enclosures, walls, cairns, terraces, pavements, platforms, trails, caves, upright stones, U- and L-shaped enclosures, mounds, overhangs, alignments, cemeteries, C-shapes and several miscellaneous site types. Functions associated with these features include permanent and temporary habitation, ceremonial use, agriculture, transportation, burial, boundary markers, and rock art.

The sites, particularly those in the central and southeastern portion of the park, represent the well preserved remains of traditional Hawaiian settlement on the Hāna coast that have largely escaped disturbance by plantation agriculture and ranching. Radiocarbon dating from the cave at Site 5372 indicates that settlement in the project area dates to at least as early as the late A.D. 1200's to 1300's. The date from the platform at Site 5366 indicates occupation between the 1400's and mid-1600's.



*'Ōhala Heiau.*

The 'Ōhala heiau complex (Site 5364) consists of a large platform (Feature A) that is over 350 square meters in area and fourteen other features that are grouped together. The other large features include a 90 sq. meter platform adjacent to the northwest side of the main platform (Feature B); a 115 sq. meter platform on a knoll overlooking the site (Feature D); a 115 sq. meter terrace adjacent to Feature D (Feature E); and an extensive paved area over 600 sq. meters in area. A test excavation in Feature D did not recover any portable remains that would indicate it was used for habitation. However, another test excavation in a small platform at the edge of the large pavement (Feature G) encountered food remains indicating habitation at that part of the site. The complex probably represents a communal construction effort and potentially indicates at least the periodic presence of a sizable number of ritual observers or participants.

A number of large enclosures, ranging from 103 sq. meters to over 12,000 sq. meters appear to represent enclosed yards for permanent residential structures that served to exclude free ranging cattle. Additional examples are probably represented by the large enclosures formed by segments of the Site 5367 network of walls. In several cases, there is no surface architectural evidence of residential structures within the enclosures. However, this does not preclude the former presence of pole and thatch structures that may have been built without stone foundations and may have been destroyed or are no longer visible.



*Pictograph on cliff face*

Permanent habitation features within the park are clustered within three areas. There is a small cluster of four sites at the southeast-central portion of the park (Sites 5349, 5350, 5355, and 5356). The most dense cluster, consisting of eight sites, is situated on the northwest side of the 'Ōhala heiau complex (Sites 5362, 5363, 5369, 5371, 5372, 5374, 5377, and 5388) and a moderately dense

cluster of eleven sites spans the northwestern portion of the park (Sites 5381, 5382, 5384-6, 5388, 5389, and 5392-5). The latter two clusters would represent nucleated, village-like settlements, if the sites were occupied contemporaneously. This is likely for the northwestern cluster because most of the sites include large yard enclosures. The central habitation cluster consists of sites with and without enclosing walls. The absence of enclosing walls at most of the sites and radiocarbon dates from two sites in the cluster indicate prehistoric occupation. The association of this cluster with a heiau and human teeth, probably from a burial cave in Site 5372, provide further support that it may have been a traditional Hawaiian permanent occupation. The presence of ritual and mortuary activity lends support to the probable presence of a village size settlement.

Three privately owned historic cemeteries (Sites 5390, 5396 and 5397) are located within the park boundaries. The cemeteries are considered to be culturally significant due to the presence of human remains of probable Hawaiian ancestry as well as other ethnic groups. Plaques and inscriptions at the cemeteries date the graves to the early 1920's, although the majority of the graves are unmarked so it may be possible that older graves exist. All three cemeteries continue to be used and are well maintained.

Portions of the coastal trail are remnants of the Kihaapi'ilani Trail that was constructed in the 1600's by the Maui chief Kihaapi'ilani. The trail is considered

significant because of its association with KihaaPi'ilani and the broad pattern of history represented by his rule, which is credited with the construction of the trail and other public works projects during the 1600's. The locations of the archaeological features identified by the inventory survey are shown in Figure 5 and a summary of the features is provided in Table 1.

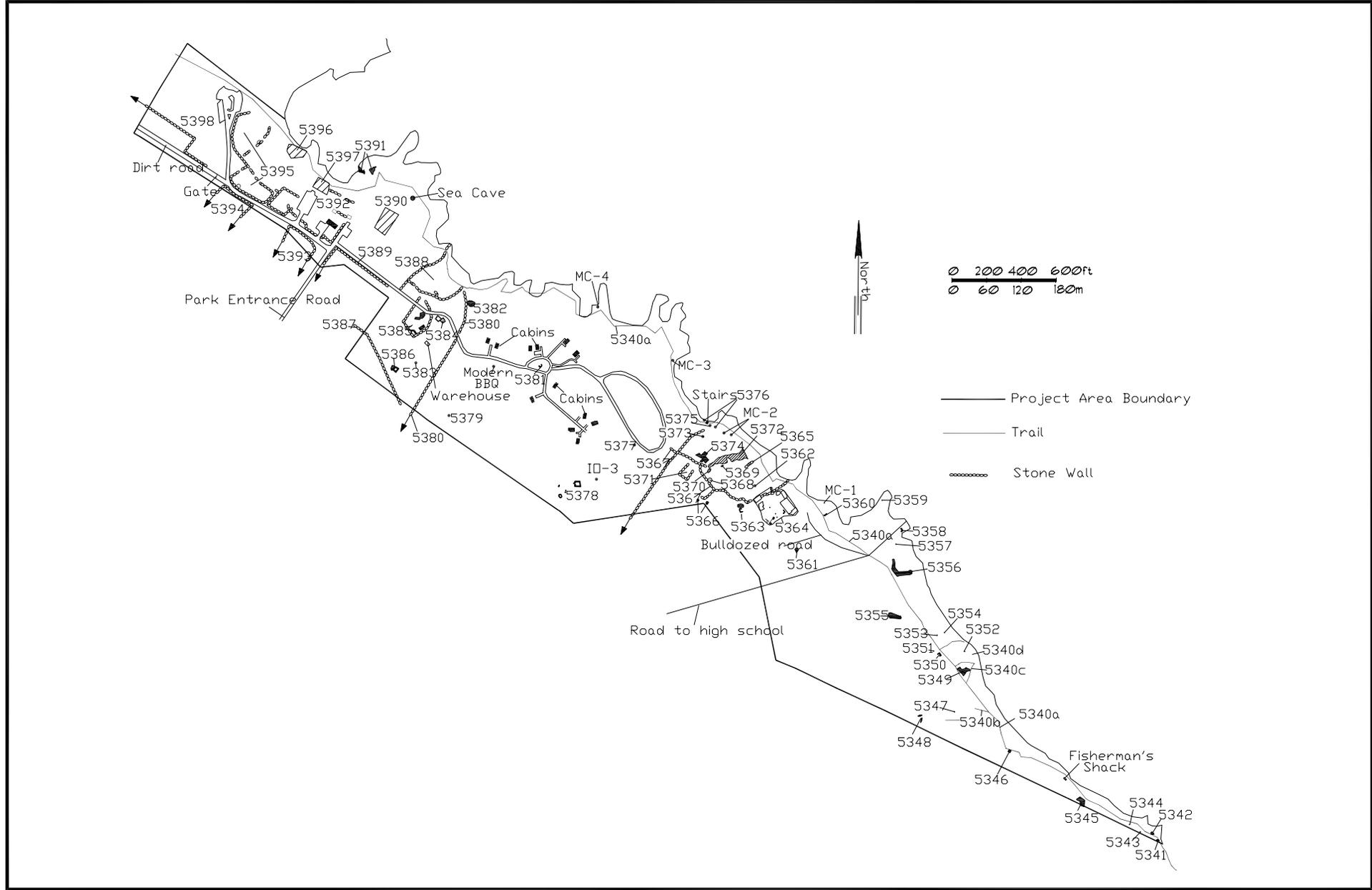
According to the Rules Governing Procedures for Historic Preservation Review, in order to be considered historically significant a site must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the criteria listed in Table 2. Based on the criteria in Table 2, all fifty-nine sites are assessed as significant under Criterion "d". Sites 5356, 5364, 5372, 5374, and 5376 are additionally assessed as significant under Criterion "c". Site 5372, and the cemeteries (Sites 5390, 5396, and 5397) are culturally significant under Criterion "e" because of the presence of human remains of probable Hawaiian ancestry. The coastal KihaaPi'ilani Trail (Site 5340) is assessed as significant under Criterion "e", "a", and "b", for its cultural significance and because of its association with the Maui chief KihaaPi'ilani and the broad pattern of history represented by his rule, including the construction of the trail and other public works projects during the 1600's.

***Objective: To protect and preserve significant historic and cultural sites at Wai'ānapanapa State Park and to promote awareness and understanding of the park's cultural history.***

***Guidelines:***

Protection and Preservation

- Preserve, protect, and manage known archaeological and cultural sites.
- Monitor archaeological sites within the park, and to the KihaaPi'ilani Trail beyond the park, to identify and assess threats and impacts for management.
- Stabilize and/or restore archaeological sites, as appropriate, to retain their historical integrity.
- Deter access to sensitive archaeological features where visitation may threaten the park site or cultural value, such as the habitation caves in the central portion of the park, which may have also had a burial function (Site 5372). The pictographs and petroglyphs in the park should also be protected.
- Establish buffers around archaeological and cultural sites that promote the cultural landscape and historical setting.



Wai'anapanapa State Park Master Plan

Figure No.

# Archaeological Sites



**TABLE 1 (Continued)**  
**SUMMARY OF ARCHAEOLOGICAL FEATURES AT WAI'ĀNAPANAPA STATE PARK**

SHP Site No.	Type	No. of Features	Formal Type																Function											Haun & Associates Field Designation (2002)	Pearson Site #									
			Enclosure	Wall	Cairn	Terrace	Pavement	Platform	Trail	Cave	Upright	U-shape	Mound	L-shape	Overhang	Alignment	Cemetery	C-shape	Cupboard	Modified outcrop	Pictograph	Petroglyph	Permanent Habitation	Ceremonial	Temporary Habitation	Habitation	Marker	Agriculture	Transportation			Historic Burial	Livestock control	Boundary	Rock art	Burial	Storage	Indeterminate		
5371	Enclosure	1	1																			1															56			
5372	Complex	6		3						3												5											1				8	21		
5373	Overhang	1												1										1													4	22		
5374	Complex	4				3									1							4															83	-		
5375	Overhang	1												1										1													2	16		
5376	Complex	2																	1	1												2				68/85	23			
5377	Enclosure	1	1																			1															78	31		
5378	Complex	4	2									1							1			1						3									58/59/60/61			
5379	Mound	1									1																1										61a			
5380	Wall	1		1																										1							43	32		
5381	Enclosure	1	1																			1															69			
5382	Pavement	1					1															1																70		
5383	Mound	1										1															1											80	-	
5384	Complex	2	2																			2																44	33	
5385	Enclosure	1	2			2																4																45/46/79/81	24/34	
5386	Complex	2	1			1																2																82	-	
5387	Wall	1		1																											1							83a	-	
5388	Complex	2	2																			2																47	26/27	
5389	Enclosure	1	1																			1																71		
5390	Cemetery	1													1															1							49	30		
5391	Complex	2								2														2														48	28	
5392	Complex	5	5																			5																73/75		
5393	Enclosure	1	1																			1																75		
5394	Enclosure	1	1																			1																75		
5395	Enclosures	4	4																			4																75/76/77		
5396	Cemetery	1														1																			1			74	29	
5397	Cemetery	1														1																						72	29	
5398	Wall	1		1																															1				84	-
			<b>24</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>36</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>		

**TABLE 2  
RULES GOVERNING PROCEDURES FOR HISTORIC PRESERVATION REVIEW  
HISTORIC SIGNIFICANCE CRITERIA**

Criterion A	Association with events that have made an important contribution to the broad patterns of our history
Criterion B	Association with the lives of persons important in our past
Criterion C	Distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value
Criterion D	Have yielded, or is likely to yield, information important for research on prehistory or history
Criterion E	Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional 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.

