

CHAPTER 6

CONCLUSION

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The specific purpose of this historical study is to provide an overview of general land use patterns through time in windward O‘ahu, specifically in areas affected by construction of Interstate Route H-3. Although all the ‘*ili* of He‘eia and Kāne‘ohe were examined for this report, the highway actually intrudes upon only two of the ‘*ili* in He‘eia and 20 ‘*ili* in Kāne‘ohe (see Appendix A and Appendix B, maps). Archaeological investigations of the highway corridor did not occur in some of these ‘*ili* (Mōkapu in He‘eia and Pū‘ahu‘ula, Pāpa‘a, Māla‘eakuli, Pānāhāhā, Heleloa, Halekou, Kaluapuhi Waho, Kuwa‘a‘ohe, and Ulupa‘u in Kāne‘ohe), as these are all in the section of the highway built years before archaeological work began. Information specific to Ha‘ikū, in He‘eia, and Kea‘ahala Mauka, Pau, Kapalai, Punalu‘u Mauka, Luluku, Kahuauli, Kuou, Ho‘oleinaiwa, Pupau, Mokailoku, and the upland *lele* of Halekou, all in Kāne‘ohe, is of particular interest in understanding the data recovered from the archaeological excavations and laboratory analyses.

The preceding chapters provide a series of sketches of life in central Ko‘olau Poko, arranged chronologically from legendary and prehistoric times to the twentieth century. The information made available in this report depicts an accelerating pace of change in windward O‘ahu since the land tenure alterations of the mid-nineteenth century Mahele. Many of these changes have had detrimental effects on the landscape and on earlier structures and sites. Nevertheless, traditionally important places and significant archaeological sites still remain, in whole or in part. This concluding chapter will summarize the kinds and locations of known and predicted sites and their relation to the highway corridor.

LEGENDARY PLACES

From Chapter 2 comes information that for the most part concerns natural features or landscape areas of importance in Hawaiian oral traditions and literature—noted *wahi pana*. Much of the central Ko‘olau Poko region is associated with Hawaiian gods and legendary beings, from the ocean and coastal fishponds to the upland hills and streams. Some areas known from legends and stories may be within or near areas affected by the highway, but their locations cannot be pinpointed exactly. Others are in areas that appear to have been adversely affected by agricultural practices and modernization prior to highway construction. A few

storied sites deserve special notice because of their location in relation to the Interstate Route H-3 highway corridor. In He‘eia, two caves in the cliff face of ‘Ioleka‘a—Keanapo‘i and Kaualehu—are the setting for stories of goddesses. The Mōkapu peninsula is associated with Hawaiian creation stories and the gods Kāne, Kū, Lono, and Kanaloa. Kawainui Marsh in Kailua is watched over by the lizard goddess (*akua mo‘o*) Hauwahine. In Kāne‘ohe, the confluence of the three streams Hi‘ilaniwai, Kahuaiki, and Māmalahoa represents three wives of the god Kāne, and is known as the *wahi pana* “*Ho‘okui a nā keia o nā wai a Kāne*”, McAllister’s Site 339. Another water source in Kāne‘ohe is Kumukumu Spring, apparently with supernatural power and an unspecified association with a religious site, Kukuiokāne Heiau. The storied *hala* grove of Kekele, in Kāne‘ohe, is linked to the offspring of forest gods.

These seven locations could be considered as potentially affected by highway construction, at least in a peripheral, non-physical sense. The Interstate Route H-3 enters He‘eia through the Ko‘olau range in Ha‘ikū, and although the highway does not pass through ‘Ioleka‘a, the view planes of the caves may be affected. The highway ends at Mōkapu Peninsula and the Marine Corps Base Hawaii, but does not traverse the peninsula. The view plane of Kawainui Marsh is altered by the highway, which does not enter the marsh but does run past its northwestern edge. The exact location of Site 339 is unclear, but it appears to be upslope of the highway corridor in Luluku. Kumukumu Spring is downslope of the highway corridor, in Punalu‘u Mauka. A remnant of the *hala* grove of Kekele is said to exist in Ho‘omaluhia Park, which adjoins the boundary of the highway corridor.

These and other such places may be viewed as traditional cultural properties (TCPs), as defined in federal historic preservation statutes. A TCP is one that is eligible for inclusion on the National Register of Historic Places because of its association with cultural practices or beliefs of a living community, that are rooted in that community’s history, and are important to maintaining the continuing cultural identity of that community. The significance of a TCP arises from the role it plays in the community’s historically rooted beliefs, customs, and practices. The natural sites noted here and their related stories point to the traditional tie between the land and the people that is an important element of Hawaiian culture to this day.

