

AN ARCHAEOLOGICAL RECONNAISSANCE SURVEY IN  
A PORTION OF WAI'AKA, SOUTH KOHALA, HAWAII

by

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prepared for

BELT, COLLINS AND ASSOCIATES

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## INTRODUCTION

On July 27, 1988 I received a telephone call from the office of Belt, Collins and Associates asking if I would be able to take on an archaeological reconnaissance survey in the land division of Wai'aka in South Kohala, on the island of Hawaii. The area under consideration consists of about eight acres of land directly eastward of the Hawaii Preparatory Academy in Waimea. With development, this land would be added to the campus of HPA and would provide the location for a planned theater-auditorium building to be constructed at that location.

I was asked if I would undertake the survey and if so told to contact Mr. Will J. Hancock at HPA. From him a map was to be made available and further information on the specific location of the land to be surveyed along with permission to enter was to be arranged. As I agreed to accept the proposal I arranged to meet with Mr. Hancock. My grandson, Ryo Noa, accompanied me on this first visit to the study area and we were especially pleased with the helpful-offer to accompany us to the boundary of the area to be examined. The report that follows provides the results of the investigation.

## AREA

The project area is found in the land division of Wai'aka, in the South Kohala District, on the island of Hawaii. It may be further identified through its Tax Map Key: 6-5-01: 9,8,33. Although the survey was to take into consideration an eight acre piece of land, planned as the location of a theater-auditorium, this parcel is nevertheless part of a larger, some thirty acres, section of land to the east of the present campus of Hawaii Preparatory Academy. This larger unit abuts the east boundary of the campus and is north of Wai'aka and Hale'aha streams (See Figure 1.) The eastern boundary of this plot matches very closely with the east boundary of the old land division and the width of the parcel roughly coincides with the width of that old unit. The thirty acre parcel, therefore, appears clearly to be a full width segment of the land of Wai'aka. In consequence, as a result of what seems to be a relationship with an old land unit, but more importantly because of an archaeological relationship that goes further than present boundaries, it was necessary to go beyond the eight acre section. In reality, perhaps as much as 100 acres or more were walked over in field examination and as a result one can readily view the present land boundaries as archaeologically, or culturally restrictive and somewhat lacking in linkage to former land use patterns. But this is so often the case when land use changes. In time, the old patterns and arrangements take on new configurations, boundaries change, surface is reshaped and adapted to new functions. As an archaeologist concerned with past usage and function, past demarcations and land use, ergo past culture in the broadest sense possible, one must be ever alert so as not to fall into the restrictions of a particular time frame as exemplified by present functions, present land use, delineations, and/or present cultural practices. Hence, this report will "spill over" into the thirty acre plot and where pertinent cast aside even that line when it becomes culturally necessary to do so.

The area is easily walked and examined as pasture grass is the dominant ground cover (See Figure 2.) In addition, cattle within the area have kept the grass

