



HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
KAUAI DISTRICT
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OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

March 11, 1996

IN REPLY REFER TO

Mr. Gary Gill
Office of Environmental Quality Control
220 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Gill:

Subject: Negative Declaration for Kokee Field Station and Mid Elevation Nursery,
TMK 1-04-01, Waimea, Kauai, Hawaii.

The State Department of Land and Natural Resources has reviewed one comment during the 30-day public comment period which began on February 08, 1996. The comments and responses are attached in the final EA.

The Agency has determined that this project will not have a significant environmental effect and has issued a negative declaration. Please publish this notice in the March 13, 1996 OEQC Bulletin.

We have enclosed a complete OEQC Bulletin Publication Form and four copies of the final EA.

Please contact me at 274-3433 if you have any questions.

Sincerely;


Edwin Petteys
District Manager

1996-03-23- KA-FEA - Kōkē Field Station and Mid Elevation
Nursery

MAR 23 1996

FILE COPY

FINAL ENVIRONMENTAL ASSESSMENT
KOKEE FIELD STATION AND MID-ELEVATION NURSERY
WAIMEA, KAUAI

Submitted in Accordance
with Requirements for Chapter 343, HRS
and
Chapter 200 of Title II, Administrative Rules
Department of Health, State of Hawaii

Department of Land and Natural Resources
Division of Forestry and Wildlife
Kauai District

March 12, 1996

W900 3117

DRAFT ENVIRONMENTAL ASSESSMENT

Proposed Action : Kokee Field Station and Mid-Elevation Nursery
Applicant : Department of Land and Natural Resources
Division of Forestry and Wildlife, Kauai District
Location : Waimea, Kauai
TMK: MOU with State Parks
Determination : EIS REQUIRED _____ NOT REQUIRED X_____
Approving Agency : Board of Land and Natural Resources

Agencies and Organizations Consulted or Contacted
in Preparing This Assessment

Federal : Department of Interior,
U.S. Fish and Wildlife Service
State : Department of Land and Natural Resources,
Division of State Parks
Division of Land Management
Division of Aquatic Resources
Division of Forestry and Wildlife
Division of Historical Sites
: Department of Health,
Division of Environmental Health Services
County : Department of Planning
: Department of Public works
: Department of Water Supply
: Fire Department
: Police Department
Others : Citizens Utilities
: Hawaiian Telephone Company
Organizations : National Tropical Botanical Gardens
: Hawaii Plant Conservation Center
: Moanalua Gardens Foundation
: Kokee Natural History Museum

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SECTION 1

DESCRIPTION OF THE PROPOSED ACTION

A. Technical characteristics: The Kauai District of the Division of Forestry and Wildlife has management responsibilities over thousands of acres of forest reserves, natural areas, and game management areas in the uplands of western and northern Kauai. The District's operational capabilities are often inefficient, due to the lack of support facilities in the area. The District feels that having a facility in the area would greatly facilitate several key program areas, and is planning a field station and mid-elevation plant nursery. The facility would address our outplanting and plant sanctuary programs by the establishment of a mid-elevation plant nursery. Our field operations would have storage for tools, equipment, and wildfire fighting material, as well as eventual lodging. Our increasing volunteer program would be able to offer a centralized location, as well as lodging.

There is, at present, no other mid-elevation nursery facility on the island, and this is a widely recognized need. Having the facility will greatly increase field operations efficiency, as travel times and response times will be lessened. There will be cost savings as well. Volunteers will enjoy similar benefits.

Plans are to take a phased approach to establish a field station and mid-elevation threatened and endangered plant nursery at Pohakuwaawaa, within Koke'e State Park. A 1.5 acre site has been selected at 4,080 feet elevation within Koke'e State Park. It is conveyed through an assignment of a memorandum of understanding by the Division of State Parks to the Division of Forestry and Wildlife. The proposed site is situated next to Koke'e State Park's main access road at a previously used U.S. Army World War II communications facility. The parcel has long been abandoned and overgrown with weed shrubs and grasses. A 1,000 square foot, one story concrete building remains, that has repairable walls and roof. With renovations the building could be put into serviceable condition as a water catchment as well as for secure storage, staff use, and sanitary facilities.

The nursery portion of the site would be used to propagate and harden plant species for eventual outplanting in sites and sanctuaries nearby.

Initially 400 square feet of elevated planting tables are planned. Space is available to expand, should the need arise, and funding become available.

We propose a three-stage development, subject to funds availability. Plot diagrams and facility plans are attached.

a. Stage one would be to clear a 4-6 foot wide section of any vegetation along the parcel to make way for and establish an 8' high chain-link security fence. Also, work would start to refurbish the old structure. Priority will be given to the roof, as it will be the main water catchment for the nursery. Further refurbishment will continue throughout the project, as funding allows. The structure will serve as the administrative center for the facility, eventually having an office, meeting room, restroom and storage.

b. Stage two would be the establishment of utilities to the site (water and electrical), and the creation of an approved septic and leach field system. The water source would be the roof catchment system, which would be stored in 15,000 gallon water tanks.

Work would start on the nursery at this time. It would consist of constructing a 12' x 24' misting/ potting shed, 4 planting tables about 4 feet wide by 20 feet long, its own water tank, and an automatic sprinkler system. Installation of a water pressure pump will also be needed to charge the sprinkler system.

c. Stage Three would be the addition of another structure to house volunteer workers and staff (of up to 18 people). This would have bunk spaces, bathrooms, storage, and kitchen facilities appropriate to those numbers.

Summary:

The site would serve three main functions. One function would be to increase our activities in the cultivation and rearing of native plants, with an emphasis on those that are threatened and endangered. The nursery would not be used as a distribution point for the public, meaning that there would be no additional traffic as a consequence of this function.

Secondly, we need a site that would support our normal field activities and crew work in the Koke'e area. Having a site would maximize time spent on actual work.

Thirdly, we are increasing our use of volunteers throughout our programs. Most of their work occurs on weekends. We need a site to house, train, and equip volunteers when working in the Koke'e area.

We envision that the site use and occupancy would be frequent but it would be no more than other leases in the area, especially those used by organizations and groups.

B. Socio-economic Cost: The primary economic benefit from development of the nursery will be the estimated \$75,000 in construction materials by local businesses.

Stage 3 would provide substantial economic benefit, but its implantation must be budgeted. The Division of Forestry and Wildlife will assume responsibility for care and maintenance of the facility.

C. Environmental Characteristics: The proposed site has an existing gravel access road, and is situated on gently sloping ground that has become overgrown with mostly non-native plants and grasses, most of which will need to be cleared. Archaeological, botanical and faunal surveys of the site have been conducted using contract Botanists a State Archaeologist and Biologist. Their official reports are attached.

The parcel is located in a diverse mesic forest where 'ohi'a lehua (*Metrosideros polymorpha*) and Koa (*Acacia koa*) are the dominant species; 'ohi'a and koa-'ohi'a forest are found on about one-fourth of the total land area of the island.

Common native forest birds are found at the site include: Apapane, Amakihi, Anianiau, Akepa, Elepaio and Iiwi. Although not having been recorded at the site, the Kauai Creeper may occasionally be found there. Introduced birds found at the site include: Lace Necked Dove, Common Myna, Japanese White Eye, Red Cardinal, House Finch, English Sparrow, Hwamei, White-Rumped Shama, Wild Chickens, Nutmeg Mannikins and Ring-Necked Pheasants. The habitat is heavily infected with introduced grasses and weeds, not considered useful to threatened and endangered forest birds. No rare or endangered species of native plants or animals occur on the site.

SECTION II

DESCRIPTION OF THE AFFECTED ENVIRONMENT

A. Use.

The parcel is located approximately three-quarter mile north of the Koke'e State Park campground at an elevation of 4080 feet on Kaunohua Ridge. The land is sparsely forested with approximately one acre of open grassland where an old military concrete structure (approx. 1000 sq. ft. in size) still exists.

B. Utilities.

There are no existing utilities on the parcel, however telephone and electrical lines follow the highway, approximately 300 feet from the cabin site. A powerline and power pole are located close to the project's entranceway.

C. Access.

An old access road dating from the mid 1940's just beyond the 17-mile marker on the Koke'e Road leads to the site. The road is in good shape, it has a layer of construction grade gravel and is very compacted. There is no known public trail near the site, but it seems that the public has used the road when harvesting plums during the summer months.

D. Vegetation.

(See attached; "Botanical Survey of the Proposed DOFAW Nursery Site," By Tim Flynn, NTB. January 1995)

E. Topography.

Topography of the site is gently sloping. The parcel is situated along Kaunohua Ridge of Koke'e between the 4000 and 4100 foot elevation contours. The site is near a flat area mauka of Awa'awapuhi Trailhead near the district boundary of Waimea and Hanalei. The soil in the project area falls into the Koke'e silty clay loam series, typical of Kahuama'a Flat and Kaaunohua Ridge. These soils are well-drained and developed from material weathered from igneous rock mixed with volcanic ash (Foote et. al., 1972).

F. Historic or Archaeological site plans.

(See attached; "Archaeological Survey" By Martha Yent, DLNR Div. of State Parks. March 1995).

G. Faunal.

(See attached; "Faunal Survey of the Proposed DOFAW Mid-Elevation Nursery Site," by Tom Telfer, DLNR. June 1995)

SECTION IIIALTERNATIVES TO THE PROPOSED ACTION

Identification and summary of major impacts and alternatives: There are three impacts that may be considered significant; the removal of native plants, sewage disposal, and availability of potable water. Also, the alternative of using other parcels is considered.

A. Short Term Impact: Removal of native vegetation:

A botanical survey was conducted on November 16, 1994 by Mr. Tim Flynn and Dr. David H. Lorence of the National Tropical Botanical Gardens. According to their report, the site was originally cleared in 1943 or 1944 by the United States Army. The site was being developed for a radar facility in Koke'e (T. Flynn, NTBG; Appendix 1). The report concludes that the vegetation of the site is dominated by alien species. A fair number of native species do occur on the site but none are considered to be rare, threatened, or endangered by either the State of Hawaii or the U.S. Fish and Wildlife Service.

Partial clearing of the project site will require the removal of several dozen native plants, all of which are very abundant species. Species to be removed include less than 10 (ten) each of naupaka kuahiwi, pilo, 'a'ali'i, and 'ohi'a lehua.

a. Alternative: The primary alternative to removal of native plants for construction of the mid-elevation nursery would be not to build the facility. There are great advantages to having a mid-elevation nursery. The continued existence of rare and endangered plants will have a better chance of survival if this facility is built. There will be additional benefits to the nearby resources in having better attention and care, brought on by having the field station. The benefits will, in our opinion, greatly outweigh the impacts caused by the removal of some common native plants.

B. Long Term Impact: Sewage disposal:

When the new building is completed, there will be up to 18 people staying overnight at the project site. There will be a need to install a septic tank and leach field or composting system to dispose of waste. Suitable open land is available on the down hill side of the building to support a septic system.

a. Alternative: Not to build the facility. For the same reason as stated in above, we do not consider the alternative of not building the facility as acceptable. We do not consider a properly designed septic and leach field to be a significant negative impact to the environment in this isolated area. Approval of the septic and leach field plan will be obtained

from the State Health Department before any construction commences.

C. Long Term Impact: Irrigation water:

Connection to the State Park's water system is not feasible. A catchment system will need to be designed and constructed. Because there must be an adequate supply of water to irrigate the plants at the nursery, two 15,000-gallon water tanks are planned. All non potable water will be supplied from a catchment at the main cabin. Potable water for human consumption will be brought to the site in containers from domestic supplies.

a. Alternative: The only alternative would be not to build the facility. The State Parks main water system facility runs below the proposed site, which is approximately .75 miles from the project site. Constructing a pipeline for that distance would be very costly and environmentally disruptive.

SECTION IV

PROPOSED MITIGATION MEASURES:

A. Mitigation for the removal of native plants:

Several measures will be taken to avoid damage to the vegetation during construction and excavation work. DOFAW staff will be consulted before any clearing is done at the site. All native plants will be flagged during the initial site clearing to avoid unnecessary damage.

It is recommended that if a plant needs to be removed from the site to make way for the exterior fence, that it be planted somewhere else on the site.

B. Mitigation for sewage treatment:

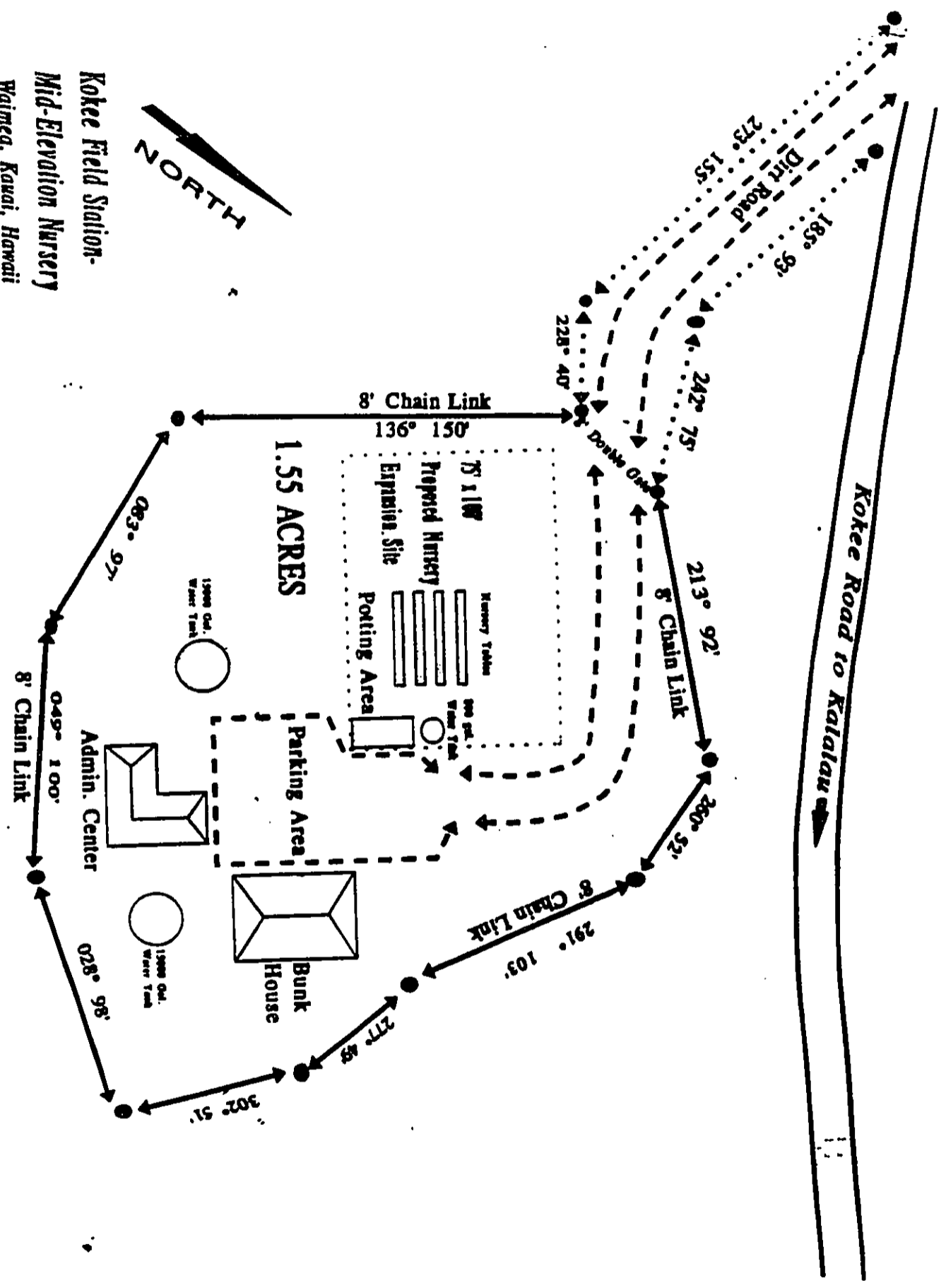
Efforts will be made to reduce the amount of wastes produced at the site, through recycling and composting. If approved by the State Health Department, it may be possible to install some of the very effective, efficient, and clean self-composting toilets. There are several manufacturers that produce these systems, such as the Clivus Multrum Co. that are used by the Kauai District at various camp sites. These toilets meet standards set by the American Association of Sanitation Engineers.