Access and Use

- Avoid development of new park facilities that encroach into archaeological sites and buffers.
- Manage and monitor park user activities to avoid damage to archaeological sites within and adjacent to the park.
- Direct park users away from sensitive archaeological sites by redefining paths and trails, providing directional signage and withholding information on specific locations.
- Heighten awareness of culturally sensitive sites, such as cemeteries, and promote respectful behavior at these sites through signs and symbolic barriers, such as walls and vegetation.

Enjoyment and Appreciation

- Provide an educational/interpretive program that promotes greater appreciation and understanding of archaeological and cultural sites, such as ‘Ōhala Heiau, Wai‘ānapanapa Caves, the pictograph and petroglyph, and the ancient stepping stone trail. The programs should inform park users of their historical and cultural significance, the sensitivity of the sites, and request that they not be disturbed.

#### 4.2.2 Cultural Resources and Activities

A Cultural Impact Assessment for Wai'ānapanapa State Park was prepared by Maria E. Ka'imipono Orr in November 2002. According to the assessment, the Hāna district has a long history of settlement, extending at least 700 years and possibly longer. Prior to western contact, the Hāna district was well known and sought after for its abundant resources. Crops that were cultivated in the Hāna district included both wet and dryland *kalo* (taro), *'uala* (sweet potatoes), *mai'a* (bananas), *'ulu* (breadfruit), *māmaki*, *'awa*, and *noni*. A large *hala* forest that extended from Kawaipapa to 'Ula'ino was also a valuable resource. Items crafted from the *lauhala*, the leaves of *hala*, include canoe sails, baskets, mats, and hats.

While there are numerous legends and myths relating to the Hāna region, one legend of particular relevance to Wai'ānapanapa State Park is the Legend of Wai'ānapanapa. In short, the legend tells of a young Princess, Popoalaea, who fled from her husband, Kāka'e, a powerful warrior chief who had threatened to kill her. Popoalaea hid with her maid in a cave (Wai'ānapanapa cave) but they were eventually found by Kāka'e and killed. The



Wai'ānapanapa cave.

gods of nature thought that this deed was so terrible that they made the cave sacred to the memory of the princess and set a guardian angel over it. To this day the rocks are stained with the blood of Popoalaea and the sides are covered with white flakes of brain particles. The cave has since been called Wai'ānapanapa, water flashing rainbow hues, because at the death of Popoalaea, it is said that the cave sparkled with rainbow atoms which the gods sent in their pity and which her guardian angels spread forth. Also, in the spring, the stones are said to be a redder hue caused by the gathering of 'ōpae 'ula, the sign of forgiveness or the casting out of an evil spirit.

Ongoing cultural activities at Wai‘ānapanapa State Park include fishing, and gathering of marine resources, such as *limu* (seaweed), crabs, and ‘*opihi* (a limpet). There is also the gathering of plants from the park such as *kukui* (*Aleurites moluccana* L.), *niu* (coconut, *cocos nucifera* L.), ‘*ulu* (Breadfruit, *Artocarpus altilis*), *wauke*, *māmaki*, *noni* (*Morinda citrifolia* L.), false *kamani* (*Terminalia catappa* L.), mango (*Mangifera indica* L.), guava (*Psidium guajava*), ferns and *ti* (*Cordyline fruticosa* L.).

Concerns regarding cultural resources are related to gathering of marine resources, park expansion and its impact to adjacent landowners, and the need for protection of archaeological sites and private cemeteries.

***Objective: To allow the continuation of traditional cultural practices.***

***Guidelines:***

Protection and Preservation

- Manage fishing and marine gathering as needed to maintain a desired level of marine resources and insure their productivity as a fishery.
- Manage the gathering of plant resources, particularly native plant resources to maintain their productivity.
- Manage park activities to protect cultural resources, such as the gravesites, and promote respect for the cultural resources within and beyond the park by establishing buffers, barriers, and signs.

Access and Use

- Preserve access, including vehicular access and parking, to the shoreline for residents to engage in traditional gathering practices.
- Preserve trail access to culturally significant plant resources within the park.
- Avoid development of new park facilities in areas used for traditional shoreline and plant gathering activities.
- Direct high volume park usage away from areas used for traditional shoreline and plant gathering activities.
- Ensure access to cemeteries by descendants and promote respect for these sites by park visitors.

Enjoyment and Appreciation

- Provide an educational/interpretive program that promotes greater appreciation and understanding of native cultural practices and resources. Cultural

resources where interpretive signage may be appropriate include Wai‘ānapanapa Cave, the edge of the *hala* forest, and selected archaeological sites.

### **4.3 Public Use and Enjoyment**

Alternative management considerations for the public’s use and enjoyment of the natural, cultural and recreational resources address access, quality of the park experience, and opportunities for enhancing enjoyment during a park visit.

#### **4.3.1 Sightseeing and Picnicking**

Based on a park user assessment conducted by DLNR staff on April 26 and 27, 2002, sightseeing is one of the primary attractions at Wai‘ānapanapa State Park. The most popular sightseeing area is along the coastline near Pailoa Bay. Sightseeing is frequently associated with rest stops for the long drive along Hāna Highway and, consequently, the comfort station is an important supporting facility. Also popular in conjunction with sightseeing is picnicking in a grassed area between the parking lot and comfort station. In recent years, commercial tours have incorporated the park as a sightseeing and picnicking activity as well as a rest stop.

***Objective: To provide opportunities for the public to enjoy the scenic and natural resources at the park.***

#### ***Guidelines:***

##### Protection and Preservation

- Manage high volume sightseeing and picnicking activities to avoid degradation of the natural, scenic, and cultural resources.
- Provide alternative viewing areas to avoid impacts from heavy traffic and overuse.

##### Access and Use

- Direct vehicular access to high demand sightseeing opportunities, which are in the vicinity of Pailoa Bay, to avoid degrading the experience of other park users. To the extent possible, sightseeing areas should be closest to the park entrance and exit to minimize traffic through other areas of the park.
- Provide ample parking to discourage sightseers from using roads accessing other areas of the park to find alternative parking.
- Provide support facilities, including picnic tables and a comfort station to accommodate the high volume of users.



*Coastal view near central portion of park.*

- Direct high volumes of sightseers to primary sightseeing vantage points overlooking Pailoa Bay, as well as to picnic facilities and the comfort station by providing wide paved paths and directional signage from the parking area. These paths should provide wheelchair access.
- Direct lower volumes of sightseers to the less accessible sightseeing features, such as the black sand beach of Pailoa Bay and Wai'ānapanapa caves by providing narrower paved paths with directional signage. Due to the steep terrain, providing wheelchair access to these natural features may be technically infeasible.
- Direct interested sightseers to hiking trails offering sightseeing opportunities and design these trails to avoid potentially hazardous or sensitive natural areas and archaeological resources. Hikers should be informed of potential hazards by posting appropriate signage.
- Manage commercial tour operations in Wai'ānapanapa State Park to maintain opportunities for public access and use, particularly with regard to parking, and picnic tables. Management considerations may include collecting a fee from commercial vehicles (i.e. mini buses and vans), charging a user fee for certain recreational activities (i.e. hiking, picnicking, fishing and trailer camping), limiting

the number of parking spaces or picnic tables available for use and charging a user fee.

- Parking, pedestrian loading areas and comfort stations shall follow the Americans with Disabilities Act Accessibility Guidelines (ADAAG). Picnic facilities, hiking trails, and associated signage shall follow the Accessibility Guidelines for Outdoor Developed Areas, Final Report.

#### Enjoyment and Appreciation

- Provide educational and interpretive programs for high volume sightseeing activities to enhance public appreciation of the park’s natural and cultural resources. An educational/interpretive center near the parking area could feature educational displays, maps and park resource information. More site specific interpretive displays and signage could be provided at sightseeing attractions, scenic vantage points, along paths and at hiking trailheads.
- Provide interpretive displays for inaccessible scenic resources at accessible locations in accordance with Americans with Disabilities Act requirements.

#### **4.3.2 Hiking**

Wai‘ānapanapa State Park provides the primary access point for the coastal trail that extends well beyond the park boundaries. To the north, the trail extends past the Hāna Airport and to the south, it extends as far as Hāna Bay. The volume of hiking activity is highest near Pailoa Bay as short hikes are taken in association with sightseeing, and diminishes with distance from Pailoa Bay. Campers at the park often pursue longer hikes during their stay. The main attractions of the coastal trail are its scenic views and natural landscape, particularly along the southern half of the park, which is undeveloped. The coastal trail also accesses fishing sites from the park.

***Objective: To provide safe opportunities for hiking within the park that are consistent with preservation of the park’s scenic, natural and cultural resources.***

#### ***Guidelines:***

##### Protection and Preservation

- Manage high volume hiking activity in and near the park with designated trails and paths to avoid impacts to natural, wildlife and cultural values.
- Monitor the historic coastal trail for impacts and conduct stabilization and restoration projects to maintain the trail’s historical integrity.

### Access and Use

- Direct hikers to the coastal trail from trailheads at the lookout at Pailoa Bay, as discussed previously for sightseeing. This will provide a focal point for disseminating directional and hiking safety information.
- Provide informational and directional signage on potential hazards for hikers going beyond park boundaries.
- Direct hikers away from sensitive archaeological sites by redesigning paths and trails, providing directional signage and withholding information on specific locations.
- Provide designated accessible trails that comply with the Accessibility Guidelines for Outdoor Developed Areas, Final Report.

### Education and Appreciation

- Provide educational/interpretive signage along high volume trails in the vicinity of Pailoa Bay in conjunction with the overall educational/interpretive program.
- Provide an interpretive sign near the trailhead for the coastal trail with a map to orient hikers to trail conditions, distances, and resources.



*Portion of historic coastal trail. Note stepping stones.*

### 4.3.3 Swimming and Sunbathing

The black sand beach of Pailoa Bay offers one of the few accessible areas for swimming and sunbathing in the Hāna area. Although the bay offers some shelter from generally rough ocean conditions that prevail throughout the year along this coastline, swimming and snorkeling within the bay can be hazardous except during exceptionally calm conditions. Several signs along the walkway to Pailoa Bay warn of potentially strong currents and dangerous shorebreak. Most swimming and sunbathing is done in conjunction with other park activities, including sightseeing, picnicking and hiking, as well as camping.

**Objective:** *To provide safe opportunities for swimming that do not adversely affect natural and cultural resources at the park.*

**Guidelines:**

Protection and Preservation

- Swimming and sunbathing in coastal waters typically do not degrade natural, cultural and wildlife values, however, the impact of recreational swimming in Wai‘ānapanapa Caves on the ‘Ōpae ‘ula *should be assessed* to develop management policies regarding this activity.



*Black sand beach at Pailoa Bay.*

### Access and Use

- Provide pedestrian access to Pailoa Bay for sunbathing and swimming.
- Provide well defined paths and directional signage from parking areas to Pailoa Bay.
- Maintain comfort station facilities with showers in conjunction with facilities for sightseeing and picnicking.
- Provide warnings of hazardous ocean conditions at key locations.
- Provide ocean safety equipment at key locations.

### Enhancement

- Provide educational and interpretive programs regarding shoreline marine life to enhance public appreciation of the park's natural and cultural shoreline resources. An educational/interpretive center near the parking area could feature educational displays, maps and directional information.
- Establish a program for Wai'ānapanapa cave that highlights its natural and cultural resource value.