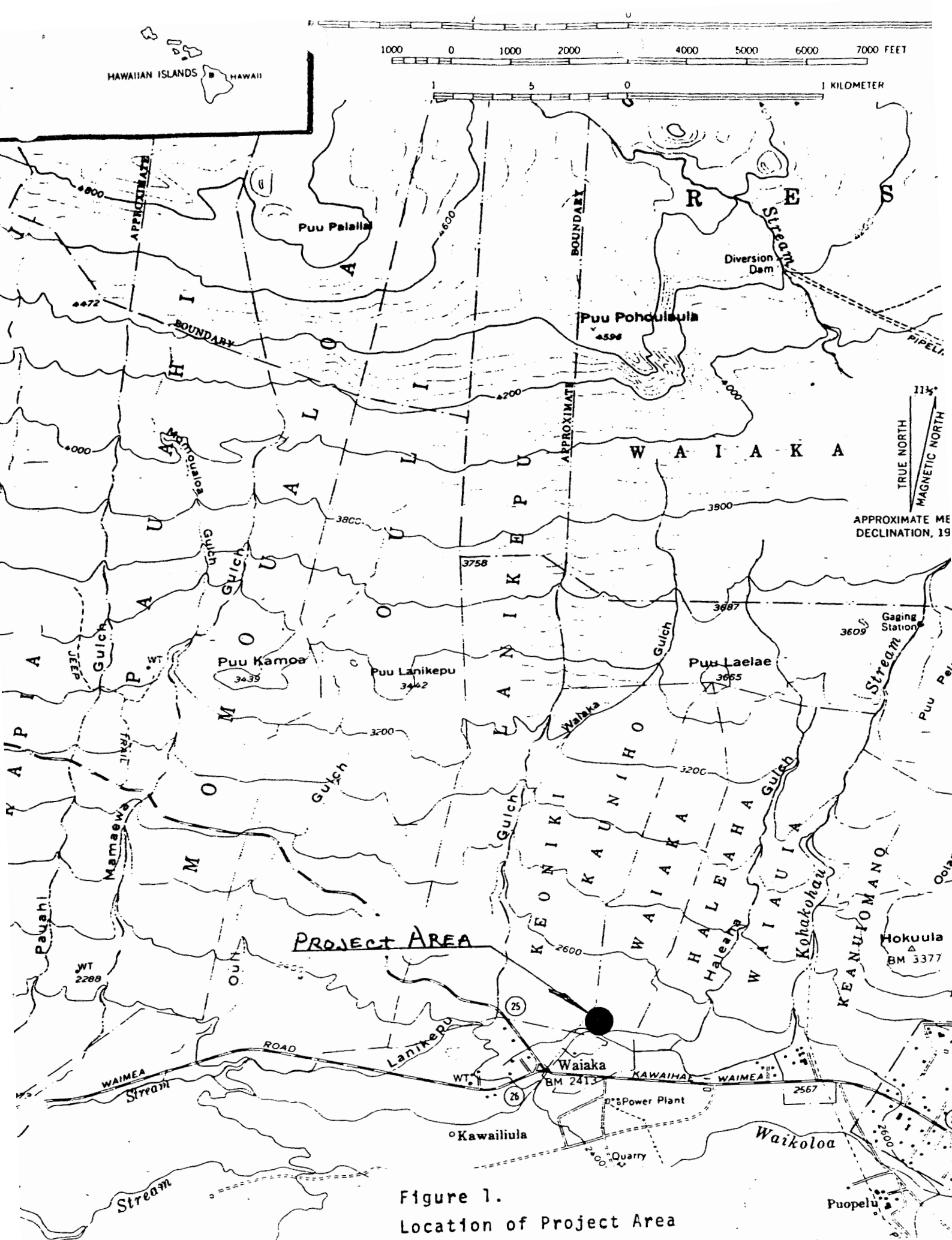


Figure 1.  
Location of Project Area



Figure 2. View eastward from fence line enclosing ironwood trees.

clipped fairly close to the ground. Only in a fenced area along the middle third of the western border is there a fairly heavy stand of trees. This wooded area could not have been planted too long ago for all are the commonly seen ironwood (*Casuarina equisetifolia*), an introduced evergreen variety that is used extensively as a wind break (See Figure 3.) The small grove is as much as 100 feet wide and presently serves as a buffer to the east of the present campus. A fence line completely surrounds these trees and separates them from the pasture to the east and the campus to the west (See Figure 4.) Some trees are also found to the west of the fence line along the southwest border of the project area and adjacent to the swimming pool, gym and tennis courts.



Figure 3. View south-eastward. Project area in foreground with southern boundary, fenceline, in middle-ground. Ironwood tree area to the left and fence line separating project area from IIPA campus on extreme right.



Figure 4. View southward from middle of project area. On extreme right is fenceline enclosing the ironwood trees.

The 30 acre area investigated ranges between 2440 and 2680 feet in elevation with the lowest being in the southwest and the highest in the northeast corners. Ground surface generally slopes southward but with a westward tilt along the southern border where the natural drainage is toward the southwest. Adjoining the southern border of the property is the confluence of three streams. Flowing westward is a small stream that drains Hale'aha gulch. It flows south through the gulch and as it reaches the flats above the Kawaihae-Waimea road it veers westward to meet the stream coming in the same direction from Kohakohau gulch further east. At the very southwestern corner of the project area is Wai'aka stream. Further down-slope all of the water from these streams forms the larger Keanuomano stream. These and other streams in the environs of Waimea provided the essential ingredient for the establishment of agriculture, and hence, the community and culture that we know of for this region.