C. Alternative use of other existing facilities:

Kauai District looked into possible use of other sites in Koke'e State Park before the current site was selected. One consideration was to use a vacant, but pre-existing cabin lease site. After checking with the Department of Health, it was clear that we could not get the DOH approval to establish a field station/nursery at that site, because it is too close to the existing State Parks water source to allow for sewage disposal.

No other sites have been found that meet the Divisions requirements.

Kokee Field Station-
Mid-Elevation Nursery
Waimea, Kawai, Hawaii
Scale: 1 inch = 50 feet
TMK 1-4-01



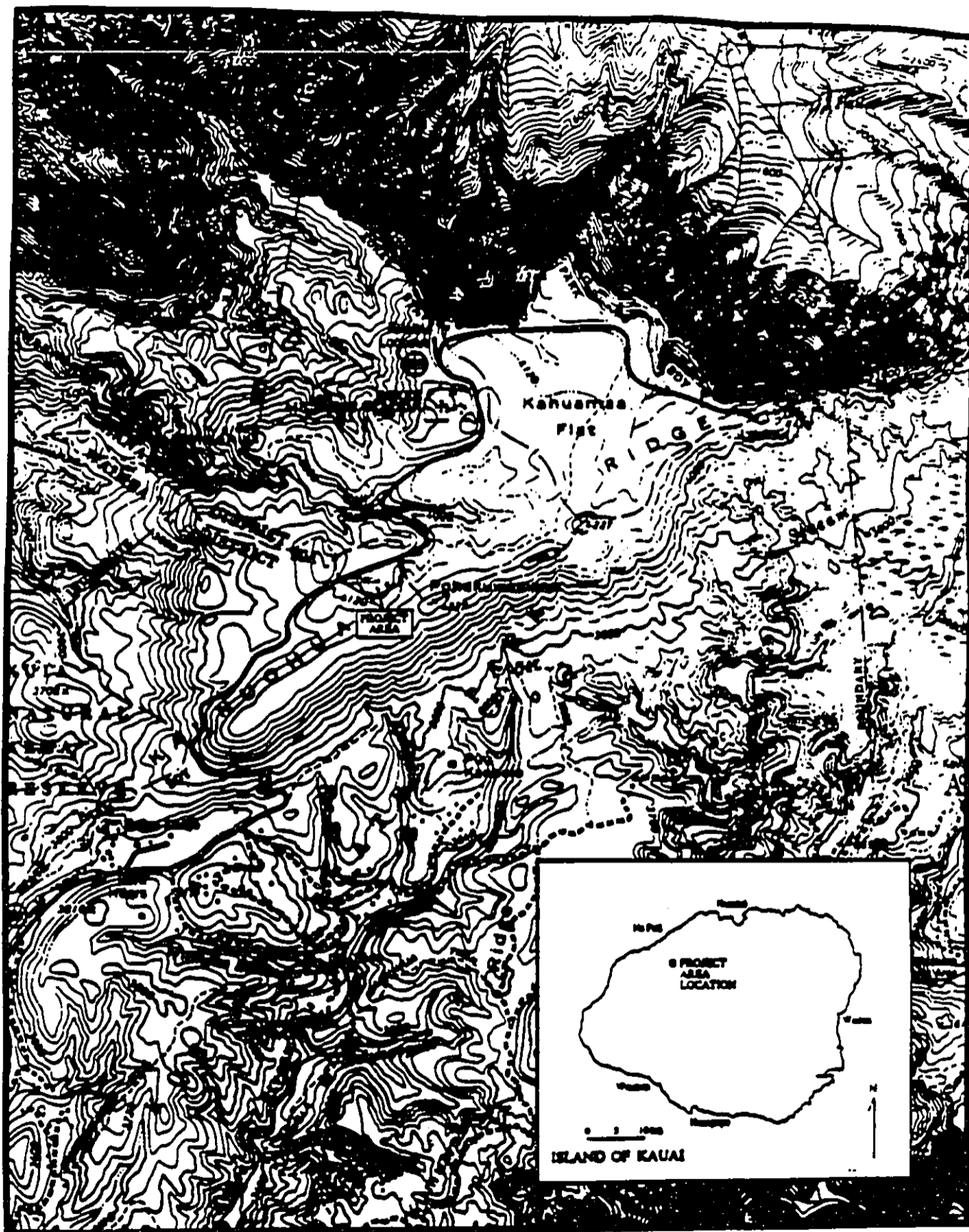
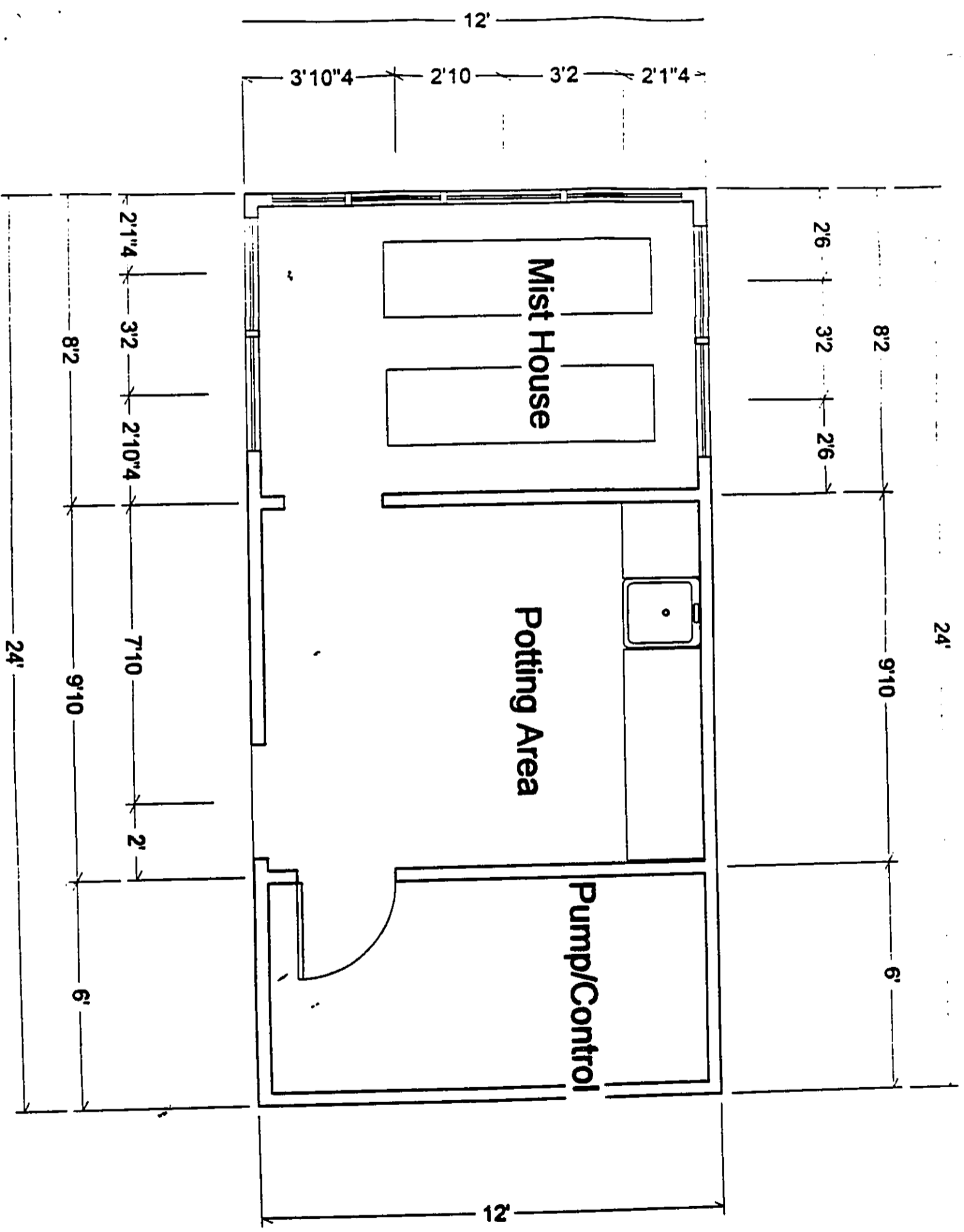


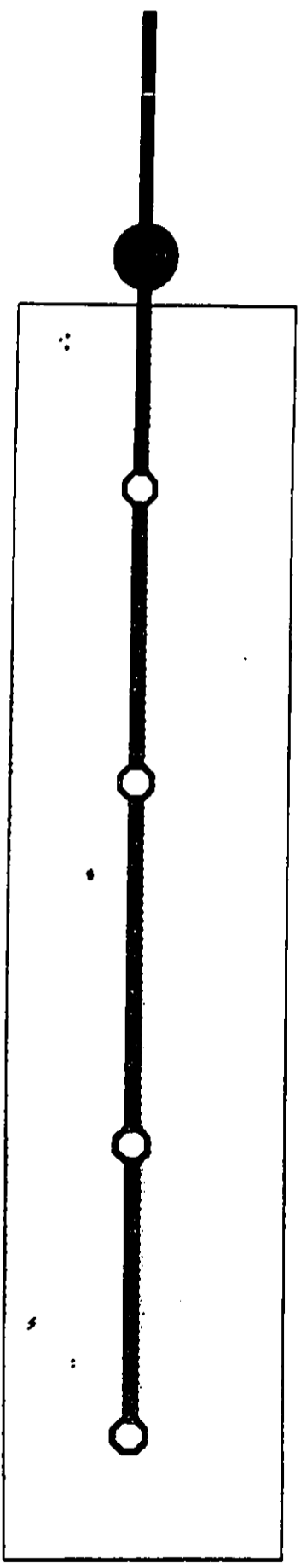
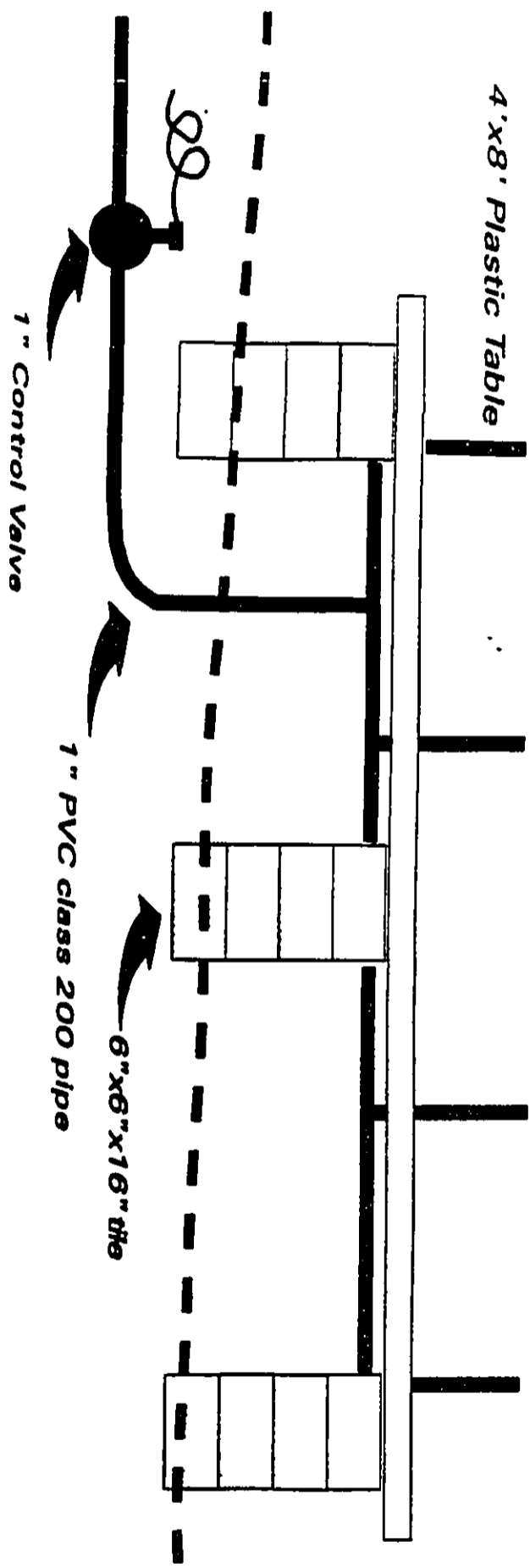
FIG. 1 - Project area and former Army Camp at Kaunuohua Ridge, Koke'e (USGS 7.5 minute series, Haena Quad, 1"=2,000').



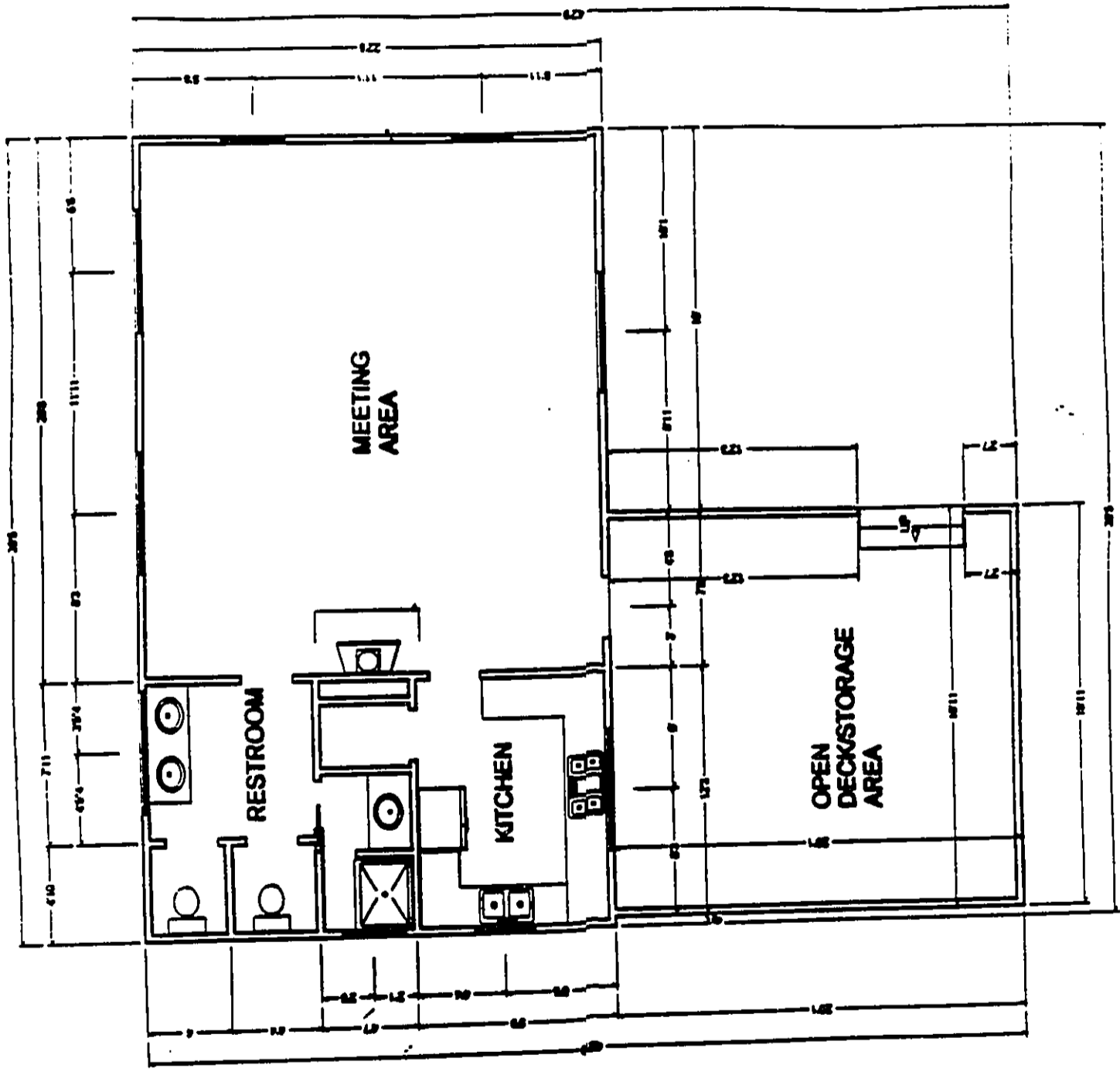
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4'x8' Plastic Table