#### **4.3.4 Fishing**

Shoreline fishing at Wai'ānapanapa State Park is conducted primarily by residents of the Hāna area and by Hawai'i residents visiting Hāna or camping in the park. Based on interviews conducted for the Cultural Impact Assessment, nearby residents have fished in the waters offshore of Wai'ānapanapa State Park for several generations. Some residents also recalled that prior to establishment of the park, residents would have a *hukilau* in Pailoa Bay, where they would gather to lay nets in the bay and then pull them out with their catch to enjoy in a *lū'au*. Some residents also expressed frustration that establishment of the park and lookout area at Pailoa Bay intruded into popular fishing areas.

***Objective: To preserve marine resources while allowing the continuation of fishing and marine gathering at the park.***

#### ***Guidelines:***

##### Protection and Preservation

- Manage fishing and gathering of marine resources to maintain the productivity of these resources.

### Accessibility and Use

- Encourage high volume sightseeing and picnicking near the Pailoa Bay area to minimize potential conflict with traditional marine gathering and shoreline fishing. Currently, the more popular fishing spots are reportedly in the central and southern portions of the park, in the vicinity of the cabins and further south.
- Provide ample parking near the Pailoa Bay lookout to accommodate fishing and gathering of marine resources within the bay and north of the park.
- Maintain existing paths that provide access to the shoreline, including the loop road in the vicinity of the cabins.

### Enjoyment and Appreciation

- Provide an educational/interpretive program that promotes greater appreciation by park visitors of historic and traditional fishing and gathering practices at Wai‘ānapanapa State Park.

#### **4.3.5 Tent Camping**

Tent camping is permitted at Wai‘ānapanapa State Park within the one-acre campground located at the northern end of the park. Presently, the maximum number of campers allowed is 60, as there are 6 sites for a maximum of 10 campers per site. The campgrounds appear to be very popular with mainland and international visitors as about 62 percent of camping permits issued at Wai‘ānapanapa between April 2001 and April 2002 were to U.S. mainland, international visitors. Charts showing the annual number of camping permits issued and campers place of residence are provided in Figures 6 and 7.

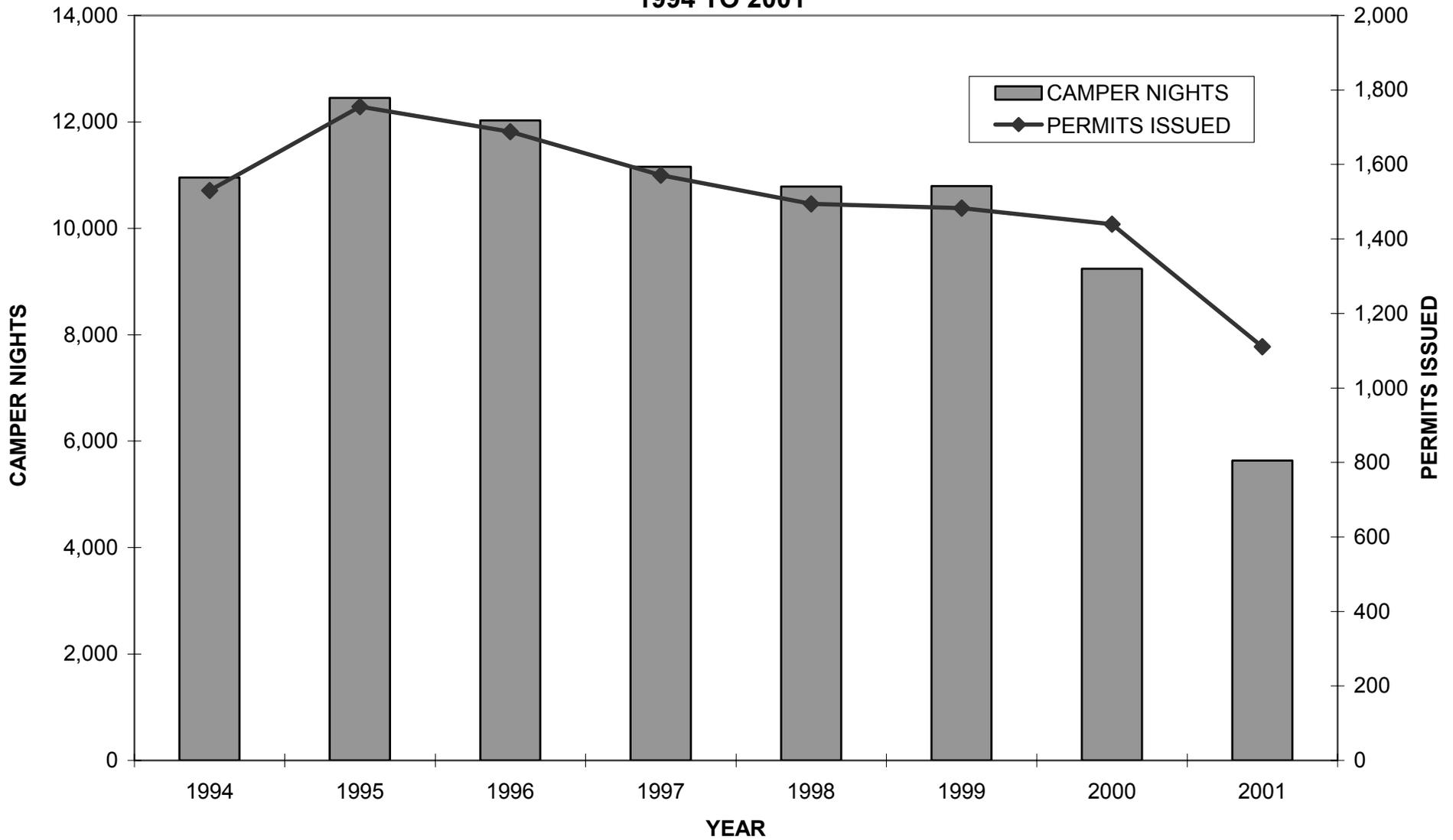
***Objective: To provide opportunities for tent camping in a natural setting that will allow visitors to enjoy the park’s natural, cultural, and scenic resources.***

#### ***Guidelines:***

##### Protection and Preservation

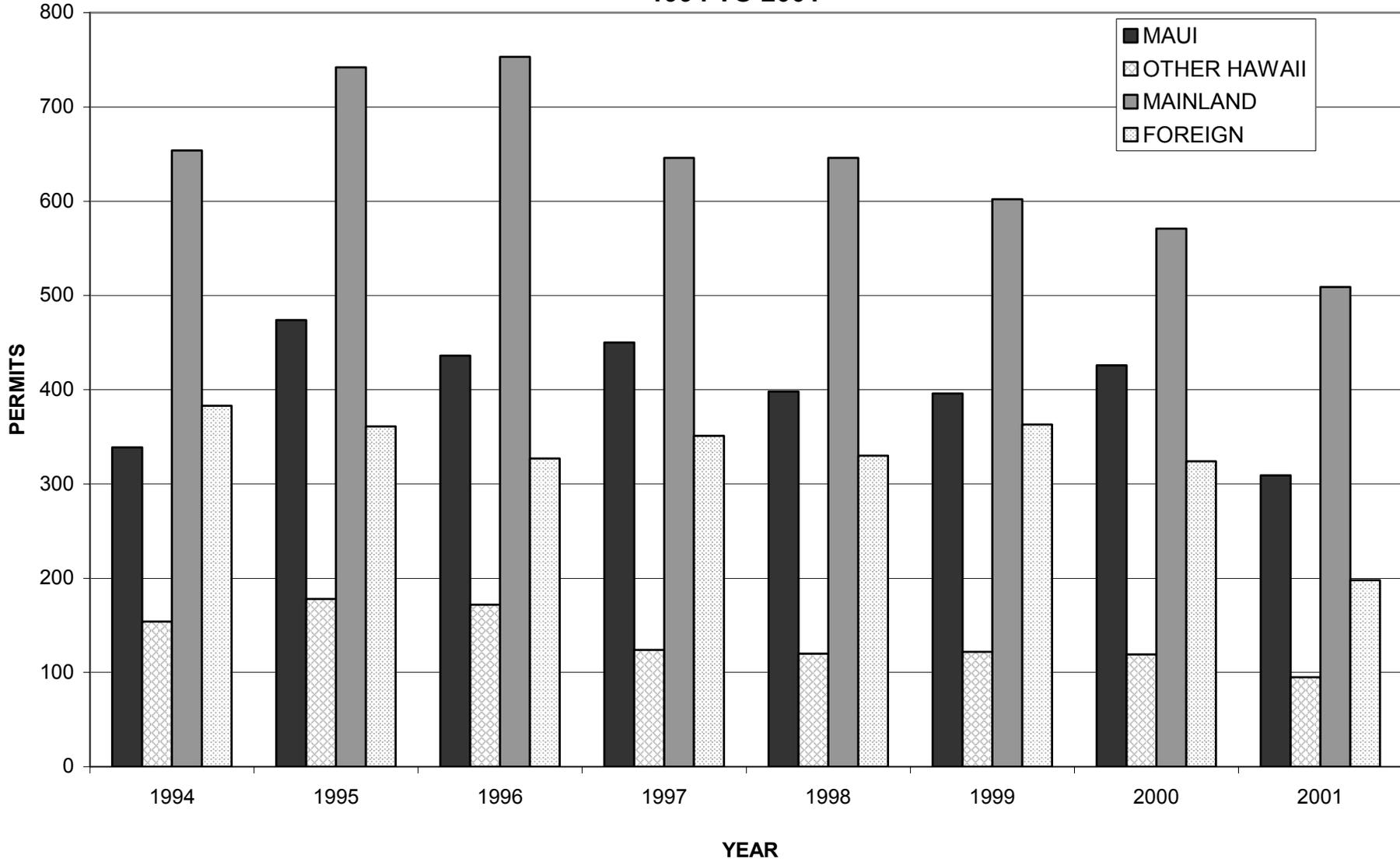
- Locate tent camping, a relatively low-impact activity, to avoid scenic, natural, and cultural resources.
- If the campgrounds are relocated, assess if any subsurface cultural deposits will be impacted by camping activities and, if necessary, establish rules to protect these resources.

**FIGURE 6  
WAI'ĀNAPANAPA STATE PARK  
CAMPER NIGHTS & PERMITS ISSUED  
1994 TO 2001**



1. Park was closed from October 2001 to January 2002 due to dengue fever concern.
2. Camper Nights = Number of persons on a permit multiplied by number of nights. For example, if a permit was issued for 5 persons for 2 nights = 10 camper nights.
3. Permits Issued = Number of camping permits where camping started in the specified year.

**FIGURE 7  
WAI'ĀNAPANAPA STATE PARK  
CAMPER'S PLACE OF RESIDENCE (BY PERMIT)  
1994 TO 2001**



1. Park was closed from October 2001 to January 2002 due to dengue fever concern.

### Access and Use

- Locate tent camping sites to take advantage of the natural shoreline setting and associated recreational opportunities. Avoid locations in proximity to private cemeteries and high park use areas with high noise levels.
- Provide typical support facilities near the campgrounds such as vehicular access and parking, comfort station, showers, picnic tables and barbecue areas.
- Enhance the natural setting experience and manage tent camping by establishing guidelines for the size of camping groups allowed, length of stay, permit fees, and advance reservations versus on-site assignment.
- Provide designated accessible camping areas that comply with the Accessibility Guidelines for Outdoor Developed Areas, Final Report.