Hawaii Preparatory Academy is roughly two miles west of the Kamuela Post Office, just east of the Kohala mountain road and north of the Kawaihae-Kohala road junction. In and around the school, including more than three-quarters of the area studied for this report, we see soils of the Waimea series (WMC.) These "consist of deep, well drained very fine sandy loam soils. They formed in volcanic ash on gently sloping to moderately steep leeward slopes. Slopes are dominantly 6 to 12 percent.... In a typical profile, the surface layer is very dark brown, very fine sandy loam about 17 inches thick. The subsoil, which generally extends from 30 to 60 inches, is dark brown silt loam.... The Waimea soils are high in fertility. They have moderate moisture-holding capacity about 1.8 inches per foot. Below the soil, at 30 to 60 inches, is unconforming bedrock. Effective rooting depth is generally 30 to 60 inches. Erosion hazard is moderate". (U.S. Dept. Ag., Soil Conservation Service, 1973.)

Less than one-quarter of the parcel has soils of the Palapala series (PLC.) Here in the northeast portion of the plot are "deep well-drained silt loam soils. They formed in volcanic ash on gently sloping to moderately sloping uplands.... Most areas the slopes range from 10 to 15 percent.... In a typical

profile the surface layer is dark brown silt loam about 16 inches thick. The subsoil, which generally extends to a depth of more than 40 inches to unconforming bedrock, is dark brown silt loam.... soils are high in fertility" (ibid.)

This region is not especially high in rainfall, with a range of some 40 to 55 inches. However, it is a windy area with normal winds from the northeast. Sometimes gusty winds from that direction sweep down from higher elevations in the northeast and east.

Generally considered cool, mean annual temperatures fall in the 16° to 21°C (60° to 70°F) range. Mean maximums may go as high as 21° to 27°C (70° to 80°F) and monthly minimums may go as low as 10 °C (upper 40-0 F.) Storms tend more often to occur in the winter months and this too is the period of heaviest rainfall. Southerly winds are more apt to accompany these *kona* storms.

The vegetation includes kikuya, rattail, and bermuda grass. This is pasture and almost nothing else is in the project area, excepting the already mentioned ironwood. In nearby areas some cactus was recorded, although not as much as further to the west and south.

The environment of the area examined may be summarized as being cool and well-watered, although windy. These conditions, together with the deep and fertile soils and the undulating hills and gentle slopes provide a view that is generally green and pastoral.



## METHODOLOGY

Field investigation that produced this report followed the general reconnaissance survey requirements that are normal for a first time examination of an area. Visual observation and record keeping while walking over the land to be investigated is the major part of the field work. A field book was used for recording and photographs in B/W and color were taken.

Although my grandson was with me on the first day in the field, he merely accompanied me and was not part of the investigation. Portions of three days, totaling about eight hours, went into the field examination. Six northeast-southwest/southwest-northeast transects were carried out for the 30 acre parcel. As a result, there remains no doubt that the study area was fully covered, what with the open pasture of the area and the general lack of rock or other material to break the surface of the ground. Nevertheless the field exploration went quite beyond the area necessary for the survey.

On one occasion the area to the east was examined. First north into the lands of Hale'aha to about 2800 feet in elevation, and all the way to Hale'aha Gulch, the land surface was examined for cultural indicators. Next, in a southerly sweep the full extent of this neighboring land division was searched all the way to the bend in Hale'aha stream. Finally by walking westward along the north bank of the stream through the lower elevations of Hale'aha and Wai'aka the circuit was complete.

On another day upper Wai'aka was surveyed to about the 2800 +' elevation level and small portions of adjoining Kauniho lands were included. As already stated, over 100 acres of coverage resulted from this field investigation.