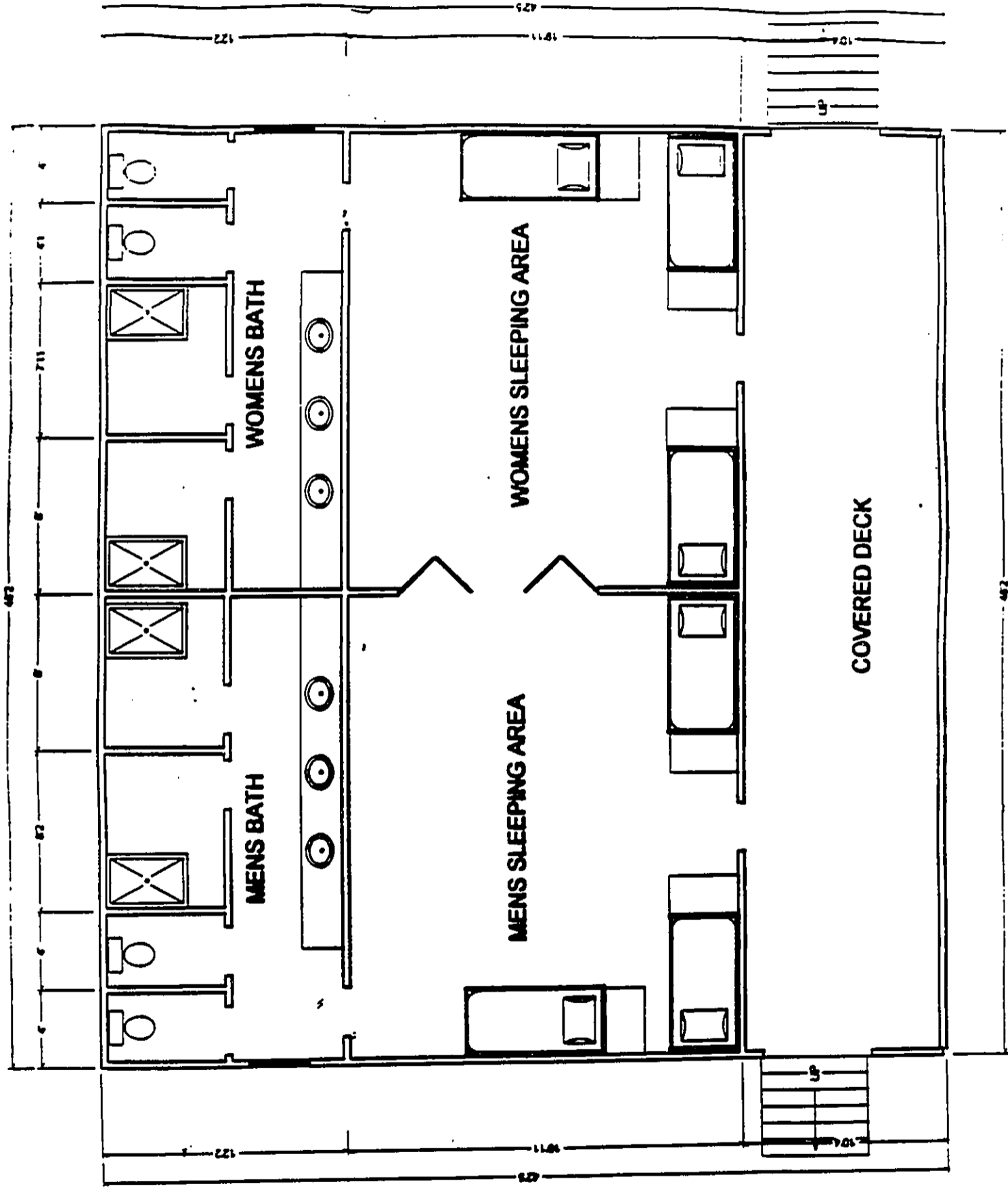
1/2" PVC Risers



PLANTING TABLES



Proposed Administrative Center



Proposed Bunk House (stage III)

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**Botanical Survey of the Proposed DOFAW Nursery Site
Kokee State Park**

Tim Flynn
National Tropical Botanical Garden
January, 1995

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DISCUSSION AND FINDINGS

A botanical survey of the Division of Forestry & Wildlife's proposed mid-elevation nursery site and its access road was conducted on November 16, 1994 by Tim Flynn and David H. Lorence. The nursery site occupies approximately 2.5 acres (G. Kawakami, pers. com.) on Kaunuohua Ridge at an elevation of ca. 4080 ft. in *Metrosideros*

dominated wet forest, just south of the main Kokee State Park road (Hwy 550) at mile marker 17 (Map 1).

The site was originally cleared in 1943 or 1944 by the United States Army during the development of its radar facilities in Kokee (J. H. R. Plews, pers. com.; Appendix 1). Access to the area is along a short road through secondary vegetation bordered along the west side by a large stand of lasiandra (Tibouchina urvilleana var. urvilleana). The eastern side of the road is only slightly more diverse with two common native species, koi (Coprosma kauensis) and 'a'ali'i (Dodonaea viscosa), struggling to survive among Australian blackwood (Acacia melanoxylon), honeysuckle (Lonicera japonica), banana poka (Passiflora cv. Banana Poka), and kahili ginger (Hedychium gardnerianum).

The front (northern) and central portions of the site occupy a more or less open area of low, secondary vegetation typical of that found on disturbed areas throughout Kokee - kikuyu grass (Pennisetum clandestinum), common velvet grass (Holcus lanatus), vasey grass (Paspalum urvillei), montbretia (Crocasmia X crocosmiiflora), kahili ginger (Hedychium gardnerianum), hardy fuchsia (Fuchsia magellanica), hydrangea (Hydrangea macrophylla), firetree (Myrica faya), and Australian blackwood. Individuals of koi and 'a'ali'i are scattered throughout this area as well as single plants of 'alea (Ilex anomala) and 'ala'a (Pouteria sandwicensis). This open portion extends south to include an abandoned building remaining from the Army occupation and covers roughly the northern three-quarters of the site (Map 1).

The vast majority of native species are found behind (south) and west of the abandoned building. Here the wet forest is relatively intact with the canopy dominated by 'ohi'a (Metrosideros polymorpha var. glaberrima). Other small mid-stratum and understory tree species are also found here, with some being quite common. They

From DOFAW Nursery Survey

include kolea (Myrsine alxifolia), olopuu (Nestegis sandwicensis), kopiko (Psychotria hexandra and P. greenwelliae), laukea (Claoxylon sandwicense), olomea (Perrottetia sandwicensis), and 'a'ali'i. The understory is composed of a mixture of native ferns and herbs, especially ho'io (Diplazium sandwichianum), palapalai (Microlepia strigosa), and 'uki'uki (Dianella sandwicensis), invaded by the alien species airplant (Kalanchoë pinnata), fireweed (Erechtites valerianifolia), and montbretia.

The vegetation of the site is dominated by alien species. A fair number of native species do occur on the site but none are considered to be rare, threatened, or endangered by either the State of Hawaii or the U. S. Fish and Wildlife Service. A list of all of the species of vascular plants seen on the site has been included at the end of this report.

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VASCULAR PLANT SPECIES LIST

List of the vascular plants occurring at DOFAW's Proposed Mid-elevation Nursery Site at Kokee, Kauai. The scientific and common names of the flowering plants follow Wagner et al. (1990); the scientific names of the pteridophytes follow Wagner & Wagner (1994), the common names of the pteridophytes follow Porter (1972). Native species are in **Bold Face type**.

FAMILY

Scientific name

Common name

AGAVACEAE

Cordyline fruticosa (L.) A. Chev.

ti

Pleomele aurea (H. Mann) N. E. Brown

halapepe

AQUIFOLIACEAE

Ilex anomala Hook. & Arnott

'aiea

ARALIACEAE

Cheirodendron trigynum (Gaud.) A. Heller

subsp. *helleri* (Sherff) Lowry

'olapa

ASPLENIACEAE

Asplenium contiguum Kaulf.

--

ASTERACEAE

Cirsium vulgare (Savi) Ten.

bull thistle

<i>Conyza bonariensis</i> (L.) Cronq.	hairy horseweed
<i>Erechtites valerianifolia</i> (Wolf) DC	fireweed
BRASSICACEAE	
<i>Coronopus didymus</i> (L.) Sm.	watercress
CAPRIFOLIACEAE	
<i>Lonicera japonica</i> Thunb.	honeysuckle
CARYOPHYLLACEAE	
<i>Polycarpon tetraphyllum</i> (L.) L.	--
CELASTRACEAE	
<i>Perrottetia sandwicensis</i> A. Gray	clomea
CRASSULACEAE	
<i>Kalanchoë pinnata</i> (Lam.) Pers.	air plant
CYATHEACEAE	
<i>Cibotium glaucum</i> (Sm.) Hook. & Arnott	hapu'u
CYPERACEAE	
<i>Carex meyenii</i> Nees	--
<i>Kyllinga brevifolia</i> Rottb.	kill'o'opu
<i>Mariscus meyenianus</i> (Kunth) Nees	--

DENSTAEDTIACEAE

Microlepia strigosa (Thunb.) Presl palapalai

DRYOPTERIDACEAE

Deparia petersenii (Kunze) M. Kato --

Diplazium sandwichianum (Presl) Diels ho'i'o

Dryopteris sandwicensis (Hook. & Amott) C. Chr. --

Dryopteris wallichiana (Spreng.) Hyl. --

Elaphoglossum paleaceum (Hook. & Grev.) Sledge --

Elaphoglossum wawrae (Lueres.) C. Chr. --

EUPHORBIACEAE

Claoxylon sandwicense Muell. Arg. laukea

FABACEAE

Acacia melanoxylon R. Br. Australian blackwood

GESNERIACEAE

Cyrtandra kauaiensis Wawra ulunahele

Cyrtandra longifolia (Wawra) Hillebr. --

ex C. B. Clarke

GOODENIACEAE

Scaevola procera Hillebr. naupaka kuahiwi

HYDRANGEACEAE

Hydrangea macrophylla (Thunb.) Ser. in DC hydrangea

IRIDACEAE

Crocasmia x crocosmiiflora

(Lemoine ex E. Morr.) N. E. Brown

montbretia

Watsonia borbonica (Pourr.) Goldblatt

--

LAURACEAE

Persea americana Mill.

avocado

LILIACEAE

Dianella sandwicensis Hook. & Arnott

'uki'uki

LYTHRACEAE

Lythrum maritimum Kunth

pukamole

MELASTOMATACEAE

Tibouchina urvilleana (DC) Cogn.var. *urvilleana*

lasiandra

MORACEAE

Ficus carica L.

common fig

MYRICACEAE

Myrica faya Aiton

firetree

MYRSINACEAE

Myrsine slyxifolia Hosaka

kolea

MYRTACEAE

Metrosideros polymorpha Gaud.
var. *glaberrima* (H. Lev.) St. John
Psidium cattleianum Sabine

'ohi'a lehua
strawberry guava

OLEACEAE

Nestegis sandwicensis
(A. Gray) Degener, I. Degener & A. Johnson

olopua

ONAGRACEAE

Fuchsia magellanica Lam.

hardy fuchsia

OXALIDACEAE

Oxalis corniculata L.

yellow wood sorrel

PASSIFLORACEAE

Passiflora cv. Banana Poka

banana poka

PLANTAGINACEAE

Plantago lanceolata L.

narrow-leaved plantain

Plantago major L.

laukahi

POACEAE

Axonopus fissifolius (Raddi) Kuhim.

narrow-leaved
carpetgrass

Dactylis glomerata L.

cocksfoot

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<i>Holcus lanatus</i> L.	common velvet grass
<i>Paspalum urvillei</i> Steud.	vasey grass
<i>Pennisetum clandestinum</i> Chiov.	kikuyu grass
<i>Setaria gracilis</i> Kunth	yellow foxtail
<i>Sporobolus indicus</i> (L.) R. Br.	West Indian dropseed

PRIMULACEAE

<i>Anagallis arvensis</i> L.	scarlet pimpernel
------------------------------	-------------------

PSILOTACEAE

<i>Psilotum nudum</i> (L.) Beauv.	moa
-----------------------------------	-----

PTERIDACEAE

<i>Coniogramme pilosa</i> (Brack.) Hieron.	lo'ulu
<i>Pityrogramma austroamericana</i> Domin	goldfern
<i>Pteris cretica</i> L.	'owali
<i>Pteris excelsa</i> Gaud.	waimaka-nui

ROSACEAE

<i>Prunus cerasifera</i> J. F. Ehrhart	
X <i>Prunus salicina</i> Lindley	Methley plum
<i>Rubus argutus</i> Link	pricky Florida
	blackberry

RUBIACEAE

<i>Coprosma kauensis</i> (A. Gray) A. Heller	koi
<i>Coprosma waimese</i> Wawra	'olena

Psychotria greenwelliae Fosb.

kopiko

Psychotria hexandra H. Mann

kopiko

RUTACEAE

Melicope anisata (H. Mann) T. Hartley &

B. Stone

mokihana

SAPINDACEAE

Dodonaea viscosa Jacq.