### Education and Appreciation

- Design tent camping areas to enhance awareness and appreciation of the natural setting, including scenic coastal views and natural sounds unfettered by vehicular noises. Design landscaping to promote privacy and security.
- Educational/interpretive programs will provide opportunities for tent campers to enhance their enjoyment and appreciation of the park.

#### **4.3.6 Cabins**

There are 12 one-bedroom cabins at the park that are available to visitors for overnight use. A permit and fee for rental of a cabin are required. All of the cabins, which were constructed in the early 1970's, are identical in design and are approximately 500 square feet in size. Each cabin also has an open lanai of about 160 square feet. The cabins are not ADA compliant.

The cabins are equipped with one full bath and a kitchen with an electric range and refrigerator. Each cabin has two single beds and two bunk beds that can accommodate up to 6 persons. Basic cooking utensils, bath towels, and linens are also provided. Telephone service is not provided at the cabins. Wastewater disposal for all of the cabins is via cesspool.

The cabins provide low cost lodging that is enhanced by the natural setting and the recreational opportunities in the park. Residents of Hāna and Maui use the cabins as weekend retreats, often inviting friends and relatives for gatherings. The cabins are also booked by Hāna residents for out-of-town visitors in lieu of more costly hotel rooms and bed and breakfast operations in Hāna. Hawai'i residents from other islands often rent the cabins for use much like hotel rooms for a weekend

vacation and their recreational activities may extend well beyond the park. Similarly, many overseas visitors stay at the cabins as a low-cost alternative to hotels and bed and breakfast operations in the Hāna area. These patterns of usage are familiar to residents and past visitors and significant changes are likely to be resisted by the community and past users.

The majority of cabin permits are issued to Hawai‘i residents. Between April 2001 to April 2002, a total of 1,341 cabin permits were issued; 58.1% to Hawai‘i residents; 39.7% to U.S. mainland visitors; and 2.2% to international visitors. In recent years, however, there has been a trend toward proportionally greater usage by Mainland visitors. Between 1997 and 2001, the number of permits issued to mainland visitors increased while the number of permits issued to Maui residents decreased, as shown in Figures 8 and 9.

An assessment of the cabins conducted in 2003 found that the cabins are showing varying degrees of deterioration and are reaching the end of their useful life. This offers an opportunity to consider management alternatives regarding their future role in the park. Issues that should be considered include the role that drive-up access and parking at the individual cabins has in contributing to their use as hotel-type lodging, venue for family gatherings, and in promoting the use of cars to access areas in the park. The appropriateness of providing cabins at the park should also be considered if they are not being used primarily for activities related to the enjoyment of the park’s natural, cultural and scenic resources. Finally, user fees that cover the cost of maintaining the cabins and that differentiate between state residents vs. non residents should also be evaluated.

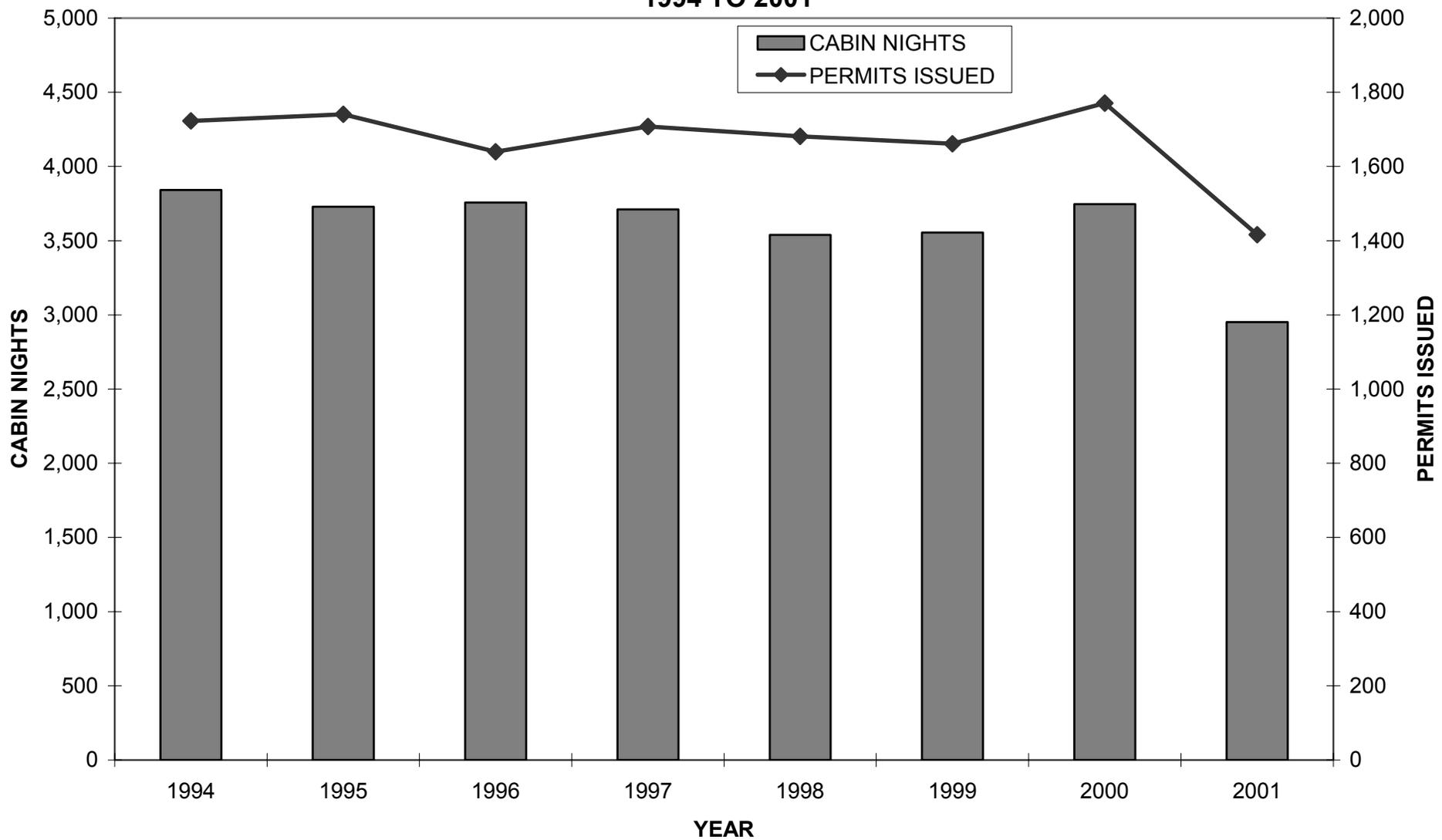
***Objective: To provide opportunities for cabin camping in a natural setting that will have a minimal impact on the park’s scenic, natural, and cultural resources.***

***Guidelines:***

Protection and Preservation

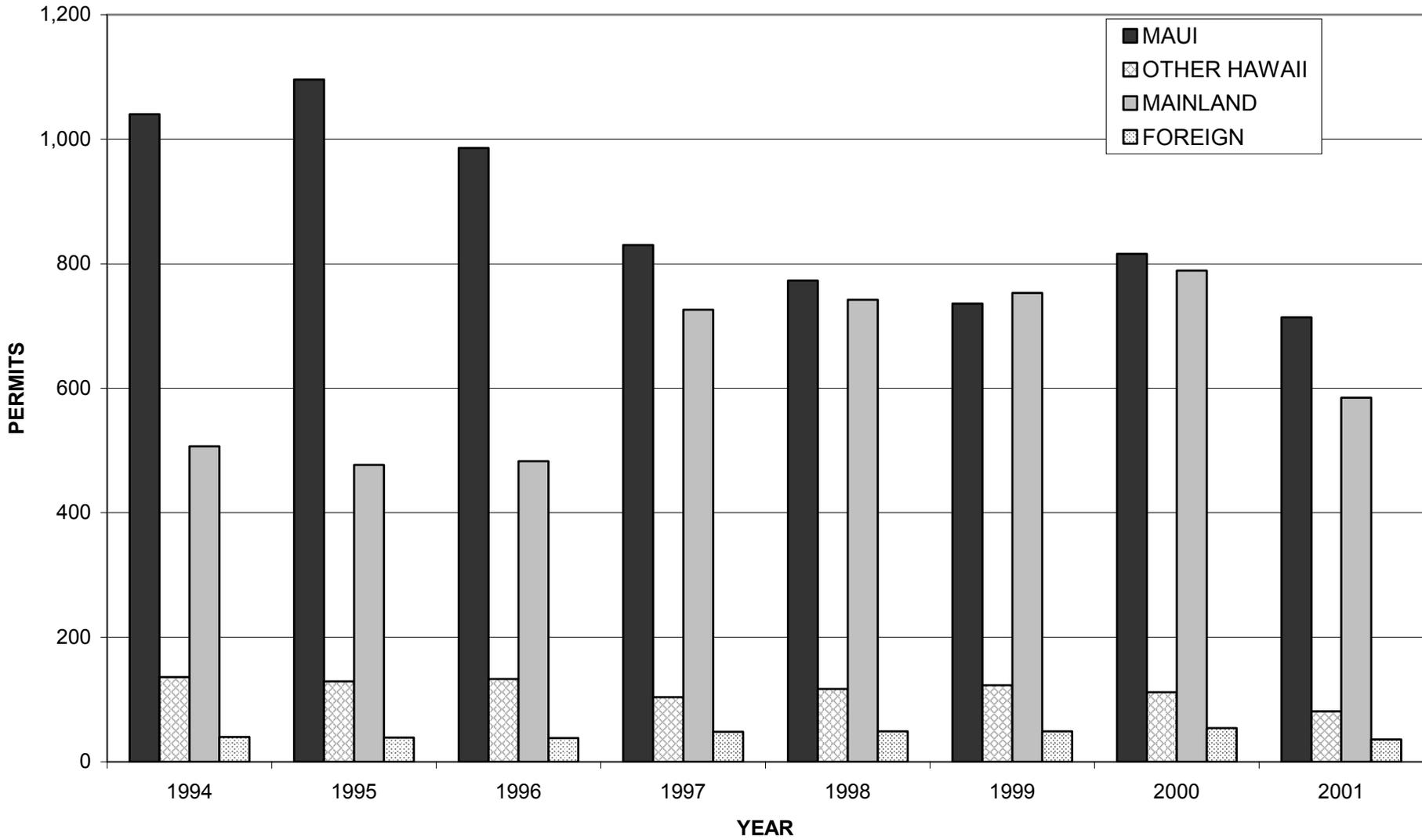
- Cabin renovation, replacement and new cabin development should avoid areas with natural, cultural, and scenic values. By retaining cabins in their existing location, there should not be any new impacts.
- Landscape cabin areas with native plants found in the area to preserve the natural setting and provide some privacy.

**FIGURE 8  
WAI'ĀNAPANAPA STATE PARK  
CABIN NIGHTS & PERMITS ISSUED  
1994 TO 2001**



1. Park was closed from October 2001 to January 2002 due to dengue fever concern.
2. Cabin Nights = Number of persons on a permit multiplied by number of nights. For example, if a permit was issued for 5 persons for 2 nights = 10 cabin nights.
3. Permits Issued = Number of cabin permits where use of the cabin started in the specified year.

**FIGURE 9  
WAI'ĀNAPANAPA STATE PARK  
CABIN USER'S PLACE OF RESIDENCE  
1994 TO 2001**



1. Park was closed from October 2001 to January 2002 due to dengue fever concern.

#### Access and Use

- Establish policies that encourage use of the cabins for public enjoyment of the park's natural, cultural and scenic values, rather than for hotel-type lodging or as a venue for family gatherings.
- Establish user fee structures and reservation policies that may favor cabin use by overseas visitors over Hawai'i residents at a State park.
- Provide ADA accessible cabins in compliance with Federal requirements.