NATIVE HAWAIIAN LANDSCAPE

Chapter 3 gives an important overview of He‘eia and Kāne‘ohe at the mid-nineteenth century, based on an extensive review of Mahele land claim documents. It is assumed that the kinds of properties described in these claims represent a traditional lifestyle that may have existed for some centuries prior to the Mahele. The legends and stories of earlier times discussed in Chapter 2 show glimpses of farmers, fishermen, and gatherers of natural resources, and the land claims of the 1800s reflect similar activities. Central Ko‘olau Poko was well-populated prior to Western contact, an area of domestic settlement, agricultural production, fishing and aquaculture, natural resource procurement, and religious and cultural practices. This section focuses on Native Hawaiian activities in He‘eia and Kāne‘ohe that would have left traces in the archaeological record. Structures built of stone would be most visible, and evidence of these kinds of structures, either in whole or in part, still exist. Some are known or predicted to be within the highway corridor. Subsurface features such as pits used for cooking or dug for houseposts, and burials in unmarked graves, are to be expected, especially in areas of housesites. These subsurface features, however, are difficult to ascertain through surface survey.

Intensive agriculture, in the form of irrigated taro cultivation, was paramount in Kāneʻohe and Heʻeia, and the area is distinguished by the extensive landscape modifications involved in creating the terraces, irrigation canals, spillways, and paths that formed the system. In Heʻeia, *loʻi kalo* were to be found mainly along Haiku, Iolekaa, Heeia, and Kalimukele Streams. In Kāneʻohe, the major streams—Kawa, Kaneohe, Keaahala, and Kamooalii—provided water for most of the *loʻi*, although Luluku Stream and other smaller streams were also utilized. Sources indicate that in Kailua, *loʻi* also were once found in Kawainui Marsh. Agricultural terraces should be expected in the highway corridor along Haiku Stream in Heeia, or, in cases where modern disturbance has removed any surface trace of terraces, the gleyed soils that result from the saturated conditions of irrigation could be used to determine former *loʻi* sites. Taro cultivation in the upland *ʻili* of Luluku in Kaneohe is depicted in a traditional story, and was confirmed when archaeological inventory survey in 1984–85 revealed a significant agricultural terrace system along Luluku Stream. Some of many stone-faced terraces in this area are within the highway corridor; others are upslope and downslope of the corridor. Similar terraces, or agriculturally gleyed soils, could be expected along other Kaneohe streams within the corridor, such as Kahuauli and Kuou Streams. It should be noted, however, that in both Heʻeia and Kāneʻohe the majority of *loʻi* are on the coastal plain rather than in the area traversed by the Interstate Route H-3.

Taro production was supplemented by gardening and gathering of forest plants. *Māla*, or gardens, were reported in many land claim documents, as were *kula*, defined as plain, pasture, or dryland (as opposed to irrigated) areas. Some of the *māla* and *kula* claims were made in *ʻili* affected by the highway corridor. Unlike the terracing used in taro cultivation, however, there is little in the archaeological record that would point to an area being used in such fashion. Indirect archaeological evidence for the kinds of plants produced or gathered from *māla* and *kula* lands might be found in charred botanical remains from subsurface cultural strata or pits near permanent or temporary housesites.

The many fishponds along Kaneohe Bay indicate a sustained, concerted effort at building and maintaining these structures. In addition to providing a managed food source, many also have associations with legendary beings. It is possible that most of the fish from these ponds were reserved for the *aliʻi*, who were the most successful in claiming them. Although many of the ponds have been filled in, some remain, including Loko o Heʻeia and the Nuʻupia fishponds on the Mōkapu peninsula. None of the recent highway construction through upland Heʻeia and Kāneʻohe would have physically altered or affected these coastal fishponds, although the Mōkapu ponds are near the terminus of the highway on the Marine Corps base.

As discussed in Chapter 3, mid-nineteenth century Mahele records suggest that most housesites were within a 0.5 km band along the coast. This area, now almost entirely built over with modern housing and infrastructure, is outside the Interstate Route H-3 corridor. Mahele records do show, however, that housesites were claimed in most of the *ʻili* affected by the highway in Heʻeia and upland Kāneʻohe, although they are relatively small in number. They may reflect a post-Contact move into the upland area from the coast. Evidence of abandoned *kuleana* that might be expected include such structures as stone-faced terraces, rock walls, or stone pavements. Non-stone structures, made of wood or thatch, would no longer be present, but indirect evidence for them might be revealed by subsurface features indicating where houseposts once stood. Other subsurface evidence, such as cultural layers, firepits, *imu*, and charcoal scatters, would be likely in such areas. Artifact concentrations or isolated artifacts defining areas of use or manufacture are also likely archaeological finds. Unmarked burial pits could be associated with such housesites. LCA documents show that housesites are often, but not always, on the same parcel of land as *loʻi*, although how much distance would be between the two areas has not been determined.