'a'ali'i

SAPOTACEAE

Pouteria sandwicensis (A. Gray) Baehni

& Degener

'ala'a

THELYPTERIDACEAE

Thelypteris dentata (Forsk.) E. St. John

downy woodfern

Thelypteris parasitica (L.) Fosberg

--

VERBENACEAE

Verbena litoralis Kunth

owli

VISCACEAE

Korthalsella platycaula (Tiegh.) Engl.

hutumoa

ZINGIBERACEAE

Hedychium gardnerianum Ker-Gawl

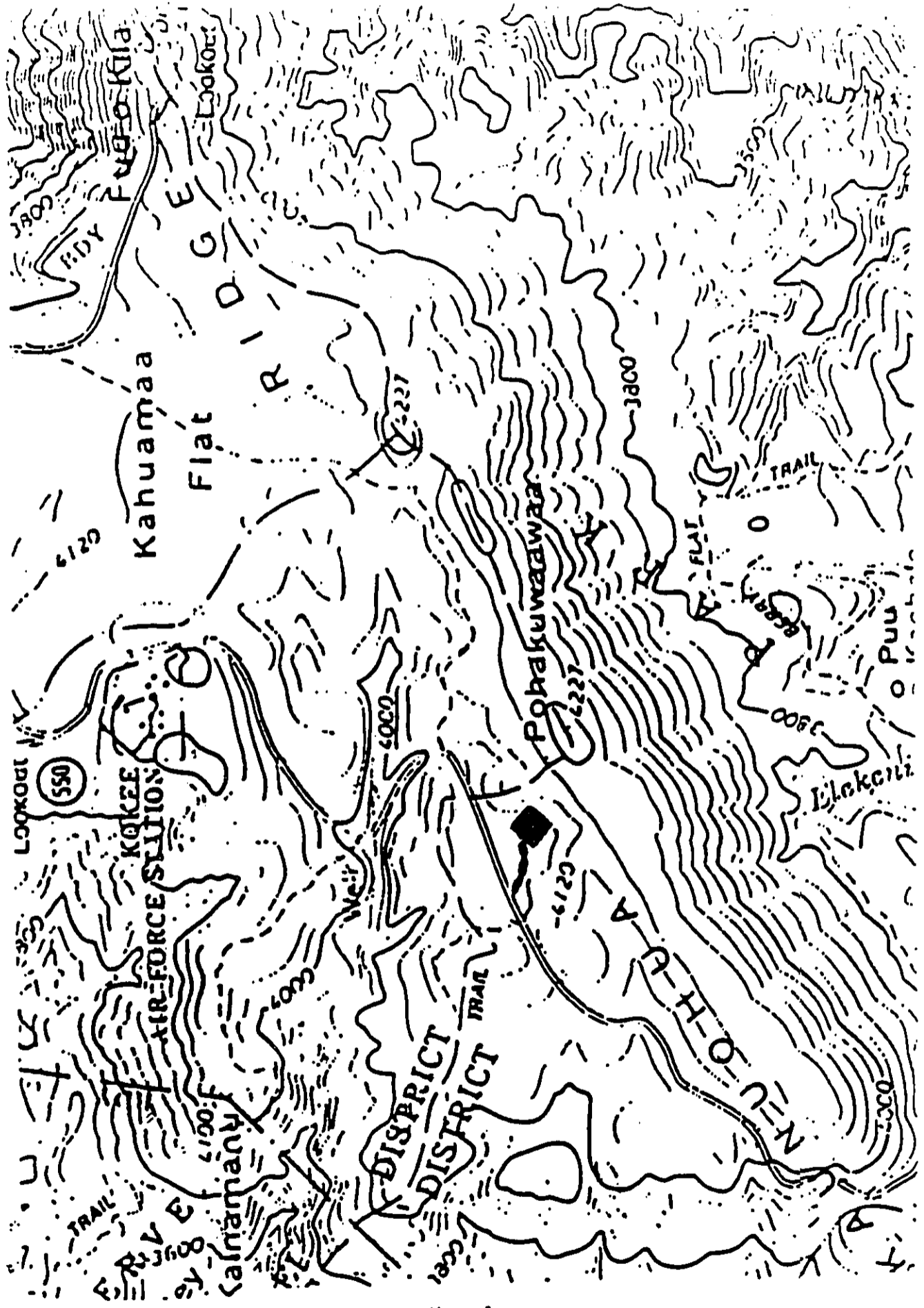
kahili ginger

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Wagner, W. H., Jr. and F. S. Wagner. 1994. Revised Checklist of Hawaiian Pteridophytes. (Unpublished).

Wagner, W. L., D. H. Herbst, and S. H. Sohmer. 1990. Manual of the Flowering Plants of Hawaii. 2 Vols. University of Hawaii Press and Bishop Museum Press. Honolulu.



Map 1
PROPOSED DOFAM NURSERY SITE
KOKEE STATE PARK
(HAENA QUAD MAP)

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JOHN H. R. PLEWS

Honolulu, Hawaii 96813-1006
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10 January 1995

Mr. Timothy Flynn
National Tropical Botanical Garden
P.O. Box 340
Lawai, Kauai, HI

Re: Proposed State nursery site opposite Awaawapuhi
trailhead

Dear Tim,

You have asked me what I know about the history of this site, which I understand is the roughly 2 - 3 acres which still shows signs of having once been cleared of native vegetation and planted with alien plant species, and surrounds a somewhat dilapidated masonry building across Highway 550 from the new trailhead of the Awaawapuhi Trail.

Sometime in the middle of World War II, Col. Christiancy Pickett, commander of the artillery in the 33d Division, drove my father and me to Kalalau. We were along simply as guests. (The entire Kokee area was off-limits to civilians.) The following recollections are somewhat interpreted in the light of my later Army service.

Col. Pickett drove into the semi-circular driveway, and went into the masonry building (or another on the same exact site; I only recall its location and general size) where he stayed for some little time. From this, I infer it was a headquarters or orderly room, where he met some other officer. My father and I were told we could look around the area, but did not enter any of the buildings or tents. There were no security fences or sentries, in contrast to the radar installation, which we later drove discreetly past on the way to a hike around the old Kalalau lookout. The area around the masonry building had a few small structures and tents, and an extensive garden. The area across the road held more and larger buildings and tents, and a quantity of parked trucks, with one or more gas pumps at a small hardstand which is still there a little along the road towards Kalalau.

Putting this together with my later Army experience, I infer that the entire Awaawapuhi installation was a low security support area. The part across the highway obviously included a motor pool, and housing and mess halls for the troops. The smaller tents and buildings around the masonry building were probably for officers.

And, of course, that the commanding officer was a keen gardener. He had even resisted painting the rocks. ("If it moves, salute it; if it doesn't, paint it"). I wish I could remember what he grew, but all I retain is an impression that it was much like Kokee gardens, and had fig trees. At 9 or 10 years old, my interest in plants was pretty much confined to edible fruit.

I also wish I could date this visit more precisely. I believe it would have been between mid 1943 and mid 1944. This could be verified or corrected by finding out when the 33d Division was stationed on Kauai.

Incidentally, this was only my second visit to Kalalau. The previous one was on my horse, Menehune, because the road was extended beyond Kanaloahuluhulu only for the purpose of building what I heard grownups call a "listening post". By the middle of the war, even small boys had heard there was a mysterious detection device called "radar". The earlier, horseback, visit was the first long ride I was allowed to go on. I think it was in 1938, when I was 4. Both visits were thus very dramatic memories.

If my inference about the military use of the proposed site is correct, it is unlikely that there would be any hazardous waste in the area. Even oil and gas would have been stored across the highway. Two civilians from the Department of Defense asked me to show them around a few years ago. The only place that interested them was the tunnel on the makai side of the highway just before it crosses Awaawapuhi Stream. The steel doors were rusted shut, but, by boosting on shoulders and shining a flashlight through a small transom, we could see it looked empty.

It's more your kuleana than mine, but I think this is the best possible site for a nursery, if it is to grow both rainforest and mesic plants. The former need cool humid air no matter how much you water their roots, but species of our leeward mesic ecosystem must cope with heavy rain each winter, and, if provided good drainage and sunlight, should do well in a nursery in the rainforest. The Forestry Division's eradication of feral cattle allowed many native species to recolonize the rainforest to the extent that it is at least 90% native plants, although some species have not been able to recover spontaneously. It would be a pity to clear more rainforest of even common native species to make a nursery even for rarities that need help. As far as I know, this is the only area of rainforest that has already been cleared that is not in active use, for instance as radar base, highways, etc.

Another advantage of its location on the highway, across from the parking area for a popular trail, is that

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this could, and should allow it to be opened to public inspection. This would not only garner favorable public support for the recovery project, but protect it from thieves and vandals, who prefer to operate where they are unlikely to be seen.

Aloha,

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Faunal Survey for the Proposed DOFAW Mid-Elevation Nursery Site
Kokee State Park, Kauai

Thomas C. Telfer
District Wildlife Biologist
June 1995

The proposed mid-elevation threatened and endangered plant nursery site is located at approximately 4,080 feet elevation within Kokee State Park on Kaunuuohua Ridge within moderate to heavily degraded native Ohia (*Metrosideros polymorpha*) forest.

The site was previously cleared during World War II by the United States Army for a communications facility that has long since been abandoned. The area has subsequently become overgrown with a variety of introduced plants including: lasiandra (*Tibouchina urvilleana*), firetree (*Myrica faya*), Australian blackwood (*Acacia melanoxylon*), Japanese honeysuckle (*Lonicera japonica*), kahili ginger (*Hedychium gardnerianum*), fuchsia (*Fuchsia magellanica*), Kikuyu grass (*Pennisetum clandestinum*), vasey grass (*Paspalum urvillei*) and others. A few other common native trees and understory plants can be found on the site, none of which are considered threatened or rare (Flynn 1995).

Faunal surveys in the general vicinity were made during a Forest bird "calibration camp" on the upper Awaawapuhi Trail, and Kaluapuhi Trails nearby on February 22-23, 1994. Native forest birds found in this locality include: 'Apapane (*Himatione sanguinea*), 'Amakihi (*Hemignathus virens*), 'Anianiau (*Hemignathus parvus*), 'Akepa (*Loxops coccineus*), 'Tiwi, (*Vestiaria coccinea*), 'Elepaio (*Chasiempis sandwichensis*), and although not seen at that time the Kauai Creeper (*Oreomystis bairdi*) could inhabit this forest area on occasion. Non-native birds found in the area include: Hwamei (*Garrulus canorus*), White-rumped Shama (*Copsychus malabaricus*), Red Junglefowl (*Gallus gallus*), Ring-necked Pheasant (*Phasianus colchicus*), Japanese White-eye (*Zosterops japonicus*), Spotted Dove (*Streptopelia chinensis*), Common Mynah (*Acridotheres tristis*), Northern Cardinal (*Cardinalis cardinalis*), House Sparrow (*Passer domesticus*), House Finch (*Carpodacus mexicanus*), and Nutmeg Mannikin (*Lonchura punctulata*). The closest endangered bird sighting to this area was an unconfirmed 'O'u (*Psittirostra psittacea*) seen by a visitor in 1988 on the Pihea Trail, about 2 miles to the ENE of the site. No endangered birds have been documented on Kauai since Hurricane Iniki in September 1992 except the Puaiohi and Nukupu'u near Koaie Stream (over 6 miles away).

The project site falls within the upper range of mosquitoes, now confirmed to be an important vector of avian malaria. This is likely the chief reason that some of the native forest birds are no longer found in this region, and that others are becoming more uncommon.

Even though native birds utilize both the native and non-native plants at the proposed mid-elevation plant nursery site, clearing of less than one acre of the vegetation at the site and its utilization for propagating native threatened and endangered plants would be insignificant to the birds, considering the benefits that can be achieved.

The only native terrestrial mammal in Hawaii is the Hawaiian Hoary Bat (*Lasiurus cinereus semotus*). It is known to occur in fair numbers nearby, at the Hawaii Air National

Guard Facility, one half mile NNE of the project site. Bats are commonly seen foraging for moths around the facility lights most of the year round. Bats likely would feed in the forest opening created by the plant nursery. The low key development should have no negative effects upon them.

Non-native mammals include the black rat (Rattus rattus), Polynesian rat (Rattus exulans), house mouse (Mus musculus), wild dogs (Canis familiaris), feral cat (Felis carus), feral pig (Sus scrofa), and very rarely black-tailed deer (Odocoileus hemionus columbianus). The proposed nursery will be fenced with a chain link security fence, keeping these animals outside of the compound. Only localized rat control may be necessary should they become a health problem, within the buildings, or a plant propa-gation problem in the nursery.

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DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of State Parks

March 16, 1995

MEMORANDUM

TO: Michael Buck, Administrator
Division of Forestry and Wildlife

ATTN: Ed Pettys, Kauai District

FROM: *[Signature]* Ralston Nagata, State Parks Administrator

SUBJECT: Archaeological Survey Report for Proposed DOFAW Nursery and Field Station, Koke'e State Park, Waimea District, Kauai.

Enclosed is a copy of the archaeological survey report for the proposed for the DOFAW nursery and field station within Koke'e State Park. As requested, State Parks archaeologist Martha Yent conducted this survey of the project area in October, 1994. The site selected for this facility is the former World War II Army Camp and many of the structures were dismantled in the 1950s. The grounds of this facility which covered about an acre in size, were modified during the construction of this army facility. The archaeological survey of the project area did not locate evidence of any earlier cultural deposits or archaeological features. Therefore, we believe that this project will have "no adverse effect" on any cultural or archaeological features and no further archaeological work is recommended. However, we have recommended that the Architects with the Historic Preservation Division be consulted regarding the plans to restore the existing concrete building. This report has been forwarded to the Historic Preservation Division for their review in compliance with Chapter 6E.

We apologize for the delay in getting this report to you. If you have any questions regarding this survey or the report, please contact Martha Yent at 587-0287.

cc: Wayne Souza, State Parks Superintendent
Marsha Erickson, Kokee National History Museum

DEPARTMENT OF FORESTRY & WILDLIFE

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DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of State Parks

March 16, 1995

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TO: Don Hibbard, Administrator
Historic Preservation Division

FROM: Ralston Nagata, State Parks Administrator

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cc: Ed Pettys, DOFAW-Forestry

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ARCHAEOLOGICAL SURVEY:
FORMER ARMY CAMP SITE
KOKE'E STATE PARK, WAIMEA, KAUA'I
(TMK: 1-4-01)

Prepared for:

State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife

Prepared by:

Martha Yent, Archaeologist
Division of State Parks
Department of Land and Natural Resources



MARCH, 1995

INTRODUCTION

The Division of Forestry and Wildlife (DOFAW) requested assistance with an archaeological survey of a parcel selected for a DOFAW nursery and field station within Koke'e State Park, Waimea District, Island of Kaua'i. This nursery will be used to propagate threatened and endangered plants in a mid-elevation environment. The parcel selected is the site of the former army camp, occupied from the early 1940s until the mid-1950s. The one remaining structure will be refurbished and expanded as an administrative center and field center for volunteer projects conducted within the neighboring forest reserves.

The archaeological reconnaissance survey was conducted on October 7, 1994 by State Parks Archaeologist Martha Yent. The limits of the project area had been flagged previously by the DOFAW staff. The flagged area corresponds to the boundaries of the former Army Camp.

PROJECT AREA

Koke'e State Park is located in the northern uplands of Kaua'i with the valleys of Na Pali Coast to the north and Waimea Canyon to the south. The project site is situated along Kaunuohua Ridge of Koke'e between the 4000 and 4100 foot elevations (Fig. 1). The site is on the flat area *mauka* of Awa'awapuhi Valley near the district boundary of Waimea and Hanalei. The project site and former Army Camp is located on the (south) side of Koke'e Park Road across from the trailhead for the Awa'awapuhi Trail. The site is approximately one mile southwest of the Kalalau Lookout and 1.5 miles northeast of Koke'e State Park headquarters.

The soil in the project area falls into the Koke'e silty clay loam series along with the Kahuama'a Flat area atop Kaunuohua Ridge. These soils are well-drained and developed in material weathered from igneous rock mixed with volcanic ash (Foote et. al., 1972). Rainfall averages 60-70 inches annually.

The former Army Camp encompassed approximately an acre on both sides of the paved Koke'e Park Road. There was a semi-circular dirt road on the *mauka* side of the Koke'e Park Road with buildings constructed along both sides of this dirt road. The only building that still remains is a concrete structure which was centrally located on the south side of the dirt road. Concrete slabs are present on the north side of the paved road. It would appear that the other buildings were made of wood without a concrete slab. One building was moved to Kanaloahuluhulu Meadow and is now the Koke'e Museum. A portion of the dirt road remains visible.