#### Education and Appreciation

- Design cabins to enhance a recreational park experience and appreciation of the park's natural setting.
- Provide educational/interpretive programs that provide opportunities for cabin users to enhance their enjoyment and appreciation of the park.

#### **4.3.7 Trailer Camping**

A parking lot reserved for trailer campers is located in the vicinity of the campgrounds. Similar to tent camping, a permit is required to use the trailer camping site. Consideration should be given as to whether there is sufficient demand to provide an exclusive area for trailer camping as the present site appears to be underutilized.

***Objective: To provide facilities that will enable trailer campers to enjoy the park's natural, cultural and scenic resources.***

#### ***Guidelines:***

##### Protection and Preservation

- Locate the trailer camping site to avoid natural, cultural and scenic resources.

##### Access and Use

- Provide supporting infrastructure such as access, a comfort station, and showers in close proximity to the site.
- Provide accessible trailer camping sites.

##### Education and Appreciation

- Design the trailer camping site to take advantage of the park's natural setting.
- Educational/interpretive programs will provide opportunities for trailer campers to enhance their enjoyment and appreciation of the park.

## **5. ALTERNATIVE PARK DEVELOPMENT CONCEPTS**

Alternative development concepts that can be implemented to fulfill Wai‘ānapanapa State Park’s goals and objectives are presented below. These concepts are presented in three tiers. In the first tier, alternative locations for various public uses are considered. In the second tier, alternatives for supporting facilities based on the location of uses are considered. In the third tier, alternative design concepts for key facilities are offered.

### **5.1 Alternative Use Locations**

Alternative locations for various public uses and park activities are based on preserving the natural, cultural and scenic values, the dependence of an activity on specific resources, the compatibility among uses and activities, and the cost of supporting infrastructure. These considerations are discussed below.

- Confining facility development to developed or previously disturbed areas will promote preservation of resources in most cases. Hence, locations for facilities such as roads, parking lots, comfort stations, picnic areas, tent and trailer camping areas, and cabins would generally be limited to shifting uses among areas they presently occupy.
- Uses that depend on specific resources may have no alternative locations. For example, the major sightseeing attractions in the park are in the vicinity of Pailoa Bay, including panoramic coastal views of the bay and surrounding rugged coastline, the black sand beach, and Wai‘ānapanapa Cave. Sunbathing and swimming opportunities are also limited to the black sand beach at Pailoa Bay. This area will continue to be the main attraction for the vast majority of park visitors.
- Uses that are enhanced by natural settings may be located with more flexibility within developed areas that provide a comparable setting. These include picnic areas, the campground, and cabins.
- Uses that may adversely impact the quality of experience of other uses should be separated. For example, high activity uses such as sightseeing, and the associated vehicular traffic and noise can degrade the experience of campers and cabin users.
- Complementary uses and activities with a common audience should be located in close proximity to each other. These uses include sightseeing, picnicking and areas for education and interpretation.
- Uses that require significant infrastructure and support facilities may be costly to relocate. For example, cabins require the full complement of infrastructure,

including an access road and parking, water supply, wastewater disposal and electrical service. Comfort stations that support sightseeing, picnicking and tent camping also require comparable infrastructure. To the extent that such facilities can be located to share supporting infrastructure or minimize the distance that supporting infrastructure must be extended, would reduce development costs.

Based on these considerations, alternative public use locations are discussed below and depicted in Figure 10:

Sightseeing – The primary sightseeing area should remain in the vicinity of Pailoa Bay which has become the primary high-volume visitor attraction in the park. Complementing uses include a picnic area, access to sunbathing and swimming opportunities in Pailoa Bay, access to trailheads for hiking, and opportunities for an education and interpretive center. Supporting infrastructure to accommodate the high volume visitation includes an access road, parking, comfort station and paths to the other park attractions.

Hiking – The coastal hiking trail should be retained as a historic feature and modified only if it is necessary to redirect hikers away from sensitive natural and archaeological resources or to stabilize the trail from shoreline erosion.

Picnicking – Picnicking opportunities can be located to complement and enhance other uses, such as sightseeing, sunbathing and swimming, hiking, tent camping and fishing. Picnic areas should be sized and designed to accommodate demand and facilities should include tables and trash receptacles. The largest picnic area should be near Pailoa Bay. To complement the high volume of sightseeing activity, the existing picnic area could be expanded to include the existing tent camping area, which would be relocated, as discussed below.

Swimming and Sunbathing – Swimming and sunbathing activities are generally limited to the black sand beach at Pailoa Bay.

Fishing – Fishing activities rely on gaining shoreline access, including vehicular access and parking. The unpaved parking lot across from the park entry should be retained to access the coastal trail. Fishermen should also be allowed to continue to access the shoreline from the loop trail *makai* of the cabins.



Wai'anapanapa State Park Master Plan

Figure No.

# Conceptual Development Alternatives

10

Tent Camping – The tent camping area should be relocated away from the private cemeteries and high-volume sightseeing activities near Pailoa Bay. One alternative location is in a pasture southeast of the existing park office and caretaker's residence (see Figure 10). The location is an approximately one-acre area nearer to the cabins and away from the private cemeteries and more heavily visited day-use areas. A vegetated buffer composed of natural vegetation and landscaping will divide the tent camping area from the private cemeteries and existing open field. Trees and landscape plantings within the tent camping site will provide shade and privacy, while the existing unpaved parking lot will be paved to serve tent campers, as well as other visitors, including residents visiting the cemeteries. Overnight campers will be served by a new comfort station, which will be located across the road from the proposed tent camping area, and adjacent to the existing maintenance building, where plumbing is available.

A second alternative is to relocate the tent camping area southeast of the cabins in the vicinity of an existing unpaved loop road (see Figure 10). This area offers a more secluded scenic coastal setting and is removed from the more active areas of the park. The existing loop road could provide vehicular access for equipment drop-off and parking could be accommodated at the unpaved parking lot near the park office and caretaker's residence. A new comfort station would need to be developed near the relocated tent camping area by extending water lines and electrical service from the cabin area.

Cabins – The cabin area should remain in its present location since it occupies a previously disturbed area and the cost of developing supporting infrastructure to a different location would be significant. However, cabin design and landscaping could enhance the natural park setting. Accessible cabins should also be provided to comply with ADA requirements.

Trailer Camping - The small unpaved parking area reserved for trailer camping is located near the tent camping area. The site appears to be underutilized and consideration should be given to whether an exclusive lot should be designated for this activity. Rather than designating an exclusive area for trailer camping, this activity could be accommodated at either the parking area reserved for campers or at the unpaved parking lot near the park entrance.

## **5.2 Alternative Support Facilities**

### **5.2.1 Roadways**

Access to Wai‘ānapanapa State Park is provided off the Hāna Highway via Honokalani Road. Signage along Honokalani Road was improved in September 2006, providing a clearer indication that visitors have entered the park. Upon entering the park, visitors are confronted with an intersection and must decide which way to turn. The existing signage is vague and visitors are uncertain what the park has to offer. Consequently, they may drive around to find facilities such as the comfort station or, if they decide to park, may find themselves far from where they would like to be. In particular, the most popular area to sightsee, rest-stop, and picnic is at the northern end of the road near Pailoa Bay, but visitors are not clearly directed to that area.

Residents living along Honokalani Road have expressed concerns about the volume of park-related traffic using the narrow, substandard residential roadway. Concerns include pedestrian safety, especially for their children, traffic conflicts at driveways, unauthorized on-street parking, and traffic noise.

Vehicular access and circulation within the park should direct traffic to desired destinations within the park through intuitive cues and directional signage. Since Honokalani Road will remain as the primary access road to the park for the foreseeable future, additional improvements such as the posting of signs that caution drivers of the speed limit and that on-street parking is prohibited may serve to increase traffic safety and operation. Three access road alternatives are discussed below:

Existing Access. As discussed previously, the existing access road, directs all park traffic through a residential neighborhood along a narrow, substandard road. Upon entering the park, visitors become disoriented when they are confronted with an intersection and the existing signage provides little indication as to where they may want to go. Widening the existing access road is not considered to be a viable alternative because this would require condemnation of privately owned lands, which is an action that the DLNR wishes to avoid. Furthermore, widening the existing access road is undesirable because this may encourage speeding and exacerbate safety issues.

Since Honokalani Road will remain the park’s primary access road for the foreseeable future, additional improvements such as the posting of signs that caution drivers of the speed limit and that prohibit on-street parking may serve

to increase traffic safety and operation. Traffic calming devices such as speed bumps or rumble strips could be installed to reduce vehicle speed and address safety issues. Signs should be posted cautioning drivers of the speed limit in a residential area and that on-street parking is prohibited. In July 2006, Honokalani Road was resurfaced and speed humps were installed in appropriate areas along the roadway.

A landscape feature in conjunction with signage could be used to clearly identify the entry to the park. Additional directional signs, developed under a signage plan, should also be provided to clearly direct visitors to desired destinations such as the park office, Pailoa Bay and black sand beach, and the comfort station. If an alternate primary access road is provided, the existing access road could serve as a secondary access road for residents, many of whom use the unpaved parking area opposite the road to access the shoreline for fishing.

Southern Access Road. An exclusive primary access road to the park could be provided through State-owned land south of the privately owned lands lying between the park and the highway. Because of the curvature and undulating elevation of the highway in this area, the intersection connecting the road to Hāna highway would need to be in the vicinity of Hāna High School to provide for adequate sight distance at the intersection. Even at the location shown in Figure 10, modifications to the highway may be required to achieve safe sight distances. The access road would enter the park south of the primary park facilities and would result in high traffic volumes traversing northward through the park. If the tent camping area is relocated southward and a new comfort station is constructed, these facilities may receive high levels of shared use.

Northern Access Road. An exclusive primary access road to the park could be provided through State Department of Transportation owned land between the park and the highway (see Figure 10). Although the distance from the highway to the park boundary is longer than for the Southern Access Road Alternative, the length of the Northern Access Road is actually shorter because it can directly intersect the highway since sight distances are adequate for safely negotiating entry and exit. The primary advantage of this route is to reduce activity along Honokalani Road and offer visitors entering the park direct access to the high volume sightseeing area near Pailoa Bay as many visitors have no reason to drive beyond this area into other portions of the park.

### 5.2.2 Parking

As previously noted in section 3.2, there are three paved and two unpaved parking lots at Wai‘ānapanapa State Park. It is estimated that during peak hours, there may be more than a hundred vehicles within the park, which is substantially beyond the capacity of existing parking facilities. Alternatives for providing additional parking capacity are as follows:

New Parking Area. The greatest demand for parking is at the end of the road near Pailoa Bay for sightseeing, using the comfort station and picnicking. Additional parking in this area will help to reduce overflow parking along the road and in parking areas reserved for other uses. A previously cleared area *mauka* of the existing parking lot at the northern end of the park’s access road could be used for developing more parking (see Figure 10). If this parking lot were to serve as the primary parking area for day-users, it should have a capacity of about a hundred stalls to accommodate demand during peak hours. The new parking area would need to be designed to satisfy ADA requirements. In addition, preventative measures should be incorporated in the design of the parking lot to prevent stormwater runoff from adversely impacting water quality. Such measures may include using pervious paving material where feasible, directing runoff to detention basins, and installing oil/water separators.