In addition to the visual review of the land for surface indicators of cultural remains a number of subsurface tests were conducted in the eight acre parcel planned for drastic surface modification. This was decided upon after the presence of agricultural terracing in the area required further investigation (See Recommendations p. 18.)

## PREVIOUS RESEARCH

Some of the more important archaeological work carried out in the Waimea area includes: background data by Kirch (1983a), historical information by Barrere (1983) and Clark (1983a), surveys by Barrera (Barrera and Kelly (1974), Clark (1981a), and Bonk (1985a, 1985b, 1986), an intensive survey and mapping in the Lālamilo area by Clark (1981b), test excavations in Lālamilo (Bonk, 1980-82) and Ouli (Bonk, 1989), excavations by Clark (1983b), and Reeve (1983), and an analysis by Kirch (1983b). A number of the above papers are part of the excellent archaeological investigations edited and published in a volume for the State of Hawaii (Clark and Kirch, 1983). However, almost all of the archaeological investigations undertaken in the vicinity of Waimea have included some limitations, if merely the result of the applied nature of their *raison d'etre*, that is they resulted from non-archaeological initiatives rather than strictures of archaeological priorities.

## CULTURAL OVERVIEW OF WAIMEA AND ITS ENVIRONS

For almost 300 years, following the traditional coming to Hawaii of Paa'o in the 13th century, autonomous chiefdoms were in the process of being solidified on the island of Hawaii. Natural land divisions aided in the establishment of the Kona, Kohala, Hamakua, Hilo, Puna, and Ka'u chiefdoms. Nevertheless, by the 16th century, one chief, Liloa, stood above others and was recognized as a leader amongst his fellow *ali'i*. Although he resided in Waipi'o and spent most of his time there and within other parts of his Hamakua lands, it was during his lifetime, as well as that of his son, 'Umi, that the locally controlled portions of the island were fused together into two major divisions. Indeed, cultural evolution was taking place, but an almost constant warring of Hawaii's factions continued from the time of 'Umi right into the historic period. In a few instances, during the 18th century, chiefs with ability were able to wrest control of the whole island, but a final union awaited Kamehameha I, who in the early 19th century subjugated the whole of the archipelago.

Prior to Kamehameha however, the western and southern chiefs fought the people of Hamakua, Hilo, and Puna. As the Waimea area bordered both Kohala and Hamakua, it was within the environs of Waimea and adjacent *ahupua'a* that some of the battles took place.

At other time invading armies from other islands penetrated to these inland regions of Hawaii. One such occurrence took place at the time of 'Umi's grandson, Kanaloa-kua'ana. A Maui army landed on the west coast of Hawaii and defeated the defending troops at Puako, killing Kanaloa-kua'ana (Fornander, 1916, IV, p.343.) To counter this threat, the call went out and chiefs from all of the districts of Hawaii, led their armies to the Waimea area. In the meantime the Maui leader, Kamalalawalu, moved inland with his men to the "grassy plains" of Waimea (Kamakau, 1961, pp. 55-61, and Fornander, 1916, IV, pp.342-60.) Here, above the present town of Waimea, near the hill identified as Pu'u Owa-

owaka, or at Hoku'ula,\*approximately a mile to the east of the lands of Wai'aka, the Maui forces met the combined armies of Hawaii under the leadership of the great chief Lonoikamakahiki, brother of the slain Kana-loa-kua'ana. In the ensuing battle the Maui enemy were vanquished and their *ali'i* killed.

For a few decades following this battle little is seen in the literature pertaining to the region reported. That is until another battle was fought between the leeward and windward chiefs toward the middle of the 18th century. This clash took place at Mahiki, east of Waimea and just across the district boundary in Hamakua. Here the father of the great chief Alapa'i-nui-a-ka-uaua was leading his forces against the Hilo chiefs when he was killed. Alapa'i-nui was on Maui at the time but returned to Hawaii and ultimately regained control of the Kona and Kohala districts, (Kamakau, 1961, p, 65). Eventually he went on to take over the whole island of Hawaii and placed it under his rule. However, toward the end of his life he had a falling out with Ka-lani-'opu'u while in Hilo, whereupon Ka-lani'opu'u withdrew to rule over Ka'u and Puna. Alapa'i-nui, after a year in Hilo, went to live first in Waipi'o and later in Waimea. Still later, and just prior to his death, he moved to the Kawaihae area (Kamakau, 1961, p.77.)