The perimeter of the former Army Camp south of the paved road is defined by the *ohia* trees which mark the undisturbed lands. The camp area is now overgrown with weedy, exotic vegetation, including blackberry, banana poka, ginger, and hydrangea. The presence of vertical cuts in the ground surface that run parallel to the road and contour suggests that there was some ground modification and levelling prior to the construction of the buildings. These cuts vary from 40-80cm (1-2 feet) in height. The project area corresponds to the perimeter of the *ohia* trees, an area that measures approximately 120m (400 feet) east-west by 60m (200 feet) north-south.

PROJECT DESCRIPTION

The project proposed by DOFAW involves vegetation clearing and the development of nursery and field station facilities. Specifically, the project will include:

- Salvage and refurbish the one existing building that will be used as an administrative center.
- Development of a water catchment system for the field station and nursery.
- Installation of underground electrical lines.
- Construction of a perimeter fence for security.
- Construction of another buildings for storage and use as a field station.
- Install tables for the nursery.

HISTORICAL OVERVIEW

It appears likely that the upland area of Koke'e and the Alaka'i Swamp were utilized in the pre-contact period as resource gathering zones, rather than areas of permanent habitation or agriculture. Several legends suggest this use. One attributes the road of sticks through the Alaka'i Swamp to the *menehune* (Rice, 1923). Another refers to Lahi (or Lauhaka), a young man who would eat only birds, and traveled to the top of Kilohana (a lookout at the edge of the Alaka'i Swamp) where the *Uwa'u* bird nested to satisfy his hunger (ibid). Pu'u Ka Pele is referred to as an area for gathering *koa* canoe logs and other building materials:

At one time the Menehune built two canoes of *koa* in the mountains near Puu-ka-Pele. As they were dragging them down to the lowlands, they were caught by a heavy rain-storm, and were forced to leave the canoes across the little valley. The storm covered the canoes with debris, and later, a road was built across them, over which all the materials to build the village of Waimea were hauled (ibid).

Further evidence for the gathering of canoe logs from the uplands comes from the narrative of the Dutch merchant Captain Jacobus Boelen, who visited Waimea in

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1828. While his ship was being loaded with sandalwood, he spent some time exploring the region and included the following observation:

On that day we visited Quequaheva's [Kaikio'ewa's] shipyard, which consisted of large sheds where the largest and most beautiful canoes that can be found in the islands were made. We were assured that the island of Atooi [Kauai] had always been the principal workshop of the islands in these matters. Under one very neatly made roof I saw two of the largest double canoes I have ever seen . . . Long, narrow, and lightly built, although of a strong and heavy type of wood [koa], they have only a shallow draught. . . some of these vessels - especially those double canoes of the largest sort, which the highest chiefs use - are up to seventy or eighty feet long . . . (Broeze, 1988).

It is obvious from this description that *koa* trees of exceptional size were being harvested in the uplands, where they were partially worked to lessen their weight prior to transport to the coast.

Handy does not specifically mention Koke'e with respect to Hawaiian agriculture, although he does state that "the upper gulches and forests in and above Waimea Canyon should be favorable localities for yams" (Handy, 1940: 171). He also mentions that boggy areas in the uplands were utilized for the cultivation of *olona*.

There are trails recorded which ran from the Na Pali valleys to Koke'e and Waimea Canyon. Bennett (1931) recorded several trails connecting different areas of the Na Pali coast with the uplands. A network of upland and coastal trails is recorded in the following:

More anciently the old Hawaiians used a number of overland trails. The Kamaille trail descended into Nu'ulolo [Nu'alolo] Valley inland. There was a trail connecting Nu'ulolo with Honopu. A good trail overland connects Kalalau with Ha'ena. There is a trail from Koke'e in the mountains above Kekaha down into Kalalau. From Polihale travelers could go on foot, with a little swimming, to Miloli'i, and a trail connected Miloli'i with Nu'ulolo flats. Another trail connects Miloli'i with Koke'e. And there was the path (*ala*), said to have been built by King 'Ola, that led from Waimea Delta up the canyon to Koke'e, over the Alaka'i Swamp, where it was said to have been paved with sticks (*kipepe*), and thence down Maunahina ridge into Wainiha by way of Koke'e. (Handy and Handy, 1972)

This trail system suggests a connection between the north and south sides of the island, although whether the trails facilitated trade or simply travel between the two areas is not known. It can be assumed that the upland forests were utilized as resource gathering zones for such items as hardwoods, bird feathers, and medicinal plants, as well as freshwater resources such as *o'opu* and *opae*. Undoubtedly a substantial trail existed between the upper Waimea Canyon and Waimea Village to facilitate the transport of large canoe logs.

The Reverend Hiram Bingham traveled from Waimea to Hanalei in 1821 along the old established route passing through Koke'e. The trail consisted of a "narrow, winding, slippery foot-path, sometimes on sharp ridges, here ascending and there descending rugged steeps" (Bingham, 1981). He described the uplands as being uninhabited but mentioned several temporary shelters along the way which he

attributed to sandalwood cutters and reported abundant sandalwood forests still in existence at that time.

Queen Emma, in 1871, made a trek from Waimea to the "Kilohana of Hanalei", at the edge of Wainiha Valley. A party of about 100 people accompanied the queen, along a route which again likely followed the old trail. At that time the trail was very overgrown but still recognizable. Among the more interesting anecdotes of the trip was a stop the party made on the edge of Kauaikinana Valley where Queen Emma, overcome by the beauty of the spot, insisted upon a hula performance. The trip then continued through the Alaka'i Swamp where the party spent the night. The trail through the swamp was described as a "corduroy road", built of tree-fern logs placed side by side. They reached the Kilohana the next morning and then retraced their steps to Waimea (Knudsen, 1940).

The sandalwood trade dominated the Kaua'i economy in the early nineteenth century. Beginning in 1810 and reaching a peak in 1821-22, commoners were forced to leave their taro fields and head into the mountains to cut the precious wood. The resource was controlled by King Kaumuali'i, who exchanged the commodity for ships and other western luxuries. Unfortunately, this took a great toll upon the people as well as the sandalwood forests, which were all but depleted by the mid-1830's. Waimea was the sole port of export on Kaua'i for the wood, which came almost exclusively from the upland gulches of Waimea Canyon and Koke'e (Joesting, 1984).

Valdemar Knudsen obtained a lease to much of the present day Koke'e State Park in the mid-1800's. He used the land to run cattle, which provided beef to provision the whaling vessels. The cattle industry on Kaua'i diminished greatly by 1900 due to the decline of the whaling business (Joesting, 1984).

The decline of cattle overlapped with the onset of the sugar industry. Beginning in the late 1800's and continuing into early this century, an irrigation system known as the Waimea Canyon-Kekaha ditch tapped the upland streams to irrigate the cane lands on the west side of the island. In conjunction with this development, plantation camps were constructed in the uplands to house the mainly Chinese workers who built and maintained the ditch system.

Land use in Koke'e during the 20th Century consists mainly of recreational and military activities (Heathcote, 1993). Wealthy sugar plantation owners built vacation cabins in Koke'e to escape the summer heat of the lowland plains. Hunters traveled on horseback to the uplands in search of pigs and goats. A large network of trails was built and existing trails were refurbished by the Civilian Conservation Corps following the Great Depression. During World War II, the Army laid a telephone line through the Alaka'i Swamp and down to Hanalei, as well as establishing a radar station in Koke'e. In the 1940's, the road to Koke'e was improved, and the lookouts at Waimea Canyon and Kalalau were constructed.

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The Koke'e Museum and Lodge were established in the 1950's. The last major developments in Koke'e were in the 1960's with the establishment of a Hawaii Air National Guard installation and a NASA tracking station constructed as part of the National Space Program.

KOKE'E ARMY CAMP SITE

There was only one attack of Kaua'i during World War II. On December 30, 1941, a Japanese submarine shelled Nawiliwili Harbor but little damage was incurred. However, the U.S. military saw Kaua'i as an important defense post for the major military centers on O'ahu. On Kaua'i, the major military units were stationed to protect the airstrips at Mana (Barking Sands airstrip), Hanapepe (Burns Field and Port Allen), and Hanamaulu (Lihue airfield). In addition, there were jungle training areas at Kalalau (Na Pali Coast), Hanalei, Anahola, and upper Hanamaulu. Artillery impact areas were designated in Waimea Valley, upper Wailua, *mauka* of Lihue, and Anahola (Klass, n.d.). The Koke'e area was a central location for many of the communication facilities.

There is little written information available about the Koke'e Army Camp. Built in the early 1940s and dismantled in the mid-1950s, the camp covered about one acre. The structures were built alongside a semi-circular dirt road off the *mauka* side of the Koke'e Road (Fig. 2). A 1951 aerial photograph indicates 5 buildings on the south side of the dirt road and one large, centrally located building on the north side. The concrete building and a smaller structure were located behind (south) the row of 5 buildings along the south side of the dirt road. In addition, there were 2 structures on concrete slabs along the south side of the paved road and another 2 structure on the north side of the paved road.

George Niitani, former State Parks Kauai District Superintendent, states that the Army Camp was occupied by the Signal Corps. Mr. Niitani provided the following information about the camp (pers. comm. to Wayne Souza, Nov. 5, 1993). All of the wooden barracks and mess hall were salvaged as materials for Koke'e Lodge and the cabins. Only the concrete building still stands today. The concrete slab at the Awa'awapuhi Trailhead was the basketball court. The water for the camp came from Koke'e Stream near where the current State Parks pumphouse is located. The water was pumped to a watertank near the recently constructed DOE facility. There was a second pump to get the water over the ridge to their camp.

The archaeological survey identified the one standing concrete building and the 2 concrete slabs on the south side of the Koke'e Road. These existing concrete structures are indicated in Figure 2. The lack of any other concrete slabs suggests that the remaining buildings were of wood and may have been built on concrete pilings. If concrete piling were used, it appears that these foundations were salvaged along with the wooden structures since there is no surface indication of these pilings today.

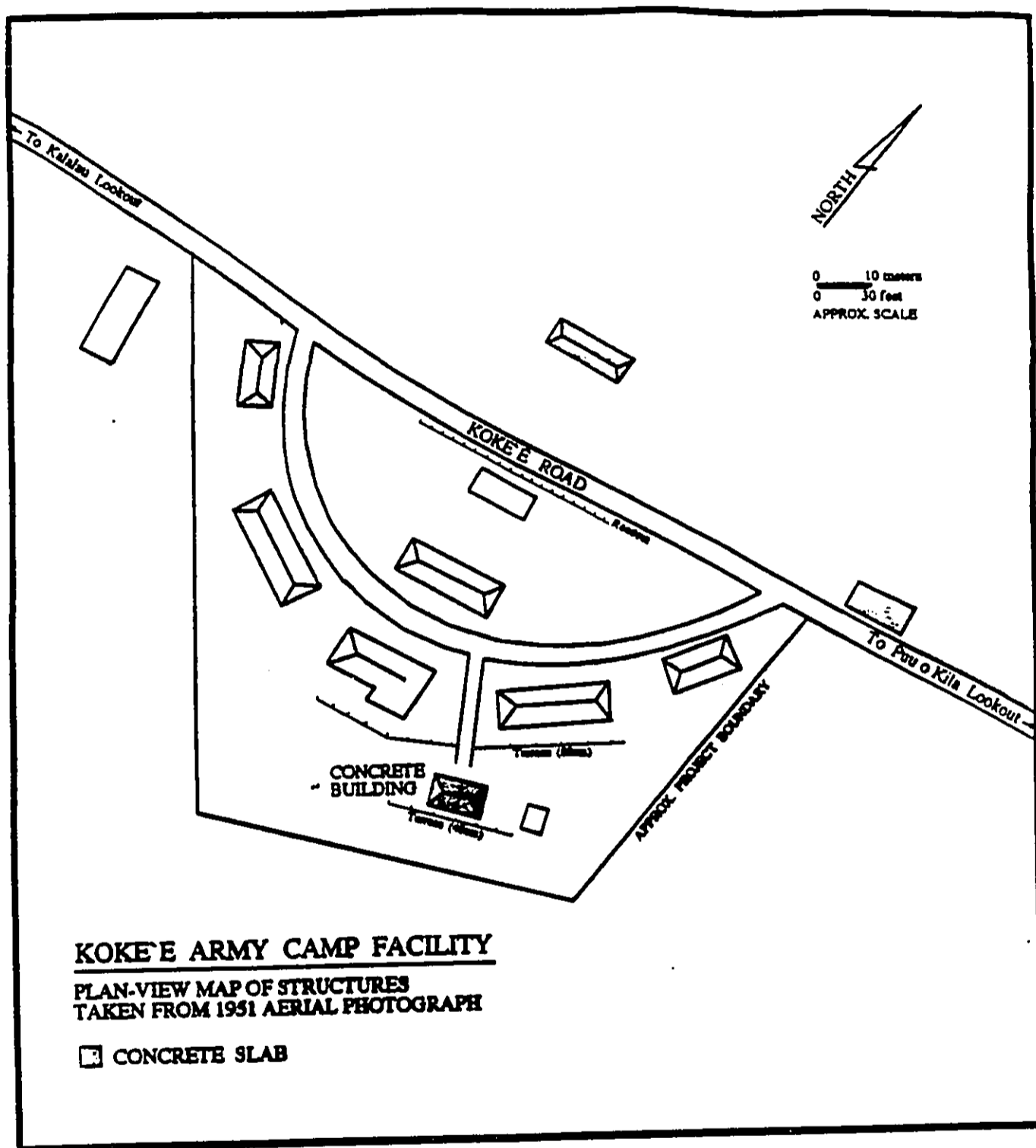


FIG. 2 - Plan-view of the Army Camp, circa 1950. Traced and enlarged from 1951 aerial photograph.

PREVIOUS ARCHAEOLOGICAL SURVEYS

Archaeological surveys in the Koke'e and Waimea Canyon State Parks have been limited in number and scope. As a result, few archaeological sites are recorded for the Koke'e area. Koke'e is generally regarded as a resource gathering zone rather than an area of permanent habitation which implies that few archaeological sites will be located. The previous archaeological surveys are summarized below and the location of the inventoried sites is shown in Figure 3.

The 1906 survey of *heiau* sites by Thomas Thrum identified 2 sites in the Koke'e area:

Ahuloulu Heiau: Located at the base of Puukapele, this site consists of 3 platforms. The central platform is described as an enclosure measuring 12 by 30 feet with walls about 3 feet high but badly dilapidated. Thrum states that "no special significance seems to be attached to this so-called heiau".

Ka-unu-aiea Shrine: Small shrine in the dense *koa* forest of Miloli'i but there is no platform left to indicate its existence. Thrum states that this shrine is located on Kaunuohua Ridge and it may have been located in the area of the NASA tracking station (Fig. 1). Thrum classifies the shrine as an *unu* for the shifting population of the forest belt. When Bennett recorded this site in 1928-29, he called it a *heiau* and described it as a small clearing containing a line of stones forming no outline or platform. He further added that the location is "in the forest above Halemanu".

Bennett recorded 2 additional sites at Pu'u Ka Pele, both being house site complexes (Bennett, 1931: 104). Three site numbers were given to the sites at Pu'u Ka Pele:

50-30-01-19: Ahuloulu Heiau.

50-30-01-20: House sites around the crater of Pu'ukapele. The remains of 7 house sites are indicated by stones in line forming a terrace with a flat space behind. Some of these house sites measure 30 by 20 feet.