Improve Existing Gravel Lot. The unpaved parking lot near the existing park entrance should be improved, as it presently serves as an overflow parking area. This parking lot could also serve campers and recreational vehicles should these uses be relocated. Preventative measures should be incorporated in the design of the improved parking lot to prevent stormwater runoff from adversely impacting water quality.

Commercial Vehicle Parking Area. Construction or designation of a parking lot for commercial vehicles should be considered. Presently, commercial vehicles (vans and mini-buses) compete with private automobiles for parking spaces, and due to their larger size, typically use more than one parking stall. Designating the recreational vehicle parking lot for commercial vehicles may be appropriate as it appears to be underutilized. Parking fees for commercial vehicles should also be considered.

### **5.2.3 Water System**

As discussed in section 3.2, the County of Maui Department of Water Supply provides water service to the park via a 4-inch pipe located within Honokalani Road. Improvements to the water system that may be considered are discussed below:

The volume of water usage at the comfort station during peak hours exceeds the capacity of the 1.25-inch lateral serving it, causing reduction of flow for showers and faucets. The lateral serving the comfort station should be sized to meet the high volume of demand, including potential expansion of the comfort station.

The 2.0- and 2.5-inch water lines in the park are not capable of meeting fire flow requirements. Consideration should be given to extending the 4-inch line in Honokalani Road to the comfort station and cabins and installing standpipes for fire protection. A 4-inch water line would also ensure that sufficient water flow is available should a second comfort station be constructed. Full compliance with fire code requirements may be limited, however, by the pressure and sustainable volume of flow available through the 4-inch line serving the park.

### **5.2.4 Comfort Station and Wastewater System**

As of January 2007, the single comfort station at Wai'ānapanapa State Park was made compliant with ADA accessibility standards. The comfort station is equipped with one urinal and one toilet on the men's side and two toilets on the women's side. Showers are located in front of the comfort station.

In September 2006, the comfort station's cesspool was converted to a leach field/septic system, as required by the DOH. The caretaker's residence has one cesspool that is located immediately *makai* of the structure. The 12 cabins are grouped in pairs with each pair of cabins sharing a cesspool. The State Department of Health (DOH) required that all cesspools serving more than 20 people or 5 bedrooms, or a demand greater than 1,000 gallons per day, be converted to a septic tank/leach field by April 5, 2005. The comfort station, which likely generates flows of over 1,000 gallons per day, was the only facility at Wai'ānapanapa State Park that was affected by this requirement.

Improvements to the wastewater system are discussed below:

Comfort Station Renovation/Replacement. The January 2007 renovations made the comfort station ADA compliant. To provide accessible toilet stalls, the two urinals on the men’s side would be reduced to one and the three toilets on the women’s side would be reduced to two. To accommodate the high demand placed on the comfort station, it should be expanded or replaced with a larger facility.

Cesspool Conversion. Although not required by the DOH or to address any apparent coastal water quality issues, conversion of the cesspools at the caretaker’s residence and cabins to a septic tank/leach field system should be considered as a means of protecting the natural environment.

New Comfort Station. If the campgrounds are relocated, a second comfort station should be constructed near the campgrounds. This comfort station could serve campers and residents who access the shoreline in this area. The new comfort station should dispose of wastewater via a septic tank and leach field system.

#### **5.2.5 Park Office/Caretaker’s Residence**

The Park Office and Caretaker’s Residence are located in a single structure near the entrance to the park. According to the Facility Assessment, the building was renovated in 2002 and appears to be in good condition. Improvements proposed by the Facility Assessment include: renovating the office to be ADA compliant, installing security screens over windows, replacing door hardware at the office, installing hurricane connectors to the roof structure, adding roof fasteners and replacing the metal roofing trim, installing foundation wall segments, adding plywood shear walls, touch-up painting of deteriorated wood and metal surfaces, repainting the metal roof, and miscellaneous repairs. Replacement of the roof could also be considered. Renovation of the Caretaker’s Residence to comply with ADA requirements will be required.

The Park Office/Caretaker’s Residence should remain at its present location as it is centrally located relative to the developed areas of the park. If additional parking is provided near Pailoa Bay, however, security concerns may become an issue as parked cars will be further away from the Park Office/Caretaker’s Residence. The Park Office/Caretaker’s Residence would also be further from the park entry if a new entry road is constructed.

### **5.2.6 Visitor/Interpretive Center**

A Visitor/Interpretive Center to house displays, exhibits and visitor information is proposed to heighten awareness and understanding of the natural, cultural, and scenic resources in the park within the context of the larger Hāna area. The most suitable location for a Visitor/Interpretive Center would be near Pailoa Bay since this is the area most frequented by visitors and it is near the proposed entry road and parking lot. The Visitor/Interpretive Center should be designed to be ADA accessible and should provide exhibits of park resources where it is technically infeasible to provide ADA access. The center should be designed to complement the park's natural and cultural setting and to provide suitable protection for exhibits.

## **5.3 Facility Design Concepts**

Facility design concepts are based on enhancing public use and enjoyment of the park's natural, cultural and scenic values.

### **5.3.1 Access Road**

The access road should provide a memorable first impression of the park.

- A landscape entry feature should be provided at the highway and park entrance to let visitors know they are entering a special place.
- The relocated primary access road should be designed to calm traffic by including gentle curves and speed humps, as needed.
- Native *hala* should be restored along the length of the relocated roadway to enhance the experience of the drive into the park.

### **5.3.2 Sightseeing Area**

The sightseeing area should provide unobstructed views of the park's natural, cultural and scenic values.

- Primary paths from the parking area should direct visitors to the educational/interpretive center, viewing areas along the upper rim of Pailoa Bay, picnic areas and comfort station. The primary paths should be ADA accessible with a distinctive paving texture, avoiding asphalt and bare concrete, to complement the natural setting.
- An educational/interpretive center should provide exhibits and displays that promote visitor awareness and understanding of the park's resources and opportunities.
- Provide interpretive trails to nearby attractions.

- A new comfort station designed to complement the architectural character of the educational/interpretive center should be constructed.

### **5.3.3 Cabins**

Three alternative cabin floor plans have been designed to take advantage of the park’s natural setting and support energy efficient designs. The first, referred to as Cabin A is a two-room structure that has an enclosed bedroom and open lāna‘i (see Figure 11). The cooking and dining area would be within the lāna‘i of the cabin with a separate structure housing the bathroom. The intent of having a separate structure for the bathroom is that it keeps the wet area, which is typically damp and harder to clean, away from the main cabin. The total roofed area of the cabin and bathroom is approximately 348 sq. ft.

The second design, referred to as Cabin B, incorporates a bedroom, kitchen/dining room, and open lāna‘i (see Figure 12). The bathroom would also be integrated into the main structure but has a separate entrance to facilitate cleaning. The cabin has a total roofed area of approximately 480 sq. ft.

The final design, referred to as Cabin C, incorporates two bedrooms, a kitchen/dining room, bathroom, and open lāna‘i (see Figure 13). The lāna‘i opens to a courtyard that would enhance the feeling of open space. The total roofed area of the cabin is about 756 sq. ft.

Regardless of the cabin design that is selected, the cabins should be constructed to be consistent with the natural setting of the park and encourage energy efficient design practices and techniques. Using materials such as redwood, painting the cabins earth tone colors, and using landscape screening would allow the cabins to be visually unobtrusive. Natural ventilation and lighting will also increase the comfort of occupants. At least one accessible cabin should be provided to comply with Federal ADA requirements.

## **5.4 Park Boundary Adjustment**

Adjustment of the park’s boundaries to include adjacent State-owned lands that contain significant natural or cultural resources should be considered. In particular, the DLNR should seek jurisdiction of State-owned lands north of the park. This area contains Wai‘ānapanapa Caves, an expansive hala forest, and many cultural sites. The boundary adjustment would also enable the DLNR to construct the proposed access road (Alternative 2) that traverses through the property.

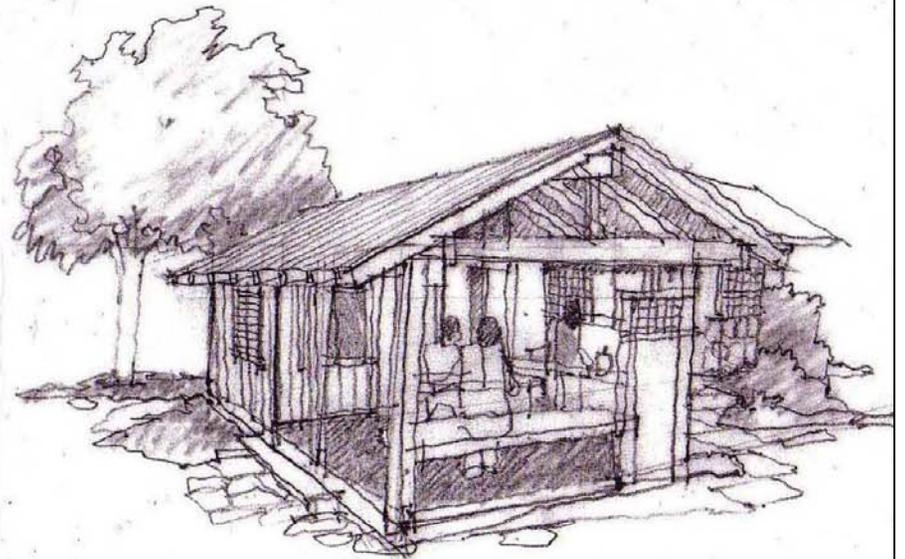
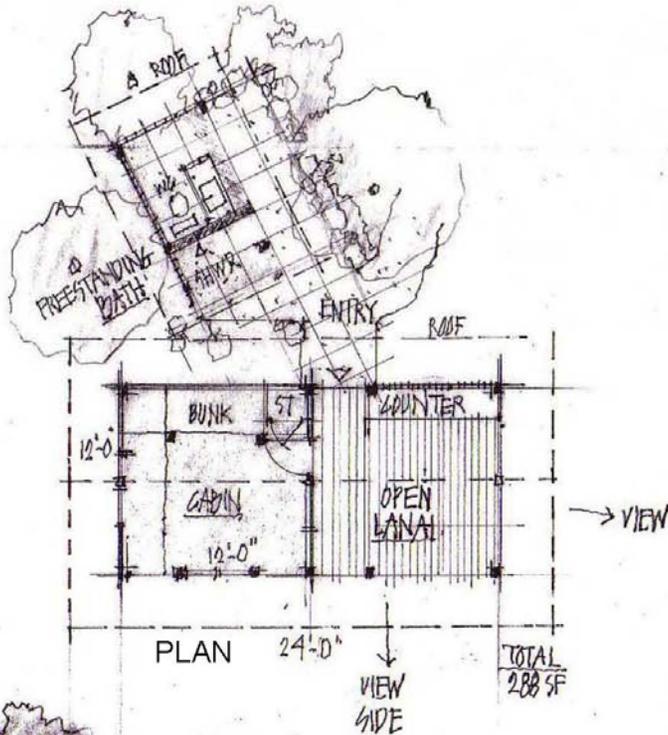
## Back to Nature

Approximately 348 sq. ft. of roofed area.

A two room structure that provides a sleeping area and an open lanai for cooking, dining and socializing.

The bathroom is a separate structure. This moves the higher-maintenance wet area, which typically is damp and musty, away from the cabin.

The structure is a wood framed, single wall, gable structure.