Because the court was present, even for short periods, in the Waipi'o and Waimea area, it is possible to speculate as to the effect of his retinue and supporters on the local people and the lands on which this increased number of people located themselves. The expansion of garden plots in the Waimea area is one such result that comes from this conjecture (Clark, 1983, pp.288-289, and Bonk, 1980-82.) Even when Alapa'i-nui moved to Kawaihae, the Waimea area continued to supply a major source of horticultural products needed for sustenance of the court and the chief's coterie (Barrere, 1983, p. 27.) During the rule of this great leader, and increasingly more so during the regime of Ka-lani-'opu'u, and later under Kamehameha I, the northwest coast of Hawaii became a staging area for the armies of Hawaii

\* Which adjacent hill one accepts as the site of the battle depends on whether one abides by the Kamakau or the Fornander version of the battle.

that were gathered and made ready for their incursions into neighboring chiefdoms, such as that established on Maui and other islands to the northwest. This was the time of great battles and wars of expansion, a time of significant change, when locally isolated chiefdoms were becoming past history and the resultant cultural development was leading Hawaii through the threshold of a cultural form commonly referred to as a state. All of what came before this period of change in the late 18th century was supportive of this evolutionary transition. The environment was varied and rich enough to be conducive to some major cultural changes, population had grown and was now sufficiently large enough to supply the growing degree of specialization, the cultural base was of a caliber of sophistication that would not allow for the continuation of isolated chiefdoms as in the past, or even of a unified island-wide chiefdom. As a result, a state system of unification and development was being ushered in to take over from the localized control of the past. Concomitantly Kamehameha I and the people of Hawaii were experiencing an increased amount of cultural contact and exchange with the outside world. From the time Captain James Cook initiated this contact in the late 18th century the islands of Hawaii increasingly became a center for cross-cultural contact with its aftermath of assimilation, amalgamation and acculturation. By the turn of the century and increased number of foreign ships stopped for periods of time in Hawaiian ports, either on their way elsewhere, for the resupply of ship stores, or for participation in the growing import-export trade. As the sandalwood trade was developed, as the whaling industry expanded in significance, and later as sugar growing gradually substituted for these early 19th century economic activities, we see the increased need to produce more foodstuffs than that required for local consumption. The Waimea area with its favorable soils but more importantly with a source of water that could be harnessed and distributed on the fairly level lands below the Kohala mountain source, became an important area for the expansion of food production. Already there was made mention of this activity for the pre-historic period. The gradual development of gardens in the Waimea area, prior to the wars of expansion gave rise to an increased development of agricultural activities as the socio-economic-cultural base became more complex during the two centuries prior to the coming of Europeans. This continued well into the 19th century, with a good deal of the agricultural output

finding its way to Kawaihae and to the ships that put in to the harbor. Only toward the middle of the last century do we see a change in the growth pattern for agriculture and population in the Waimea area. It is Clark (1983, p. 48) who supports what he defines as a "decline in agricultural activity" through reasons such as: "depopulation and the concomitant abandonment of fields; the pursuit of other commercial interests, such as sandalwood, sugarcane, *pulu* trade and the cattle industry; and pest infestations."

The prehistoric land use pattern in the Waimea area was originally subsistence farming. Changes in this pattern started to be noted in the later half of the 16th century and culminated in the late prehistoric with a type of "subsistence-support" farming. Eventually this changed again in the early historic period to a "subsistence-trade" form. Changes in economic pursuits led to changes in land use as the 19th century progressed. Some of these new economic undertakings, such as the cutting of sandalwood, the harvesting of *pulu*, and the growing of sugarcane were all shortlived, but while each was brief with respect to time, all were significant in the overall effect on cultural and ecological change and land use.