50-30-01-21: House sites toward the sea from Pu'ukapele on the north side of the road. A series of house sites are located on top of a flat ridge, the edge of which is lined with stones for 50 feet or more.

50-30-01-22: Kaumaiaiea Heiau.

Francis Ching fieldchecked the sites in 1974 in conjunction with the Statewide Inventory of Historic Places. He relocated sites 19 and 20 and although he suggested that site 21 was probably still present, he could not confirm this because of the dense vegetation. Subsequently, sites 19, 20, and 21 have been consolidated under site #19, the Pu'u Ka Pele Complex.



FIG. 3 - Archaeological sites inventoried in the Upper Waimea and Koke'e areas. The project area is approximately 1.5 mile north of the Koke'e Lodge.

Brief reconnaissance surveys in the Koke'e area have been conducted by Ching (1978a, 1978b), Kikuchi (1982), Yent (1982), and Walker and Rosendahl (1990). However, these surveys did not locate any archaeological sites.

In 1993, an archaeological reconnaissance survey was conducted along the ridge roads of Koke'e prior to widening of these roads as firebreaks after Hurricane Iniki (McMahon, 1993). A single archaeological site was recorded at the end of Polihale Ridge (State site #50-30-05-499). This site consists of a 5 meter long stone alignment that may have served as a sweet potato planting area. The general lack of sites recorded during this survey is believed to be the result of the extensive disturbance in the 20th Century from the sugarcane plantations, military activities, and reforestation.

Another 1993 survey involved 3 facilities in the Koke'e and Waimea uplands (Dowden and Rosendahl, 1993). No sites were located at the Pacific Missile Range - Makaha Ridge Facility, the Halemanu section of the Pacific Missile Range - Koke'e Facility, or at the Koke'e Air Force Station and Former NASA site.

Two independent archaeological surveys were conducted in conjunction with the proposed concession facility at the Waimea Canyon Lookout. State Parks archaeologists recorded site #50-30-06-707 during a 1993 survey (Carpenter, 1993). This site consists of a single row of stones on 3 sides on a level area about 80 meters southwest of the men's restroom at the lookout. The site is probably a temporary habitation site related to the logging of wood for canoes. The other survey conducted at the lookout involved archaeological testing (Chaffee and Spear, 1993). No sites or subsurface cultural deposits were located during this survey.

The most recent archaeological survey was conducted on the *makai* portion of Kahuama'a Flat for a plant sanctuary proposed by DOFAW (Carpenter and Yent, 1994). This survey area is on the *makai* side of the Koke'e Park Road and approximately 1.25 miles northeast of the Army Camp project area. Much of the Kahuama'a survey area consists of extremely steep cliffs at the back of Kalalau Valley. The dense vegetation hampered a thorough survey of the flat portion on the rim of the valley. No archaeological sites were located during this survey.

The archaeological surveys conducted to-date in Koke'e tend to support the idea that this upland area was used largely as a resource gathering zone with limited habitation. The stone-lined platforms recorded at Pu'u Ka Pele and near the Waimea Canyon Lookout appear to be temporary habitation sites.

ARCHAEOLOGICAL SURVEY FINDINGS

The archaeological survey of the former Army Camp site was conducted on October 7, 1994 and consisted of several transects through the camp area on the *mauka* side of the paved Koke'e Park Road. The perimeter of the survey area was flagged and corresponds to the former boundaries of the camp. Outside the perimeter, the vegetation is largely native *chia* forest while inside, the vegetation is exotic, weedy growth. A survey of the perimeter determined that much of the ground disturbance associated with the construction and use of the camp was limited to within the survey boundaries. Within the camp boundaries, the disturbance consisted of ground terracing and levelling for the buildings and the construction of the semi-circular road. The transects through the project area indicated that the terracing ran east-west and parallel to the contour of the slope (refer to Fig. 2).

The intact concrete building is located about 50 meters south from the paved road and 10 meters north of the southern perimeter. To create a level floor, the downslope side of the slab is built up about 4 feet. The building is constructed with concrete and plaster walls and a corrugated metal roof. The building measures approximately 30 feet in length and consists of several rooms. The building has fallen into disrepair since it was abandoned in the 1950s. Much of the deterioration is a result of vandalism.

There was no evidence of any foundations for the other buildings in the form of either concrete slabs or pilings. The thick vegetation may have obscured some pilings but the former presence of 8 buildings along this semi-circular dirt road suggests that some indication of structural foundations would have been located if present. Two large posts were noted along the eastern perimeter which may have been used in fencing or other marking of the camp boundaries.

The vertical cuts in the ground surface were noted at the southern perimeter of the camp and about halfway between the paved road and the standing building. The midway cut runs the length (east-west) of the camp. The southern cut is about 40cm high while the midway cut is about 80cm high. There were no rocks noted on the surface in the project area that would suggest surface structures similar to those noted in other surveys in the Koke'e area.

This archaeological survey did not locate any significant sites. All of the surface remains are associated with the Army Camp, circa 1940-1950s. The vertical cuts in the ground surface did not indicate the presence of any subsurface cultural deposits.

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RECOMMENDATIONS

There is a potential for oral histories to yield additional information about the Koke'e Army Camp. For example, it would be interesting to confirm if the Koke'e Lodge was the former mess hall and which structure it would have been on the plan-view of the camp.

The archaeological survey indicates that the area of the former Army Camp at Koke'e was modified fairly extensively during the construction and use of the facility. The cuts in the ground surface do not suggest that any cultural deposits were disturbed. Likewise, the transect through the undisturbed area to the south of the camp perimeter did not indicate the presence of any surface features, such as boulder alignments, that would suggest an older or pre-contact occupation of the area. Based on the extensive disturbance of the former Army Camp area and the lack of any features suggestive of occupation or use prior to 1940, no further archaeological work is recommended.

Based on the age and construction style of the intact concrete building, it does not appear that this structure has any architectural significance. In addition, this building has been heavily vandalized. However, it is recommended that the Architecture Branch of the Historic Preservation Division, Department of Land and Natural Resources be consulted regarding the future plans for this building.

From the above findings, it has been determined that the proposed nursery and field station will have "no adverse effect" on any archaeological resources.

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**CITIZENS
UTILITIES
KAUAI ELECTRIC DIVISION**
P.O. BOX 300 • LIHUE, KAUAI, HAWAII 96766-0300

DEC - 1 1995

	INFO
	CUSTOMER SERVICE
	APPLICATIONS
	PLANT DESIGN

November 29, 1995

In reply refer to:
File #M-5

State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife
3060 Eiwa Street, Room 306
Lihue, HI 96766-1875

Attention: Mr. Edwin Petteys

SUBJECT: PROPOSED PLANT NURSERY WITHIN KOKEE STATE PARK

Dear Mr. Petteys:

This reply is in response to your letter of November 1, 1995 requesting our comments regarding the Division of Forestry and Wildlife's plans to develop a new mid-elevation threatened and endangered plant nursery within Kokee State Park.

There will be no impact to Kauai Electric's utility system. However, Kauai Electric will have to extend electrical utilities to the proposed site. The cost and design will be determined when electrical drawings are submitted to Kauai Electric.

Should you have any further questions, please call me at (808) 246-4369.

Sincerely,



ALICE MIGUEL
Engineering Administrator

AM:do

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NATIONAL TROPICAL BOTANICAL GARDEN
CHARTERED BY CONGRESS TO CREATE A NATIONAL RESOURCE IN TROPICAL BOTANICAL GARDENING

20 November 1995

NOV 24 1995	FILE NO.
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	APP ACTION
	FAST REPLY
	JUST PULS

Ed Petteys
Kauai Division of Forestry & Wildlife
3060 Eiwa Street, #306
Lihue, Hawaii 96766

Dear Ed,

Thank you for the opportunity to review the Division of Forestry & Wildlife's plans to develop a new mid-elevation threatened and endangered plant nursery within Kokee State Park. There is an acute need for a mid-elevation nursery on Kauai to grow threatened and endangered native plants and the Rare Plant Restoration Group has identified this issue as a top priority for conservation of native Hawaiian plants. The proposed project is a positive step in addressing this need.

The proposed Kokee site is appropriate for this project for the following reasons:

- This is one of the best possible sites available on Kauai for a mid-elevation nursery. It is cool and humid, yet the rainfall is not as heavy as a windward site.
- The impact to native vegetation would be minimal, involving only small number of a few non-threatened and non-endangered species. The site area has already been cleared, in part, so it is essentially secondary forest now.
- The site is accessible and has a pre-existing facility in place.

One consideration about the site is the need for security to prevent vandalism and/or theft of plant materials.

The staff of the Plant Science Department of the National Tropical Botanical Garden endorse and support this project. Many mid-elevation taxa germinated at the NTBG plant nursery in the Lawai Garden could be transferred to the mid-elevation nursery for growing to outplanting size. We look forward to continued collaboration with the Division on this and other native plant projects.

Regards,

Diane Ragone, Ph.D.
Chair, Plant Science Department

cc: Dr. Klein

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HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE

KAUAI DISTRICT
3080 EIWA STREET, ROOM 308
LIMU, KAUAI, HAWAII 96796-1879

December 6, 1995

IN REPLY REFER TO

Dr. Diane Ragone, Chair
Plant Science Department
National Tropical Botanical Garden
Box 340 Lawai, HI 96765

Dear Dr. Ragone:

This responds to comments made on our draft environmental assessment for a field station and mid-elevation nursery in Kokee State Park.

Regarding your concern about security, it is, as stated in the draft EA, our intention to fully surround the area with a chain-link fence.

As we have discussed in the past, we will certainly continue to collaborate and work with your agency regarding the use of this facility, and eventual outplantings.

Thanks for taking the time to review and comment on our draft.

Sincerely,

Edwin Q.P. Petreys
Edwin Q.P. Petreys
District Manager

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3

CENTER FOR PLANT CONSERVATION

Mr. Edwin Q.P. Petteys, District Manager
Kaua'i District
Division of Forestry and Wildlife, DLNR
3060 Eiwa Street, Room 306
Lihue, Kaua'i, Hawaii 96766-1875

NOV 20 1995	

November 17, 1995

Dear Mr. Petteys,

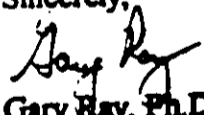
This letter is in response to your request of November 1, 1995, for a review of the draft environmental assessment for a mid-elevation nursery within Koke'e State Park along Highway 550.

I have enclosed my review stating my concerns. As I commented in the review, I feel strongly that Kaua'i is one among five islands that need mid-elevation nurseries if we are to address the plight of Hawaii's endangered plants.

The approach that I advocate, and it is a view shared by many member organizations in a consortium called the Hawaii's Rare Plant Restoration Group (HRPRG), is a collaborative effort among numerous public and private groups to plan a statewide network of nurseries and integrate off-site and on-site plant conservation. Five botanical gardens that participate with the Center for Plant Conservation - Hawaii on three islands, including National Tropical Botanical Garden on Kaua'i, currently share in the protective cultivation of most of Hawaii's endangered plants. My office meets quarterly with the HRPRG and continuously plans and coordinates conservation projects with the U.S. Fish & Wildlife Service, DOFAW, the U.S. Army, The Nature Conservancy of Hawaii, and other groups.

I am hopeful that we will have the opportunity to meet and further discuss the planning, funding, and ultimately the construction of mid-elevation nursery on Kaua'i as part of a more comprehensive initiative to save Hawaii's most critically endangered plants.

Thank you for your kind attention to my comments.

Sincerely,


Gary Ray, Ph.D.
Conservation Coordinator
Center for Plant Conservation - Hawaii

GR
Enclosure
cc: Michael Wilson

Center for Plant Conservation - Hawaii
1525 Bernice Street • P.O. Box 19000A • Honolulu, Hawaii • 96817-0010
Tel: (808) 848-1177 • Fax: (808) 847-9252 • INTERNET: garyray@bishop.bishop.hawaii.org

REVIEW
of
Draft Environmental Assessment

Proposed Action : Koke'e Mid-elevation Nursery

Applicant : Dept. of Land and Natural Resources
Div. of Forestry and Wildlife, Kaua'i District

Location : Waimea, Kaua'i
TMK: MOU with State Parks

Approving Agency : Board of Land and Natural Resources

Submitted by: Gary Ray, Ph.D., Conservation Coordinator,
Center for Plant Conservation - Hawai'i
Bishop Museum
1525 Bernice St.
P.O. Box 19000
Honolulu, HI 96822

Date of Review: November 17, 1995

I would like to preface my review of this document by stating unequivocally that I fully support the construction of, and the continued funding and maintenance of, endangered plant nurseries located and middle to upper elevations across the state as an essential means of insuring the genetic survival of Hawaii's rare flora. As a conservation biologist I have been assigned by numerous federal, state and private organizations a role in facilitating interagency cooperation on off-site (protective propagation) and on-site (habitat oriented) plant conservation. My organization, the Center for Plant Conservation - Hawai'i, at the behest of a consortium of 12 public and private organizations (the Hawai'i Rare Plant Restoration Group) is developing a series of integrated proposals intended to complete a statewide infrastructure of seven mid-elevation nurseries in Hawai'i for propagating endangered plants. Two such nurseries already exist, one adjacent to Pahole Natural Area Reserve, Wai'anae Mountains, O'ahu, and the Volcano Nursery, on the Island of Hawai'i. These facilities are crucial links in a network of propagation centers (botanical gardens and State base yards) and germ plasm storage centers in Hawai'i. Successful plant propagation and reintroduction will require thoughtful coordination of planning and implementation across the entire network of facilities, and must be inclusive of every public and private organization in the conservation community. The "community" includes scientists and botanical field experts, land managers, botanical garden staff, and decision makers in government agencies.

In general, I find the "Description of the Proposed Action", Pages 1 and 2, of the Draft Environmental Assessment incomplete and thoroughly ambiguous. I do not take issue with statements arguing the need for a mid-elevation nursery for endangered plants on Kauai. This sentiment finds little opposition in the scientific community. However, this Environmental Assessment has been submitted in support of a nursery facility, yet the document contains no administrative scheme and no diagrams or layouts for a nursery. There are building plans for a bunk house and an administrative center, but there are no drawings of a shadehouse or propagation area. There is not even so much as a list of endangered species that may be grown in the proposed facility. Many arguments contained in this EA appear to be centered on the need for a work center. In short, this document leaves the distinct impression of a thinly veiled attempt to approve the construction of a work center by passing it off as a mid-elevation nursery.

On Page 1, paragraph 4, under "Technical characteristics" this document states "...Work would start on our mid-elevation nursery at this time. It would consist of 3-4 planting tables about 4 feet wide by 20 feet long, and an automatic sprinkler system."

A mid-elevation nursery intended to grow endangered plants requires more than a few planting benches and a sprinkler. And, a such a nursery requires less than bunk beds, bathrooms, storage, and kitchen facilities necessary to house 18 people. One, well trained full-time horticulturist can handle the job, perhaps with a part-time assistant.

Furthermore, rare plant nurseries are not capital intensive projects. An effectively designed propagation facility and adjoining enclosure for a nursery (intended for rare plants) would cost no more than approximately \$50,000 to construct, and about an equal amount to operate on an annual basis. A serious omission in this EA is any estimate of construction costs for this would be "nursery". It is apparent that, at a minimum, this work center would cost several hundreds of thousands of dollars, if not more. Why kill a badly need project by asking impossible sums of money for its realization?