### AMENITIES

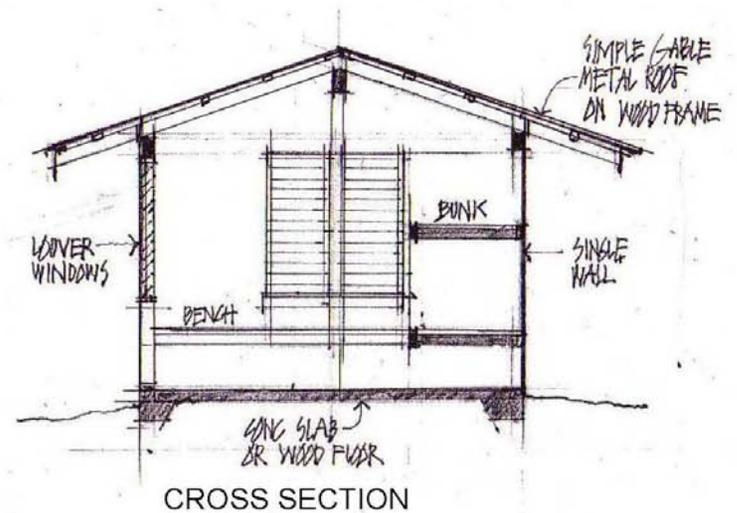
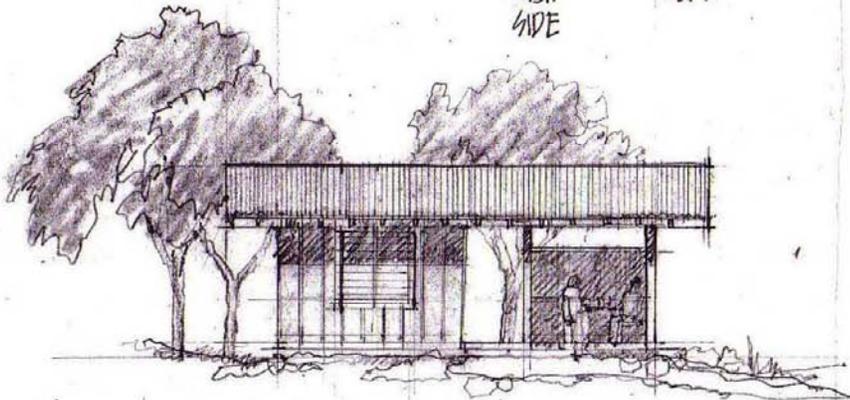
#### BATHROOM

- Toilet
- Basin
- Shower
- Hot water



#### KITCHEN

- Sink
- Stove
- Refrigerator



Wai'anapanapa State Park Master Plan

Michael Toma  
ARCHITECT

Figure No.

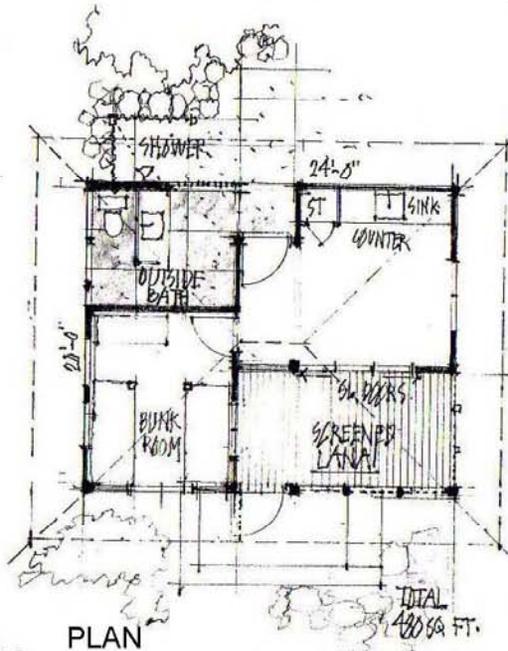
Cabin A

11

## Dickey Roof Style

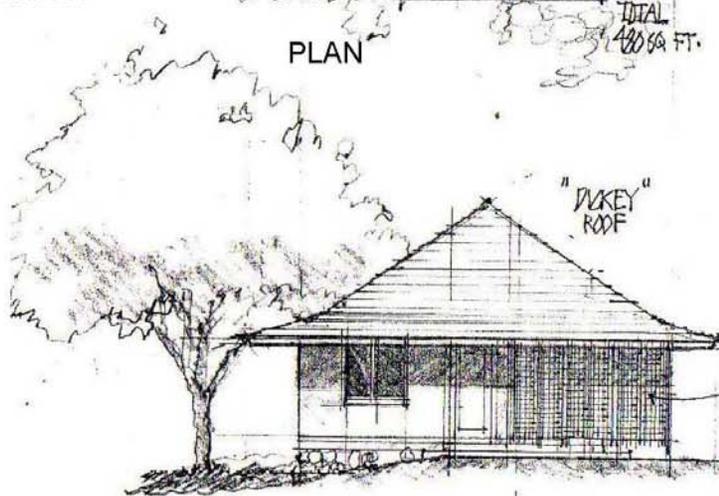
Approximately 480 sq. ft. of roofed area.

This plan has a lanai tucked into the corner with the living and sleeping areas opening into it. The bathroom is integrated into the structure but entered from the outside. The Dickey roof is the most complicated and requires the most lumber of the three roof structures.

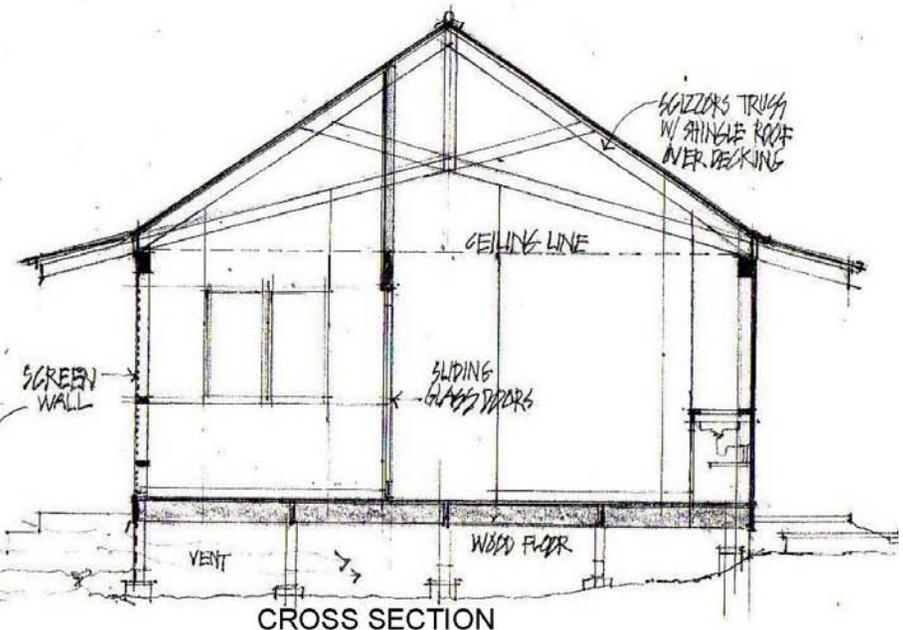


PLAN

- AMENITIES**
- BATHROOM
  - Toilet
  - Basin
  - Shower
  - Hot water
  - KITCHEN
  - Sink
  - Stove
  - Refrigerator



Note double pitched "Dickey roof"  
Cottage, Halekulani Hotel, Honolulu 1926



CROSS SECTION

Wai'anapanapa State Park Master Plan

Michael Toma  
ARCHITECT

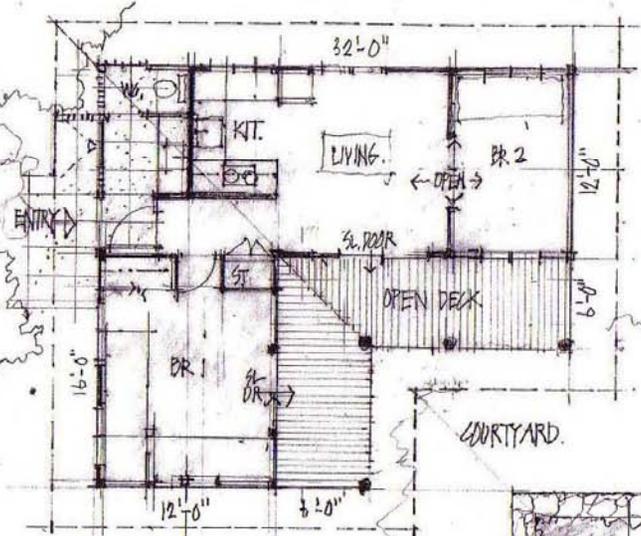
Cabin B

Figure No.

12

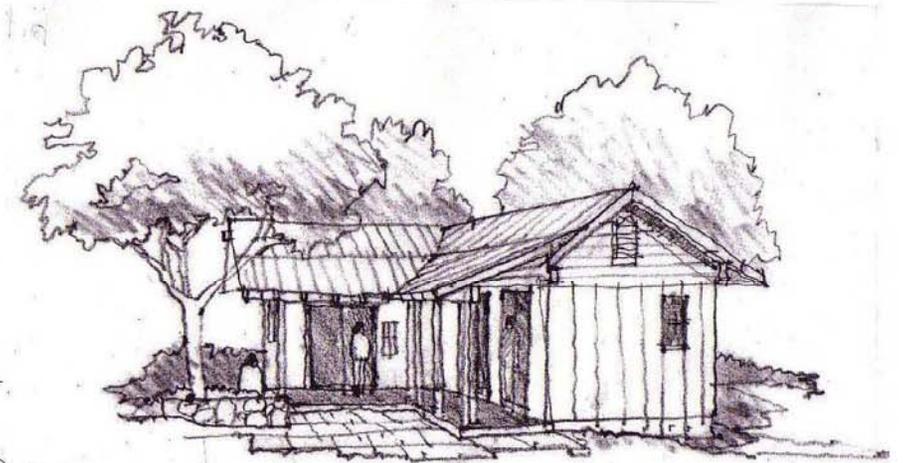
# The Courtyard Cabin

Approximately 756 sq. ft. of roofed area. This plan has a kitchen, living and 2 sleeping room that open on to decks. The bathroom is constructed for hose down maintenance. An extension roof covers open decks facing the courtyard. Roof design are interchangeable with all cabins.

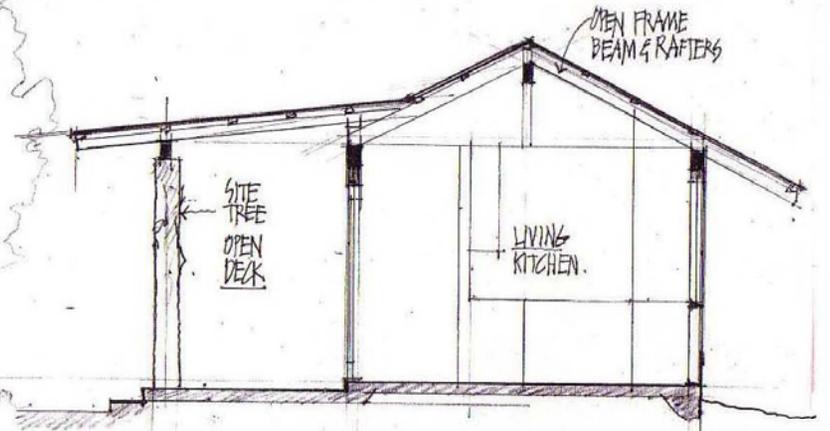


PLAN

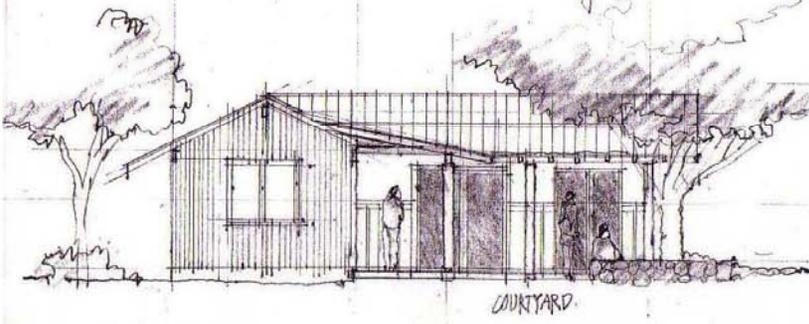
ENCLOSED 576  
DECK 180  
TOTAL 756 SF



Covered decks open out to a courtyard



CROSS SECTION



COURTYARD

- AMENITIES**
- BATHROOM**
  - Toilet
  - Basin
  - Shower
  - Hot water
  - KITCHEN**
  - Sink
  - Stove
  - Refrigerator

Michael Toma  
ARCHITECT

Wai'anapanapa State Park Master Plan

Cabin C

Figure No.