Religious sites of varying kinds were found in the area. A *heiau* on the Mōkapu peninsula was reported as being of the *mapele*, or agricultural, type. Kawaʻewaʻe Heiau is considered a *luakini* class

heiau, where ruling chiefs prayed and human sacrifices were made. *Ko‘a*, shrines for ceremonies to make fish multiply, are recorded in LCA claims and in archaeological surveys for He‘eia and Kāne‘ohe. Although the *ko‘a* are coastal, locations of the *heiau* sites vary. For example, in He‘eia, Kalaeulaula Heiau was on the coast, ‘Ioleka‘a Heiau and Kaulaukī Heiau were inland, and Kahekili Heiau was beside Ha‘ikū Stream. Many of the known *heiau* appear to have been altered by alternative uses (as cattle pens, housesites, a graveyard), or had their stones taken away for use in other structures (walls, a mill, a church). Some *heiau* were destroyed by activities related to sugar and pineapple cultivation and cattle grazing. Since the forms and locations and degree of physical integrity of these known *heiau* vary, and since much of what constitutes a *heiau* does not rely on physical, tangible elements, identifying the sites, or even predicting where such sites might be found, is problematic. Any model of the central Ko‘olau Poko district in pre-Contact times, however, should acknowledge that such sites were an integral part of the Native Hawaiian settlement pattern. In Ha‘ikū there were the remains of two *heiau*: stones from Kane a me Kanaloa Heiau may have been used to form a post-Contact wall, and all that was left of Kahekili was a weathered boulder. These remains are likely within the Interstate Route H-3 corridor. In Kāne‘ohe, Kawa‘ewa‘e and Ahukini *heiau* are still intact, and close to (but still outside) the highway construction corridor. Of particular interest here is the fate of Kukuiokāne Heiau. This *heiau* in Kāne‘ohe, reportedly in Lulukū and reportedly destroyed by pineapple cultivation, would be near the highway corridor, based on historical evidence. Community members say that the *heiau* was in fact in an adjacent ‘ili, Punalu‘u Mauka, and that it was directly in the path of the Interstate Route H-3 and covered over during the construction process.

As indicated in the next sections, however, findings of above-ground, free-standing stone structures, whether of agricultural, domestic, or religious sites, may be less than anticipated. Widespread clearing for and plowing of plantations, damage caused by cattle ranching, and construction of modern housing developments and commercial areas have all taken a toll on the readily visible elements of the Hawaiian settlement pattern in central Ko‘olau Poko.

PLANTATIONS AND RANCHES

Chapter 4 describes changes that occurred after the Mahele, when large tracts of land in central Ko‘olau Poko were amassed by *ali‘i* and non-Hawaiians. These lands were soon put to use for the large-scale cultivation of sugar cane and rice, which started in the 1860s and lasted for about four decades. As the areas of cultivation expanded, many traditional sites that had been abandoned because of a decline in the Native Hawaiian population were damaged or destroyed.

Four sugar companies operated in He‘eia and Kāne‘ohe. Ha‘ikū Valley was included in the lands leased to the Heeia Sugar Company, which also eventually included the Kea‘ahala Mauka lands of the Keaahala Plantation. Portions of both areas are within the highway corridor. The very large Kaneohe Sugar Plantation and the smaller Parker Sugar Company, both in Kāne‘ohe, may have made use of lands (such as the upland *lele* of Halekou) that are in the path of the highway. A small mill was built in Kea‘ahala, and a railroad for transporting cane was constructed in He‘eia. Some elements of these support mechanisms for the sugar industry might still be visible archaeologically. Sugarcane land itself would be difficult to ascertain archaeologically, without the use of historic maps.

Rice cultivation took over many of the areas that had previously been in taro production. Such an area is known for Lulukū, downslope from the highway corridor, although flatter, lowland areas with adequate water were the main focus of rice production. As the former *lo'i* were reused in this fashion, their original configurations and boundaries changed. Archaeologically, soil characteristics and pollen evidence might help differentiate between terraces used for cultivation of taro and those used later for rice, although such traits could only be observed through excavation and not surface survey. As with the sugar cane lands, historic maps would be most helpful in determining locations of rice production.

Large acreages not devoted to raising cash crops were used for grazing livestock. Pasture lands were probably in the traditional *kula* areas. Feral cattle damaged traditional sites, and attempts to control cattle (either with long walls to keep them out of farmland, or pens to keep them enclosed) often used stones from traditional sites, causing more damage. Long, free-standing stone walls marking property boundaries, using a traditional Hawaiian technique to define a Western, introduced concept, are probably from this period.

Another aspect of the large-scale plantation and ranch operations at this time was the need for an increased labor force. This need was met through immigration. As immigrants and their families settled in the region, another archaeological site type that could be predicted is the non-Hawaiian, non-traditional housesite, incorporating modern (and perhaps foreign) materials in construction and household contents.