What is the real motivation behind this project? On Page 2, paragraph 2, this the author states "The site would serve three main functions. One function would be to increase our activities in the cultivation and rearing of native plants. Most of these plants are endangered ..." Functions 2 & 3 refer to a need to increase crew activity, to decrease travel time for those crews in the Koke'e area, and to house, feed, train and equip volunteer workers, who are active primarily on the weekends -- hence, a *work camp*. If the intention here is to grow plants that are not endangered (Function No. 1), one would assume that the Kauai District is planning native plant revegetation projects. There is clearly not enough room to grow large numbers of common native plants and large numbers of endangered plants (and outplant them on-site), in addition to an 18-person bunk house with a kitchen, bathroom facilities, storage facilities, an administrative center, and a sewage disposal system all on a mere 1.55 acres. It cannot be done if the actual purpose is to propagate endangered plants, plant them in an enclosure, and take proper care of them. This project is clearly something other than a Mid-elevation Nursery.

On August 21, 1995, I met with Wayne Souza of the Division of State Parks, and Joan Aanavi of Hawai'i Ho'olau Hou, a local environmental group from Kaua'i, to search for an appropriate site for a Koke'e Mid-elevation Nursery. We inspected an area of more than 2 acres located approximately 1/4 to 1/2 mile to the southeast of Koke'e Lodge. The site was covered mostly in exotic forest species, primarily Strawberry guava, with a few scattered 'Ohi'a trees. The site is off the beaten path, which immediately makes it a better location for harboring more than 30 critically endangered taxa from Kaua'i, all of which consist of fewer than 20 individuals in the wild. You definitely do not want to site an endangered plant nursery enclosure in such close proximity to an intensively used center of human activity. The Koke'e Road facility proposed under this EA did not even account for parking needs for 18 persons, indeed no layout of the structures on the site is provided. With off-road parking presumably sited within the 1.55 acre compound, where would one place the nursery plants? At a bare minimum the outplantings would consume two-thirds (1+ acre) of the proposed site.

In summary, the Koke'e Nursery Facility, as described herein, will certainly fail at its expressed main function: an endangered plant nursery. But the proposed project is much worse than a bad idea. It is apparent that the approval of this facility, as named (Koke'e Mid-elevation Nursery), may preclude the subsequent construction of an appropriately planned and operated *alternative* to this nursery. A project which would certainly have the support of a broad segment of the numerous public and private conservation organizations in Hawai'i (including other expertise within the Division of Forestry and Wildlife).

I strongly recommend against the construction of this mis-named attempt at a mid-elevation nursery.

Greg King 11/17/95

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HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE

KAUAI DISTRICT
3060 BIWA STREET, ROOM 308
LIMU, KAUAI, HAWAII 96796-1875
December 6, 1995

IN REPLY REFER TO

Dr. Gary Ray, Conservation Coordinator
Center for Plant Conservation - Hawaii
Bishop Museum
1525 Bernice St.
Box 19000A
Honolulu, HI 96817-0916

Dear Dr. Ray:

This responds to comments made on our draft environmental assessment for a field station and mid-elevation nursery in Kokee State Park.

The site will indeed be used for more than a mid-elevation nursery. It is our intention to also use it for a field station. It is in the interest of disclosing our full intentions for the site that we presented information on other construction. We will clarify this more in the titling and revisions to the next version of the EA, and include a diagram showing the facility layout.

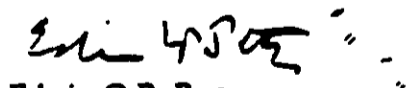
We do not intend to out-plant on the site, but will use the nursery to rear and harden plant species for outplanting in nearby areas, such as our proposed Kalalau Rim Plant Sanctuary. As such, we do not feel the size of the area is too small. Regarding species lists, we will, of course, give priority to rare and listed species appropriate to the area, but we may also include more common natives as well. We feel that attempting to compile a formal list at this point is premature, and may also be limiting.

While 4 planting tables is indeed modest, it is of a scale that we feel we can manage at this time, given the present state of our funding and resources. Should support levels increase in the future, we will be happy to increase the nursery's capacity. There is room for expansion.

The overall project will be funded from a variety of sources, and, of course, be done over a number of years.

Thanks for taking the time to review and comment on our draft.

Sincerely,


Edwin Q.P. Petreys
District Manager

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MARYANNE W. KUSAKA
MAYOR



COUNTY OF KAUAI

FIRE DEPARTMENT
4221 RICE STREET
LIHUE, KAUAI, HAWAII 96766

DAVID K. SPROAT
FIRE CHIEF

November 17, 1995

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Mr. Edwin Q.P. Petteys
Hawaii Department of Land and Natural Resources
Division of Forestry and Wildlife
3060 Eiwa Street, Rm. 306
Lihue, HI 96766-1875

Dear Mr. Petteys:

I have reviewed your draft of the Environmental Assessment Kokee Mid-Elevation Nursery per your letter dated November 1, 1995.

I agree with the intentions of this much needed and ambitious project and give it my full support.

Thank you for the opportunity to review the draft. Should you require any information regarding this matter, please feel free to contact me.

Sincerely,

David K. Sproat
Fire Chief

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AN EQUAL OPPORTUNITY EMPLOYER
FOR REFERENCE
FOR REFERENCE

POLICE DEPARTMENT

COUNTY OF KAUAI

3060 UNI STREET
LIHUE, HAWAII 96766
TELEPHONE 808-241-6711
FAX 808-241-6774



ADDRESS ALL
COMMUNICATIONS
GEORGE FREITAS
Chief of Police

November 14, 1995

NOV 21 1995

Mr. Edwin Q.P. Petteys
Division of Forestry and Wildlife
3060 Eiwa Street, Rm 306
Lihue, Hi 96766

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Dear Mr. Petteys:

I have reviewed the draft environmental assessment Kokee mid-elevation nursery and have no comments.


GEORGE FREITAS
Chief of Police

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DEPARTMENT OF WATER

County of Kauai
P. O. Box 1706
Lihue, HI 96766-5706
Phone No. (808) 245-5400 — FAX No. (808) 245-5813

November 15, 1995

NOV 20 1995

SEARCHED	INDEXED
SERIALIZED	FILED
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U.S. DEPARTMENT OF JUSTICE	

Mr. Edwin Q.P. Petteys
D.L.N.R.
Division of Forestry & Wildlife
3060 Eiwa St., Rm. 306
Lihue, HI 96766

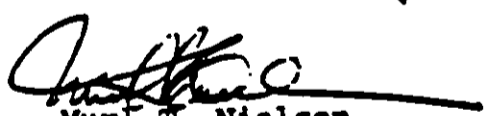
Dear Mr. Edwin Pettys:

**Subject: Water Service Inquiry: Plant Nursery within
Kokee State Park, Kokee, Kauai**

At the present time, County water service is not available to the subject area. Prior to building permit approval, the applicant must execute and submit a Waiver and Release Agreement with the Department of Water.

If you have any questions, please call Keith Aoki at 245-5418.

Sincerely,


Muri T. Nielsen
Manager & Chief Engineer

KA:dc
inquiry4/petteys:ds

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HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
KAUAI DISTRICT
3060 EIWA STREET, ROOM 308
LIHUE, KAUAI, HAWAII 96766-1878

November 1, 1995

IN REPLY REFER TO

Mr. Sam Lee
D.L.N.R.
Div. of Land Management
3060 Eiwa Street
Lihue Hawaii 96766

Dear Mr. Lee:

The Division of Forestry and Wildlife has plans to develop a new mid-elevation threatened and endangered plant nursery within Kokee State Park, across Highway 550 from the Awaawapuhi Trailhead.

A draft environmental assessment is enclosed that describes the purpose, scope and potential impacts of the proposed nursery and support structures.

Please review the assessment and submit your comments or concerns to this office by November 20, 1995 so that we may proceed with this badly needed project. Your prompt reply will be appreciated.

Sincerely,

Edwin Q.P. Petreys
Edwin Q.P. Petreys
District Manager

DIV. OF FORESTRY & WILDLIFE-KAUAI

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NOV 13 1995 NO OBJECTIONS TO PROPOSAL.

Mark DeWitt
DLNR - Division of Land
Management



KOKE'E NATURAL HISTORY MUSEUM

P. O. Box 100, Kekaha, Kauai, HI 96752

(808)335-9975 FAX (808)335-6131

November 8, 1995

HUI O LAKA
BOARD OF TRUSTEES

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DR. WALTER HAAS, SR.

EX OFFICIO

WAYNE SOUZA

EXECUTIVE DIRECTOR

MARSHA ERICKSON

Ed Petteys
Division of Forestry & Wildlife
3060 Eiwa Street, Room 306
Libu'e, Kauai HI 96766-1875

Dear Ed,

Thank you for the opportunity to review the draft environmental assessment for the proposed DOFAW plant nursery in Koke'e State Park. It's a very exciting project for which there is a real and present need, as the environmental assessment establishes. We are in support of the project which will expand DLNR's ability to successfully propagate and plant out threatened and endangered Hawaiian plants native to the mesic and wet forests. We have two comments:

1. Out-plantings on the site for "interpretive purposes and as a seed source" suggest that there may indeed be some public or invited traffic to view the rare plants. Is that the case? If so, is parking sufficient? (Re: Section 1, A. *Technical characteristics paragraph 3*)

2. How wise of DOFAW, given the funding climate, to be increasing use of volunteers to achieve Division objectives, as is mentioned as reason for Stage Three of the project (additional structure to be built to house up to 18 volunteers/staff). We hope other DLNR Divisions will follow DOFAW's early lead in volunteer development. As Hui O Laka continues development of our own trained volunteer corps, we are well aware of the importance of a physical site for training, storage, and temporary overnight accommodations. That is precisely why we have pursued renovations to the C.C.C. Camp (which is just two miles from the proposed nursery) as an interagency support center. Net benefits of a well-conceived and well-run volunteer program include not only a savings in appropriated funds but perhaps even the survival of some programs. Inclusion of trained citizens in the management details of their community will be reflected in increased public pride and reduced vandalism. It seems clear that participation of trained volunteers in many public and private programs will increase over time, justifying overnight accommodations as are called for in Stage Three. Until funds do become available for Stage Three construction, DOFAW might well consider the old C.C.C. Camp complex for temporary accommodations for the Division's volunteers. Such an interagency use is identified as in the center's Master Plan as one of the primary proposed uses of the site.

Good luck on the speedy completion of this vital project.

Me ke aloha,

Marsha Erickson

Marsha Erickson
Executive Director

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HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
KAUAI DISTRICT
3060 EIWA STREET, ROOM 308
LIHUE, KAUAI, HAWAII 96786-1878

December 6, 1995

IN REPLY REFER TO

Ms. Marsha Erickson, Executive Director
Kokee Natural History Museum
Box 100
Kekaha, HI 96752

Dear Ms. Erickson:

This responds to comments made on our draft environmental assessment for a field station and mid-elevation nursery in Kokee State Park.

Regarding your concern about sufficiency of parking, it is not our intention to encourage a lot of public or visitor traffic to the facility, and will state this in the next version of the EA. We feel parking is quite sufficient for our planned operations.

In the rare event that there may be a function that overloads our on-site parking, we would use the nearby Awaawapuhi Trail parking lot for the overflow.

Thanks for taking the time to review and comment on our draft.

Sincerely,

A handwritten signature in cursive script, appearing to read "Edwin Q.P. Petreys".

Edwin Q.P. Petreys
District Manager



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Blvd, Room 3108
P.O. Box 50088
Honolulu, HI 96850
phone: 808-541-3441; fax: 808-541-3470

In Reply Refer To: Kokee Mid-elevation (MMB)

NOV. 27 1995

Edwin Q.P. Petteys
District Manager
Hawaii Department of Land and Natural Resources
Division of Forestry and Wildlife
Kauai District
3060 Eiwa Street, Room 306
Lihue, Hawaii 96766-1875

Dear Mr. Petteys:

Thank you for the opportunity to comment on the draft environmental assessment for the Kokee Mid-Elevation Nursery, Waimea, Kauai. The Fish and Wildlife Service (Service) strongly agrees with the need for a mid-elevation nursery on the island of Kauai. The location is ideal for the mid-elevation mesic and wet plants of Kauai. Twenty-seven of the 100+ plant species that have less than 20 individuals and/or only one population are endemic to the island of Kauai. This makes Kauai the most important island to have a mid-elevation facility.

The Service commends the State for initiating a mid-elevation facility on Kauai and has the following comments on the details of the plan:

Stage 1: A 1.5-acre site seems small to contain full genetic representation of the 27 endangered plant species on Kauai that are considered most at risk of extinction. This is especially true if the 1.5-acre site contains buildings that will be used for functions other than a nursery. To propagate 27 plant species, a site of at least 5 acres is necessary. The environmental assessment should include a list of the species proposed for propagation and/or outplanting at the site.

Stage 2: The need for a septic tank and leach system is unclear, if the main purpose of the site is for a mid-elevation facility. Other mid-elevation facilities have been constructed without the need for such infrastructure. In addition, 3-4 planting tables seem insufficient to propagate so many species. There is no discussion of what structures will be constructed to protect the planting tables, such as a low-cost, plastic greenhouse. In addition, there is no discussion of outplanting beds for larger plants before reintroductions into native habitat. If the site is to be

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used as a mid-elevation facility, it will require fencing to exclude black-tailed deer and rat control to protect the seedlings of endangered species.

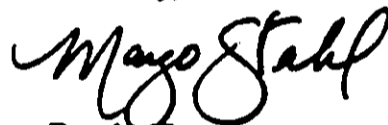
Stage 3: A building to house up to 18 people on site, including bunks and kitchen facilities is not necessary as part of a mid-elevation facility. Such a mid-elevation facility should require only one to two people to maintain. The implication is that this site is not truly intended as a fully functioning mid-elevation facility, but rather as a staging point for field work planned by the State. It appears as though the planned buildings will fill the majority of the 1.5-acre site.

Mitigation measures: The Service commends the efforts to maintain any existing native vegetation. Some shade plants will be necessary for outplanting of individuals from the planting tables. The use of a composting toilet is also valuable to the site.

The Service feels that the State should reconsider the uses of the site to incorporate more planting tables and beds for outplanting, since the section 6 funding for the site is intended for a mid-elevation nursery. The State's mid-elevation facilities at the Volcano agricultural extension station and the Pahole Natural Area Reserve are excellent examples of valuable use of limited space and funding.

If you have any questions regarding these comments, please call me or Marie Bruegmann at 808-541-3441.

Sincerely,



for Brooks Harper
Field Supervisor
Ecological Services

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HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE

KAUAI DISTRICT
3080 EIWA STREET, ROOM 308
LIMUE, KAUAI, HAWAII 96786-1873
December 6, 1995

IN REPLY REFER TO

Dr. Brooks Harper
Field Supervisor, Ecological Services
USDI Fish and Wildlife Service
300 Ala Moana Blvd., Room 3108
Box 50088
Honolulu, HI 96850

Dear Dr. Harper:

This responds to comments made on our draft environmental assessment for a field station and mid-elevation nursery in Kokee State Park.

To clarify, the site will be used for more than a mid-elevation nursery. It is our intention to also use it for a field station. It is in the interest of stating all of our intentions for the site that we presented information on septic systems and other construction. We will clarify this more in the revised EA and include a diagram showing the facility layout.

We do not intend to out-plant on the site, but will use the nursery to rear and harden plant species for outplanting in nearby areas, such as our proposed Kalalau Rim Plant Sanctuary. As such, we do not feel the size of the area is too small. Regarding species lists, we will, of course, give priority to rare and listed species appropriate to the area, but we may also include more common natives as well. We feel that attempting to compile a formal list at this point is premature, and may also be limiting.

While 4 planting tables is indeed modest, it is of a scale that we feel we can manage at this time, given the present state of our funding and resources. Should support levels increase in the future, we will be happy to increase the nursery's capacity. There is room for expansion. At present, we do not anticipate the construction of greenhouses. Depending on the species, we may construct portable shade structures on a table-by-table basis. The revised EA will include a mist/potting shed.