## **6. PREFERRED LAND USE CONCEPT**

As previously mentioned, Wai‘ānapanapa State Park has experienced a dramatic increase in visitors since it’s inception. Presently, most park visitors are tourists traveling on the Hāna Highway who visit the park for only a short while to sightsee or rest. Based on this pattern of use, the preferred development concept for Wai‘ānapanapa State Park, illustrated in Figure 14, separates the park into short-term use, day-use, long-term use, and preservation districts. This concept efficiently accommodates short-term visitors and separates higher intensity uses from the rest of the park, thereby allowing the majority of the park to remain in its natural condition. The following section describes the experience that the plan will provide to visitors.

### **6.1 The Visitor Experience**

#### **6.1.1 Park Entry**

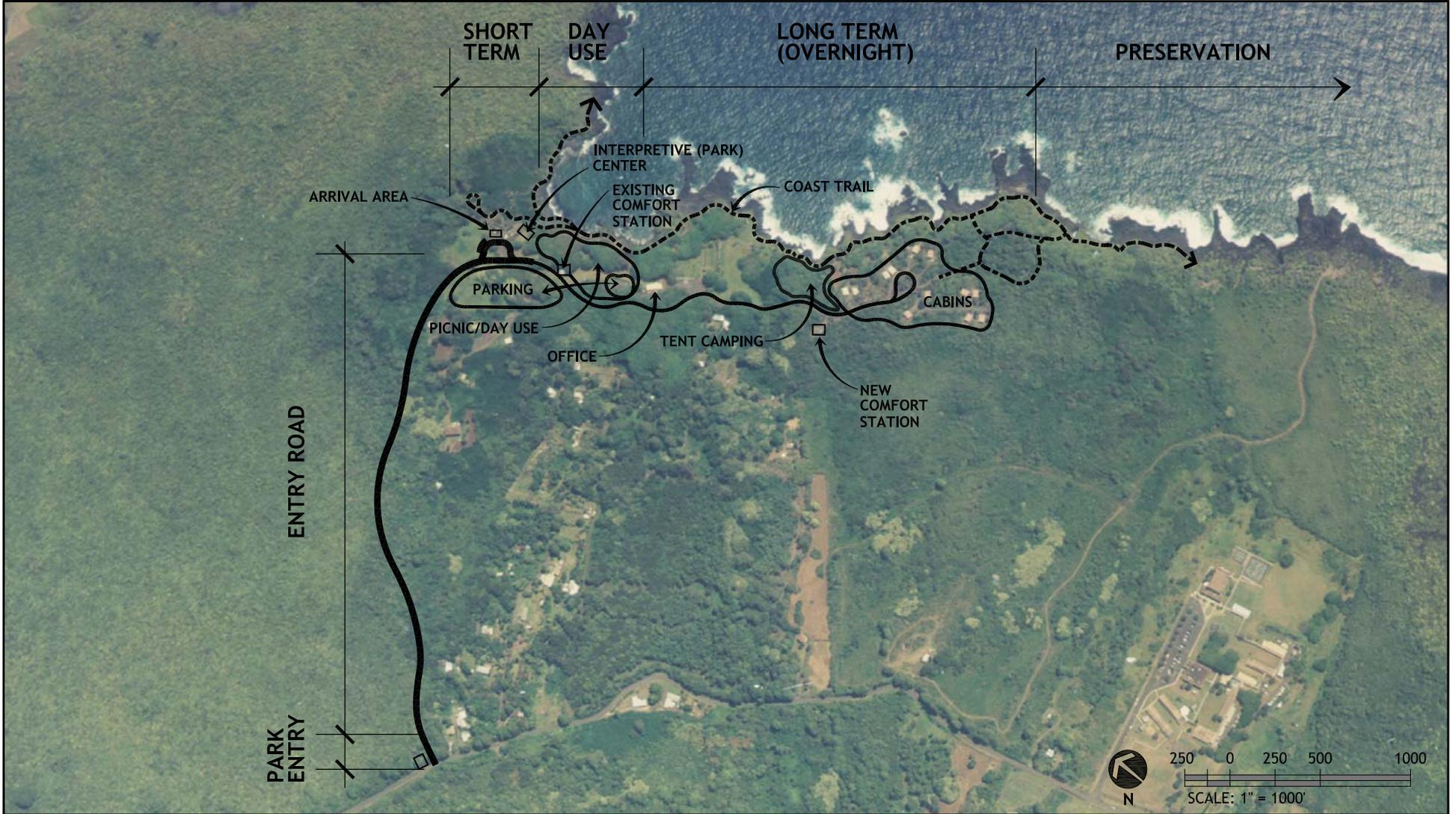
Visitors traveling to Wai‘ānapanapa State Park on Hāna Highway will be greeted at the park’s entry by a landscaped entry feature. The entry feature will symbolize the park’s cultural significance with the use of Hawaiian elements, such as a *pōhaku* (stone) sign accented with native landscape plantings. A new winding two-lane road bordered with native landscape plantings, such as hala, will guide visitors into the park. Traffic calming features such as curves, center islands, textured pavements, and speed tables may be used to maintain vehicles at a safe speed as they travel along the park’s entry road.

#### **6.1.2 Park Arrival**

Upon arriving in the park, visitors traveling in private automobiles will be directed to a new parking lot. The parking lot, which will be large enough to accommodate demand during peak hours, will be landscaped with shade trees and screened from view with plantings. Visitors arriving in commercial vehicles or requiring special assistance will be dropped off at a loading area. A time limit will be set for commercial vehicles parked in the loading area to ensure that it does not become congested.

#### **6.1.3 Short-Term and Day-Use Districts**

From the parking lot and loading area, visitors will be directed by signs and pathways to the park’s visitor/interpretive center. The interpretive center will contain exhibits describing the park’s natural, historic, and cultural resources and



Wai'anapanapa State Park Master Plan

Proposed Development Concept

Figure No.

information on activities that visitors may enjoy while visiting the park. From the interpretive center, visitors may choose to walk along the loop trail leading to Wai'ānapanapa caves or to the lookout at Pailoa Bay. Visitors staying for longer periods may choose to hike along the coastal trail, walk to the black sand beach in Pailoa Bay, or picnic or rest at the open field where the campgrounds are presently located. Directional signs and interpretive displays located along paths will point out historic sites, native flora and fauna, and park facilities for visitors. Viewing and rest areas will also be available at appropriate locations. For residents or visitors wishing to picnic at the park or fish or swim in Pailoa Bay, the parking lot presently reserved for campers will serve as a convenient area for families to access the open grass field and Pailoa Bay.

#### **6.1.4 Overnight Use**

Overnight visitors to Wai'ānapanapa State Park can choose to camp at the park or stay in one of the park's cabins. An approximately one-acre area reserved for tent camping will be relocated away from the more heavily visited day-use areas. Trees and landscape plantings will provide shade and privacy for campers. The existing unpaved parking lot will be paved to provide convenient access for campers and others wishing to access the shoreline. Persons wishing to visit the park with recreational vehicles will also be able to stay overnight at this parking lot. A new comfort station will be constructed to serve campers.

Overnight visitors will also have the option of staying at the park's cabins. The cabins will provide basic amenities to visitors yet have a rustic character that is consistent with their natural surroundings. Native landscape plantings will provide screening between cabins and privacy for visitors. Disabled visitors will also be able to enjoy use of the cabins at specially designed accessible cabins. Although the number of cabins may increase slightly, they should remain within the confines of the presently developed area to avoid further disturbance to the natural environment.

## **6.2 Phasing Plan**

The following phasing plan considers the logical sequencing of facility improvements, improvements that should be given priority to meet legal requirements, and funding constraints. The improvements have been divided into immediate (to be implemented as soon as possible), short-term (5 to 10 years) and long-term (10 to 20 years) periods. The phasing plan should not preclude earlier development of short-term or long-term improvements should funding become available.

**TABLE 3  
SUMMARY OF PROPOSED IMPROVEMENTS AND PHASING PLAN**

Time-Frame	Improvement
Immediate	<ul style="list-style-type: none"> <li>• Replace cesspools with septic systems.</li> <li>• Improve walkways to be wheelchair accessible, where feasible.</li> <li>• Provide suitable protection for the private cemeteries within the park.</li> <li>• Implement a coordinated signage program.</li> <li>• Remove alien plant species and replace with native species in selected areas.</li> <li>• Remove alien aquatic species from the pools at Wai'ānapanapa caves.</li> <li>• Transfer jurisdiction of State lands north of the park to the Division of State Parks (TMK's: 1-3-05: 2 and 1-3-3: 26).</li> <li>• Upgrade the park water system by installing 4-inch pipes and fire hydrants.</li> </ul>
Short-Term	<ul style="list-style-type: none"> <li>• Construct a new parking lot near Pailoa Bay.</li> <li>• Construct a new park access road leading to the new parking lot near Pailoa Bay.</li> <li>• Construct a new park entry feature along Hāna Highway to identify the new park access road.</li> </ul>
Long-Term	<ul style="list-style-type: none"> <li>• Renovate and expand the existing comfort station.</li> <li>• Construct an Interpretive Center.</li> <li>• Install interpretive signage along paths.</li> <li>• Expand and improve the park's network of pathways and incorporate landscaped rest areas.</li> <li>• Relocate the tent campground further south to an area near the existing park entrance.</li> <li>• Construct a new comfort station near the relocated tent campground.</li> <li>• Pave the parking lot near the existing park entrance to serve the relocated tent campground and recreational vehicles.</li> <li>• Replace the cabins (to be done in phases).</li> </ul>

### 6.3 Cost Estimates

The following are construction cost estimates for proposed major facility improvements. The estimates do not include design fees or special studies, such as topographic surveys or geotechnical reports that may be required. The actual cost may vary depending on design specifications.

**TABLE 4  
COST ESTIMATES**

<b>Improvement</b>	<b>Cost</b>
Replace the comfort station and cabin cesspools with septic systems	\$340,000
Upgrade the water system to 4-inch diameter pipes and install hydrants	\$133,000
Construct a new parking lot (assume 100 stalls) near Pailoa Bay	\$267,000
Construct a new park access road (assume 3,500 foot long two-lane roadway)	\$392,000
Renovate & expand the existing comfort station	\$150,000
Construct a new Interpretive center	\$100,000
Pave the existing gravel lot	\$138,000
Construct a new comfort station for the relocated campgrounds	\$500,000
<b>TOTAL:</b>	<b>\$2,020,000</b>



Final Environmental Impact Statement

**Wai‘ānapanapa State Park Master Plan**

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**Wilson Okamoto** Corporation

Planning | Civil Engineering | Structural Engineering | Traffic Engineering