An examination of cattle raising in the Waimea area clearly shows its dominant role as a change indicator. Once established, and this was aided through the placing of an initial ten year *kapu* on the hunting or taking of cattle, the feral cattle multiplied rapidly. For some two to three decades after the lifting of the protective ban, *paniolos* were employed to hunt down the wild cattle and take them to a market. More often this market was on the ships at Kawaihae, which soon added cattle to their other products being exported in the early part of the last century. Cattle raising followed the hunting of the feral animals so that by the middle of the 1800's the Waimea region moved to its preeminent position as the center of the industry.

Outlining the above, however, may not give credence to the overall changes that were sustained during the period of human interaction with the environment, and especially during the last 200 years. Native vegetation was severely and negatively affected through the wholesale cutting of sandalwood and the collecting of *pulu*. More widespread damage to the native flora was through the introduction of exotic

animals that quickly multiplied, spread, and became feral. In addition, the later development of a cattle industry that encompassed large portions of the land area of west Hawaii merely added to the ecological-cultural changes that were an ever increasing on-going reality.

Only in a neighboring portion of the island do we see a different historical pattern of land use. Waipi'o valley retained for a greater length of time its traditional land use pattern. In fact, the decline of agriculture in the Waimea area shifted some crop acquisition to Waipi'o valley as Waimea fields were taken out of production. Because of the relative geographic isolation of the valley, Waipi'o farmers were never faced with the marauding cattle problem that was a major issue for the farmers of the open plains of Waimea. Hence, Waipi'o continued its more traditional farming and land use techniques. Valley isolation from both animals and humans aided in slowing down the process of cultural change.

In contrast to both Waimea and Waipi'o, the Hamakua coastal area of Hawaii has been exposed to yet another form of cultural-ecological change over the last century and a quarter. Sugar growing for export, with its attendant plantation form of agriculture produced drastic changes to both the geographic as well as the cultural environment. This coastal pattern of historic cultural development, that extends from Waipi'o to Hilo almost fifty miles away, continues to the present day, although in recent years it is showing signs of decrepitude and senility. On the lower slopes of Mauna Kea numerous plantations were established during the later half of the last century. This activity resulted in the clearing of native vegetation, the planting and harvesting of sugarcane, and the importation of immigrant labor to satisfy the needs of a cash-crop plantation form of agriculture.

## FINDINGS

The project area is part of a major agricultural field complex identified by Clark (1983c, p.294) as Field Complex #1. He identifies the Waimea agricultural system as made up of: "the remains of an extensive series of agricultural features, throughout which are scattered multiple residential structures. The system forms a large arc to the west and south of the present village of Waimea. Beginning on the south flank of Kohala Mountain, a short distance below Pu'u La'ela'e (See Figure 1), this system extends down the slope and onto the Waimea plain west of town" (Clark, 1983c, p. 293). Field Complex #1 is at much higher elevations than the other field systems. It "is located on the Kohala slope, principally between Lanikepu and Hale'aha Gulches, and north of the Keanu'i' omano and Kohākohau streams where they leave the slope and turn to flow westerly. In this area of comparatively steep slope, the upper elevation portion is dominated by low, mildly terraced field ridges. These seem most likely to be of a lynchet-type development rather than intentionally constructed ridges. The lower portion of the complex is marked by larger terraces with broader and flatter surfaces behind soil embankments. These are probably the result of cut-and-fill construction. Associated with the fields is a set of water-flow channels that run down the slope. Most of these appear to serve a drainage function, diverting water off of the fields rather than on to them. (The rainfall on the slope is substantially greater than on the plain below.) Also present, over at least a portion of the complex, is a set of irrigation ditches ('auwai) the main channel of which is diverted from the Kahākohau stream at an elevation of about 915 m" (Clark, 1983c, p. 295).