DIVERSIFIED ECONOMIC SITES

Although the efforts in planting considerable areas in sugar cane and rice were waning or over by the beginning of the twentieth century, large-scale agriculture was still altering the landscape. Chapter 5 discusses the pineapple industry and how it affected the central Ko'olau Poko area. Extensive fields were cleared and planted, and canneries, roads, bridges, and workers' housing were built. Libby, McNeill & Libby leased hundreds of acres from the Heeia Sugar Company in He'eia. In the Kāne'ohe portion of the highway corridor, pineapple lands controlled by Libby, McNeill & Libby included areas in Pau, Kapalai, Lulukū, Kahuauli, Kuou, Ho'oleinaiwa, and the upland *lele* of Halekou, excluding individual LCAs and, interestingly, the entire *'ili* of Punalu'u Mauka (Libby, McNeill & Libby 1914), which had been privately owned since 1851. Pineapple cultivation and associated land clearing were responsible for damaging several known sites including *heiau* (notably Kukuiokāne Heiau, in or near the highway corridor; see above) and a *holua* slide.

Pineapple clearing also did away with much of the guava that had previously covered large areas of the windward side of O'ahu. This introduced plant, although considered a pest, did have economic value as a favored raw material to be turned into charcoal for sale and domestic purposes. Charcoal kilns have been found throughout Kāne'ohe and Kailua, often at the base of upland hillsides or in gulches. Interestingly, they appear to be absent from areas that had previously been cleared during use as ranch or plantation land, probably because these activities had removed easily accessible, large stands of guava. Remains of the pit kiln type are most likely to be found archaeologically, as these often incorporated interior stone linings and sometimes a concrete domed roof. Mound kilns are unlikely to be found by surface survey, as the earthen elements were removed in order to retrieve the finished product. Extensive charcoal remains found subsurface, in the absence of a traditional style *imu* pit, would mark this kiln type,

particularly if the botanical remains are identified as guava. Two examples of charcoal kilns are still to be found in Kāneʻohe, *makai* of the highway corridor in Hoʻomaluhia Park.

Widespread farming of bananas also began in the early twentieth century. Banana farming, unlike pineapple cultivation, was not undertaken by large business concerns, but by individual farming families, often the immigrants who had been brought in to work on the larger plantations. The upland areas of Kāneʻohe traversed by the Interstate Route H-3 are particularly favorable for banana cultivation, with optimal amounts of sun and rain. Preparation for banana plantings did not include construction of leveled or terraced areas; where banana fields are found on stone- or soil-faced terraces, they are almost certainly making use of areas that had previously been in taro or rice cultivation. One landscape change that could be attributed to banana farming is the network of unpaved roads that extend throughout the banana fields, branching off from earlier roads put in by the pineapple companies. Some of these banana roads use the flat areas of former taro terraces.

Cattle ranching continued in Heʻeia and Kāneʻohe in the twentieth century. One new livestock concern in the Koʻolau Poko area was the establishment of a gamebird preserve on Mōkapu Peninsula. Some of the small, family-run farms in the area included provisions for raising dairy cows, pigs, and poultry. Draft animals such as horses, donkeys, and water buffalo were common in the early part of century, before cars and trucks became widely available. Although unlikely archaeological finds, an awareness of the possible presence of these kinds of animal remains in the highway corridor is necessary for adequate faunal analysis.

Finally, U.S. military activity in Heʻeia and Kāneʻohe in the twentieth century has had a big economic impact. In some cases, the construction of buildings, roads, and communication facilities have altered or damaged earlier sites, such as taro terraces in Heʻeia and religious and domestic sites on Mōkapu. In other cases, restrictions on access and purposeful stewardship, as with the Nuʻupia fishponds, may have preserved sites that otherwise might have been destroyed by development. Archaeological remains of military activity in Keaʻahala could possibly be within the highway corridor. Most of the military construction in Haʻikū is not within the actual corridor, but is within the view plane of the highway. As noted above, the Interstate Route H-3 ends at the Mōkapu Peninsula, and so does not physically alter the extensive military presence there.

POSTSCRIPT

As stated in Chapter 1, an earlier version of this report was used extensively in assessing the many site types revealed during the archaeological investigations of the windward portion of the Interstate Route H-3 project. It is hoped that this history of central Koʻolau Poko will also be of use for any future archaeological projects in Heʻeia and Kāneʻohe. Of special note in this report is the extensive documentation of the land claims presented to the Board of Commissioners to Quiet Land Titles, and the subsequent Land Commission Awards. The *'ili* maps showing locations of awarded and unawarded claims in Heʻeia and Kāneʻohe are another major contribution of this project. And the transcripts of informant interviews give a voice to the more recent developments in the area and put them in a personal context. These are valuable resources that have not previously been available in a readily accessible format. They are provided for the interested researcher in the appendices that follow.