As discussed in the draft EA, we do intend to fence the area for security.

The overall project will be funded from a variety of sources. Section 6 monies will be used in areas that directly focus on the nursery.

Thanks for taking the time to review and comment on our draft.

Sincerely,

A handwritten signature in black ink, appearing to read "Edwin Q.P. Petreys".

Edwin Q.P. Petreys
District Manager

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DEPARTMENT OF FORESTRY & WILDLIFE

State of Hawaii
Department of Land and Natural Resources
DIVISION OF STATE PARKS
November 22, 1995

NOV 24 1995	FILE #
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	COM & RECOM.
	APP ACTION
	DRAFT REPLY
	POST BUL 90.

MEMORANDUM

TO: Edwin Q.P. Petteys, District Manager
Division of Forestry and Wildlife

FROM: Wayne H. Souza, Parks District Superintendent

SUBJECT: Draft Environmental Assessment for Kokee Mid-Elevation Nursery,
Waimea, Kauai.

We support the establishment of the proposed mid-elevation nursery project within Kokee State Park. The project is essential for the successful germination and out-planting of the threatened and endangered plants of Alakai High Plateau and surrounding areas. Its inception will be a major step in restoring the area's biodiversity and have negligible impact on the public recreational use of the state park.

cc: Kauai Land Board Member
State Parks Administrator

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BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
KAUAI DISTRICT HEALTH OFFICE
3040 UMI STREET
LIHUE, HAWAII 96766

December 4, 1995

LAWRENCE MIKE
DIRECTOR OF HEALTH

RON METLER, M.D.
DISTRICT HEALTH SERVICE ADMINISTRATOR

DEC - 5 1995	FILE
	INFO
	COM & RECOM.
	APP ACTION
	FAST REPLY
	POST BULB
	OTHER

Mr. Edwin Q. Petteys, District Manager
Hawaii Department of Land and Natural Resources
Division of Forestry and Wildlife
3060 Eiwa Street, Room 306
Lihue, Hawaii 96766-1875

Dear Mr. Petteys:

Subject: Draft Environmental Assessment Kokee Mid-Elevation Nursery, Waimea, Kauai, Hawaii
T.M.K.:(4) 1-4-01:

Thank you for giving us the opportunity to review and comment on the subject document. We offer the following environmental health concerns for your consideration.

1. The proposed mid-elevation nursery site is located in a critical wastewater disposal area as determined by the Kauai County Wastewater Advisory Committee.

Figure 1 shows the location of the Kokee Station Hawaii Air National Guard's (HANG) drinking water well site in Honopu Valley, State Well No. 0839-01. The HANG's drinking water well may be located within 1,000 feet of the project site. Any wastewater system disposal component must meet the minimum distance requirement as stated in Hawaii Administrative Rules (HAR), Title 11, Chapter 11-62, entitled "Wastewater Systems", Section 32, which requires a minimum distance from potable drinking water well and cesspool, seepage pit or soil absorption system of 1,000 feet.

The Wastewater Branch of the Department of Health on Oahu should be contacted to resolve our concern regarding the distance requirement from a drinking water well.

All wastewater plans must conform to applicable provisions of Chapter 11-62, Wastewater Systems, HAR. However, we do reserve the right to review the detailed wastewater plans for conformance to applicable rules.

2. The proposed dwelling shall comply with the applicable requirements of Title 11, Chapters: 11-11, Sanitation; 11-14, Housing; 11-26, Vector Control; 11-39, Air Conditioning and Ventilating; HAR.
3. In accordance with Title 11, Chapter 11-60.1, Air Pollution Control, HAR, the property owner/developer shall be responsible for ensuring that effective control measures are provided to prevent or minimize any fugitive dust emission caused by the construction work from impacting the surrounding areas including the off-site roadways used to enter/exit the project. These measures include but are not limited to the use of water wagons, sprinkler systems, dust fences, etc.
4. In accordance with Title 11, Chapters: 11-55, Water Pollution Control and 11-54, Water Quality Standards, HAR, the property owner/developer shall be responsible for ensuring that the best management practices (BMP) is provided to prevent or minimize the discharge of sediments, debris, and other water pollutant into state waters.
5. In accordance with Title 11, Chapter 11-58.1, Solid Waste Management Control, HAR, the property owner/developer shall be responsible for ensuring that grub material, demolition waste and construction waste generated by the project are disposed of in a manner or at a site approved by the State Department of Health. Disposal of any of these wastes by burning is prohibited.
6. The proposed development shall be provided with potable water from an approved source.

Due to the general nature of the application submitted, we reserve the right to implement future environmental health restrictions when more detailed information is submitted.

Should you have any questions, please call me at 241-3323.

Sincerely,

Clyde Takekuma

Clyde Takekuma, Chief Sanitarian
Kauai District Health Office

CT:gnt

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HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
KAUAI DISTRICT
3086 EIWA STREET, ROOM 308
LIHUE, KAUAI, HAWAII 96798-1878

December 6, 1995

IN REPLY REFER TO

Mr. Clyde Takekuma, Chief Sanitarian
Kauai District Health Office
3040 Umi St.
Lihue, HI 96766

Dear Mr. Takekuma:

This responds to comments made on our draft environmental assessment for a field station and mid-elevation nursery in Kokee State Park.

We are, as you suggest, in the process of contacting the Wastewater Branch on Oahu regarding distance requirements from the drinking water well.

It is our intention to ensure conformity with all applicable health laws and regulation.

We will, as plans proceed, submit them to you for your review.

Thanks for your review of our draft EA.

Sincerely,

A handwritten signature in cursive script, appearing to read "Edwin Q.P. Petreys".

Edwin Q.P. Petreys
District Manager

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BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
P O BOX 3378
HONOLULU, HAWAII 96801

DEC 27 1995

LAWRENCE MIKE
DIRECTOR OF HEALTH

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A K1-04-01.K7

December 19, 1995

Mr. Edwin Q.P. Petteys
District Manager
Hawaii Department of Land and Natural Resources
Division of Forestry and Wildlife
Kauai District
3060 Eiwa Street, Room 306
Lihue, Kauai, Hawaii 96766-1875

Dear Mr. Petteys:

Subject: Draft Environmental Assessment
Kokee Field Station and Mid-Elevation Nursery
Waimea, Kauai
TMK: (4) 1-4-01

We have reviewed the letter on the subject project submitted by your office. We have the following comments to offer.

The document proposes to establish a field station and mid-elevation threatened and endangered plant nursery at Pohakuwaawaa, within the Kokee State Park. The subject project is located in the critical wastewater disposal area with one acre lot exception as determined by the Kauai County Wastewater Advisory Committee. No new cesspools will be allowed in the subject area.

As there is no existing sewer service system in the area, the Department of Health (DOH) concurs with the proposal to install at the minimum a treatment individual wastewater system (non cesspool IWS) to be constructed on-site. A distance of more than 1000 feet between the IWS and drinking water well should be maintained and quality of the well should be tested periodically to insure that contamination from the IWS is not taking place.

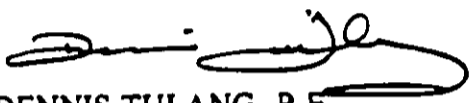
All wastewater plans must conform to applicable provisions of the DOH's Administrative Rules, Chapter 11-62, "Wastewater Systems." However, we do reserve the right to review the detailed wastewater plans for conformance to applicable rules.

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Mr. Edwin Q.P. Petteys
December 19, 1995
Page 2

Should you have any further questions, please contact Mr. Harold Yee of the Wastewater Branch at telephone 586-4294.

Sincerely,



DENNIS TULANG, P.E.
Chief, Wastewater Branch

LK:bhm

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MAR-11-1996 12:58

P.01



CENTER FOR PLANT CONSERVATION

Facsimile Cover Sheet

To: Edwin Petteys
Organization: DOFAW, Kaua'i District
Phone: (808) 274-3433
Fax: 274-3438

MAR 11 1996

RE: Review of DEA of Koke'e Field Station

From: Gary Ray *J.R.*
Organization: CPC-Hawaii
Phone: (808) 848-4177
Fax: (808) 847 8252

	IN O.
	CLERK & REC'D
	APPROPRIATE
	DATE RECEIVED

Date: March 11, 1996
Number of Pages: 3

Comments: Dear Mr. Petteys:

My review of the second Draft Environmental Assessment of a project entitled "Koke'e Field Station and Mid-Elevation Nursery" follows on pages 2 and 3.

I would like to take this opportunity to request the cooperation of your State Forest District with our coalition of 15 private, state and federal organizations, including botanical gardens, non-profit conservation organizations, and DOFAW itself, with regard to ex-situ plant propagation and re-introduction. We operate together as a single planning body coordinating conservation efforts across the state of Hawai'i. We would like to have your support for the construction and operation of a mid-elevation nursery on State land under the jurisdiction of the Hawai'i Department of Parks and Recreation. The site is located less than a mile southeast of the Koke'e State Park visitor center. The property is more than two level acres and has plenty of space for storage of mature plants. As I mention in my review, building a living, genetic reservoir is critical to the recovery of our most critically endangered plants, because habitat in which we may safely re-introduce these plants is difficult to find in most cases - on-going threats to plant habitats are major obstacles.

We hope you will join us in our efforts to better coordinate and consolidate our off-site conservation effort in Hawai'i. Thank you.

Copies to: Michael Buck, DOFAW
Michael Wilson, DLNR
Gary Gill, OEQC

CPC - Hawaiian Flora - Bishop Museum
1525 Bernice Street • P.O. Box 19000A • Honolulu, Hawaii • 96817-2916
Tel: (808) 848-4177 • Fax: (808) 847-8252 • INTERNET: garyray@bishop.bishop.hawaii.org

**Review of
Koke'e Field Station and "Mid-Elevation Nursery"
Waimea District - Kaua'i, TMK: 1-4-01**

Gary Ray, Ph.D.
Center for Plant Conservation-Hawai'i, Bishop Museum
1525 Bernice St.
Honolulu, HI 96817-0916

March 9, 1996

Applicant:
DLNR, Division of Forestry and Wildlife
3080 Eiwa St., Rm 306, Lihue, Hawai'i 96766
Contact: Edwin Petteys

Dear Mr. Petteys:

This is my second review of draft environmental assessments for this project. I have both DEA versions in front of me for comparison. It is apparent that draft #2 is strikingly similar to the first draft, with minor changes.

A coalition of 15 Hawai'i organizations called the Hawai'i Rare Plant Restoration Group (HRPRG) is currently developing a statewide infrastructure of mid-elevation nurseries needed to conduct controlled propagation of Hawaiian endangered plants. Our coalition includes the following organizations:

members:

- National Tropical Botanical Garden
- Honolulu Botanical Gardens
- Harold Lyon Arboretum
- Waimea Arboretum and Botanical Garden
- Amy Greenwell Ethnobotanical Garden
- Bishop Museum
- Center for Plant Conservation-Hawai'i
- Kamahameha Schools/Bishop Estate
- The Nature Conservancy of Hawai'i
- U.S. Fish and Wildlife Service - Honolulu Field Office
- U.S. Army Garrison, Directorate of Public Works, Schofield Barracks
- U.S. Army Garrison, Pohakuloa Training Area
- Hawai DLNR, Division of Forestry and Wildlife**
- National Park Service
- National Biological Service

under consideration for membership:

- Native Hawaiian Plant Society
- Hawai'i Ho'olau Hou
- Hakalau Forest National Wildlife Refuge

Representatives of the organizations listed above, operating as a single body, coordinate Hawaiian endangered plant propagation efforts. The Kaua'i District planners of the facility at Koke'e **operate outside of our network**. We are planning our own Mid-elevation Nursery at Koke'e on a separate site. We consider the Kaua'i

District project an attempt by a fragment of one our member organizations (DOFAW) to take political control over a highly technical conservation effort for which they have no expertise.

After commenting on the initial draft DEA for this project, my name was apparently stricken from the list of reviewers. DOFAW did not mail me a copy. Yet, the DOFAW leadership is well aware of my expertise. CPC-Hawai'i is presently working with DOFAW on a major initiative aimed at constructing and operating endangered plant nurseries on 6 islands. The purpose of operating as a multi-agency coalition is to combine the skills and complementary programs of many organizations into a single, unified effort. We feel that this Kaua'i District project is an attempt to undermine our efforts at saving the endangered plants of this state.

The existing nurseries in our network, at Panole on O'ahu and at Volcano on the Island of Hawai'i, conduct business as multi-agency projects. These nurseries are closely scrutinized by the HRPRG. The HRPRG is planning its own a Mid-elevation Nursery Facility at Koke'e. It has the backing of the Hawai'i State Division of Parks and Recreation, CPC-Hawai'i, a local community group on Kaua'i, and the rest of our coalition. We wish to have the cooperation of the Kaua'i District on our own project. However, the Kaua'i District apparently prefers to ignore our efforts and take unilateral control over mid-elevation propagation on Kaua'i. If Kaua'i feels it needs a work camp, it should ~~have a work camp~~. The need for a work camp has nothing to do with endangered plants or nursery propagation. The two activities are scarcely compatible. We are already conducting this business and our cause we will not be abetted by yet another competing power center within DOFAW. In order for the collective expertise in ex-situ conservation to execute its complex responsibilities, it must have full regulatory control of the acquisition, transfer, storage, propagation and reintroduction of the Hawaii's rarest plants. Anything less leads to chaos and retrenchment in the conservation arena.

As to the specifics of the design, I made it clear in my review of the previous DFA version that the proposed site is nowhere near large enough (only 1.55 acres) to accommodate all of its intended functions. A minimum of two acres is required to guarantee the space to propagate and to store the plants on-site. The applicants contend that they will not store plants on-site. They demonstrate ignorance of the purpose of our field gene banks. These nurseries are not only designed to provide genetic stock for reintroduction, but to **build a genetic reservoir on-site**. Most of these plant taxa cannot be reintroduced immediately because their habitat has not been secured from destruction by ungulates or from competition from alien weeds. To add to the problem, most taxa cannot be stored as seeds because they cannot tolerate desiccation or cold storage. That leaves "living collections" of mature plants as the only means of storing and rebuilding genetic stock. We oppose the notion that Kaua'i District should immediately return all of these endangered plants to their native habitat. In many instances, that would only lead to their demise.

Our coalition recommends that the mid-elevation nursery portion of this project proposal be deleted. We further suggest that the Kaua'i District of DOFAW join our large body of expertise in backing our separate mid-elevation nursery project. Thank you.



HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
KAUAI DISTRICT

3060 EIWA STREET, ROOM 306
LIHUE, KAUAI, HAWAII 96766-1875

March 11, 1996

IN REPLY REFER TO

Dr. Gary Ray
Center for Plant Conservation-Hawaii
Bishop Museum
1525 Bernice St.
Honolulu, HI 96817-0916

Dear Dr. Ray:

This acknowledges your comments of March 9, 1996 on our Kokee Field Station and Mid-Elevation Nursery.

It appears to us that your recent comments address the same issues as your earlier ones. As such, our earlier response still applies. In that your comments center on administrative and institutional issues rather than those regarding the environmental impacts of our proposed installation, we do not feel this is the relevant forum to take those up.

While your name was incorrectly attributed to an erroneous agency in the earlier EA, your comments and our response were indeed included in our earlier draft. We apologize for this oversight.

Sincerely,

A handwritten signature in black ink, appearing to read "Edwin Q.P. Petteys".

Edwin Q.P. Petteys
District Manager