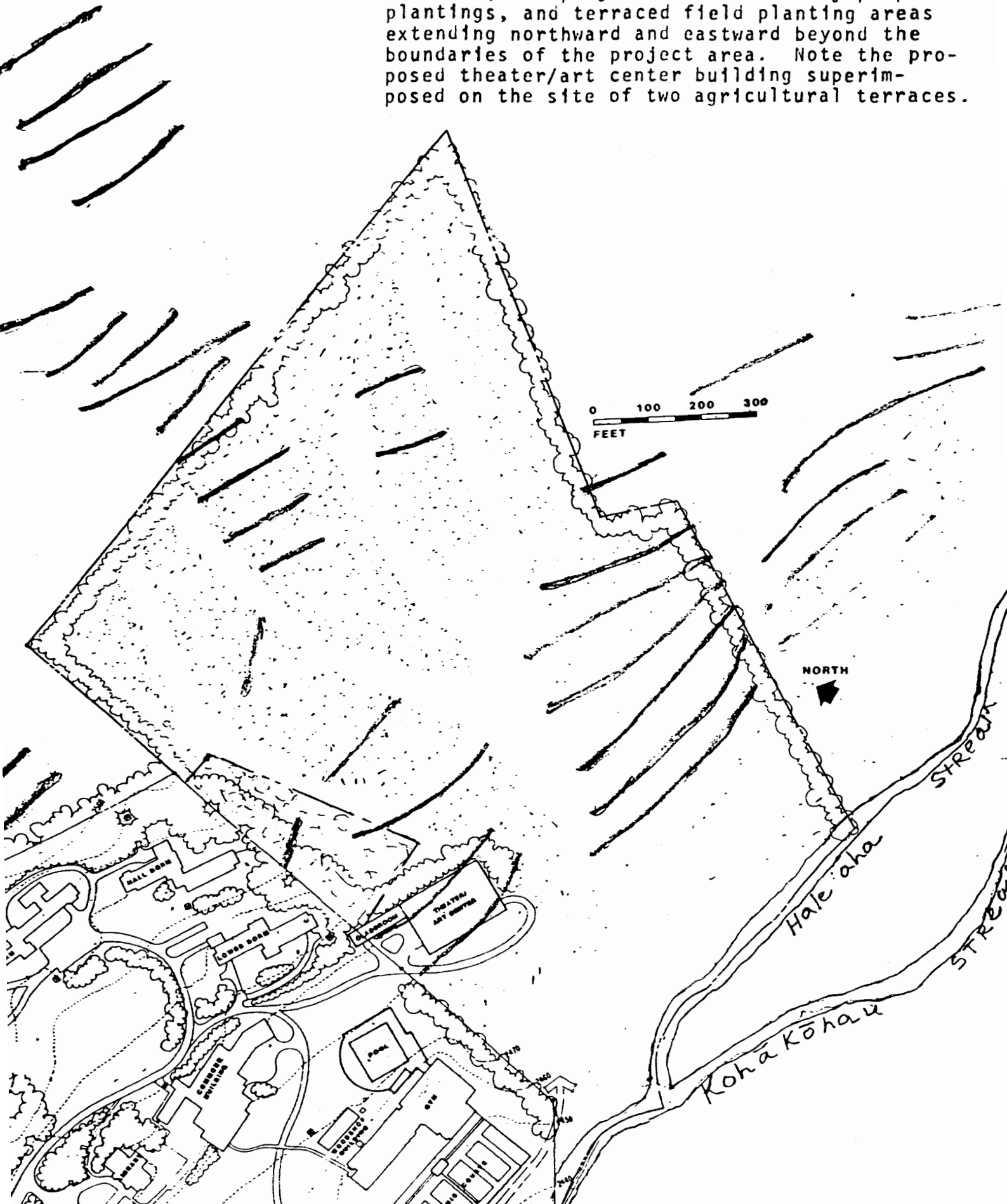
The project area contains no residential structures or stone-walled structures or features. The major archaeological features pertain solely to agricultural activities and consist of the two examples that Clark mentions, that is the "low, mildly terraced field ridges", and the "larger terraces with broader and flatter surfaces behind soil embankments". No 'auwai were present in the study area although some fairly small examples were identified further eastward.

The field ridge variety was noted in the upper 1/4 of the project area and is part of a series that extends



Figure 5.

The project area, showing Hale'aha and Kohā-kōhau streams on the south, the HPA campus on the west, the project area bounded by proposed plantings, and terraced field planting areas extending northward and eastward beyond the boundaries of the project area. Note the proposed theater/art center building superimposed on the site of two agricultural terraces.



northward beyond the northern boundary. At least seven examples were identified within the project area (See Figure 5). Using available aerial photographs (See Figure 6), and enlarging to a scale of 7/8 inch = 200 feet, the terraces that are readily discernible in the aeriols were transferred to the map. The southern half of the project area has as many as eleven of the larger soil-embankment terraces.

With the exception of the present HPA campus, on which land surface had undergone change during construction, terraces are seen for all of the land around the project area and north of the streams. Surely, prior to the land surface displacement at the time of building, the HPA campus area contained terraces as well. The land south of the streams undoubtedly also contains agricultural features although investigation did not take into consideration any land south of the streams.

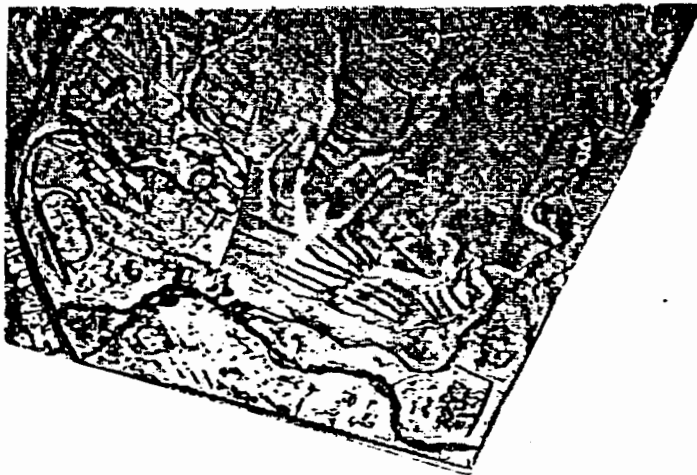


Figure 6.  
Aerial photograph  
of the project area  
and surrounding  
region. Note ter-  
races above the HPA  
campus, eastward in  
the project area, and  
as far east as  
Hale'aha stream.

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Only agricultural terraces were found within the project area. No other archaeological features were observable.

Soil samples were collected from the two large terraces that will be displaced during construction of the new building (See Figure 5.) To date they have not been analyzed although data should be part of a follow-up study included in the recommendations below.

As it is deemed essential to acquire a thorough record of all of the agricultural field systems and other archaeological features in the Waimea area, as well as to test for data in a sampling of the terraces, it is therefore recommended that: 1. a series of sample excavations take place within the two types of terraces in the project area. 2. It is also recommended that additional field work include a review, through a ground-transit survey, of the position accuracy of the terraces included in Figure 5, so that the exactness of the use of aerial data can be evaluated in the field. 3. It is further recommended that if the above conditions are agreed upon and accepted, than I see no valid reason why mitigation can not take place immediately. However, a further condition should be imposed that limits land displacement to the immediate locality of the proposed theater/art building, as indicated on Figure 5, and/or to the area south of that location. This condition should apply only until excavation and map review is consumated, which should take approximately a month. With that accomplished all conditions and restrictions for the protection of archaeological data should be removed.

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## GLOSSARY OF HAWAIIAN WORDS

|                 |  |
|-----------------|--|
| <i>ahupua'a</i> | A land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap ( <i>ahu</i> ) of stones. |
| <i>ali'i</i>    | Chief, chiefess, king, queen, noble, royal, kingly.  |
| <i>'auwai</i>   | Ditch, irrigation ditch.   |
| <i>kapu</i>     | Taboo, prohibition, special privilege or exemption from ordinary taboo; sacredness; prohibited, forbidden; sacred, holy, consecrated.        |
| <i>kona</i>     | Leeward sides of the Hawaiian Islands. Name of a leeward wind; to blow, of this wind.  |
| <i>paniolo</i>  | cowboy, Spaniard, Spain, Spanish.  |
| <i>pulu</i>     | A soft glossy, yellow wool on the base of tree-fern leaf stalks. It was used as mattress stuffing.   |