

7.3. KAWAILOA TRAINING AREA (KLOA)

7.3.1. General Description.

a. Location and Size. KLOA consists of 9449 hectares (23,348 acres) of land on central Oahu on the slopes of the Ko'olau Mountain range, directly south of the bordering KTA. All 9449 hectares are leased from Dole Foods Co., Inc. (7532), Attractions Hawaii (140) and the State of Hawaii (1777).

b. Military Land Use. KLOA is situated in some of the most rugged terrain in Hawaii. Very deep ravines, dense vegetation, and tropical rain forest characterize the installation. Access is very limited, although there is an unimproved roadway along the western boundary of the area that traverses a small relatively flat and clear area. Only 2149 hectares (5,310 acres) of the training area are actually suitable for maneuver training activities. The remaining 7230 hectares (18,038 acres) are considered unsuitable due to slopes in excess of 20 percent. The area is considered excellent for mountain and jungle warfare training because of its ravines and dense vegetation. In areas with a slope of 20 percent or more, troop deployment is typically limited to single file, small unit movements on ridgelines. KLOA is used primarily for small infantry unit maneuver and helicopter training. Nap of the earth (NOE) and night vision goggle (NVG) helicopter training is common. Small unit infantry maneuver operations via helicopter insertion are also practiced.

c. Training Capabilities. The lease agreement with Dole Foods Co., Inc. and State of Hawaii prohibits live-fire, tracer ammunition, incendiaries, explosives, and pyrotechnics in all parts of KLOA. Blank fire of small arms up to .50 caliber is allowed. Attractions Hawaii leases prohibit weapons firing in some training areas.

d. Climate.

(1) Rainfall. Rainfall at KLOA is variable based upon elevation. Upper portions of the installation receive an average of 635cm (250 inches), while in the lower portions along the central plateau the annual average rainfall is 127cm (50 inches).

(2) Temperature. Temperatures at KLOA range from 15.5 to 32.2° C (60° to 90° F) and average 22°C (71° F), with average high temperatures of 26.5° C (80° F).

(3) Relative Humidity. Average relative humidity as measured by the SBER RAWS is 82%, with an average maximum and average minimum of 95% and 59% respectively.

(4) Wind. Winds are dominated by trades out of the northeast. Average windspeed as measured by the SBER RAWS is 4.7 mph, with average max windspeed at 8.2 mph.

e. Topography. Elevation in the training area varies from approximately 1,052m (2,600 ft) above sea level at the crest of the Ko'olau Mountain Range, to approximately 405m (1,000 ft) in the lower western portion. The topography is often extreme, with steep sided and deep valleys partitioning the training area at regular intervals.

7.3.2. Vegetation Fuels Classification.

All eight classes of Oahu fuels are found at KLOA (Figure 5 and Table 7.3.1). These classes were derived from the National Forest Fire Laboratory (NFFL) fuel behavior models as defined by Anderson (1982). For a full description of Oahu fuel types and their derivation see Section 3.5.

Table 7.3.1
Fuel Types at KLOA

<i>Fuel Type</i>	<i>Fuel Model</i>	<i>Vegetation Classifications Included (Genus only)</i>
Short Alien Grassland	NFFL 2	<i>Andropogon</i>
Tall Alien Grassland	Guinea Grass Custom	<i>Leucaena/Panicum, Melinis/Panicum, Panicum</i>
Eucalyptus Forest	NFFL 10	<i>Eucalyptus, Melaleuca</i>
Ironwood Forest	NFFL 9	<i>Casuarina</i>
Mixed Forest	NFFL 8	<i>Metrosideros/Acacia koa/Dicranopteris</i>
Christmas Berry Shrublands	NFFL 5	<i>Schinus</i>
Kukui Forest	Kukui Custom	<i>Aleurites</i>
Developed/Denuded	None	<i>Agriculture, Urban Development, Bog, Open Water, Roads</i>

7.3.3. Fire History for KLOA.

Only one fire has been recorded at KLOA. It burned 125 hectares (310 acres) in September of 2000. The reported ignition source was hot brass/muzzle flash, and must have been caused by blank fire, since no other munitions are allowed at KLOA. Despite the size of this fire, blanks represent a very low fire ignition threat based on the number of fires they have caused throughout the USARHAW fire history. No analysis for fire trends is possible at KLOA with such a limited data set.

7.3.4. Resource Protection.

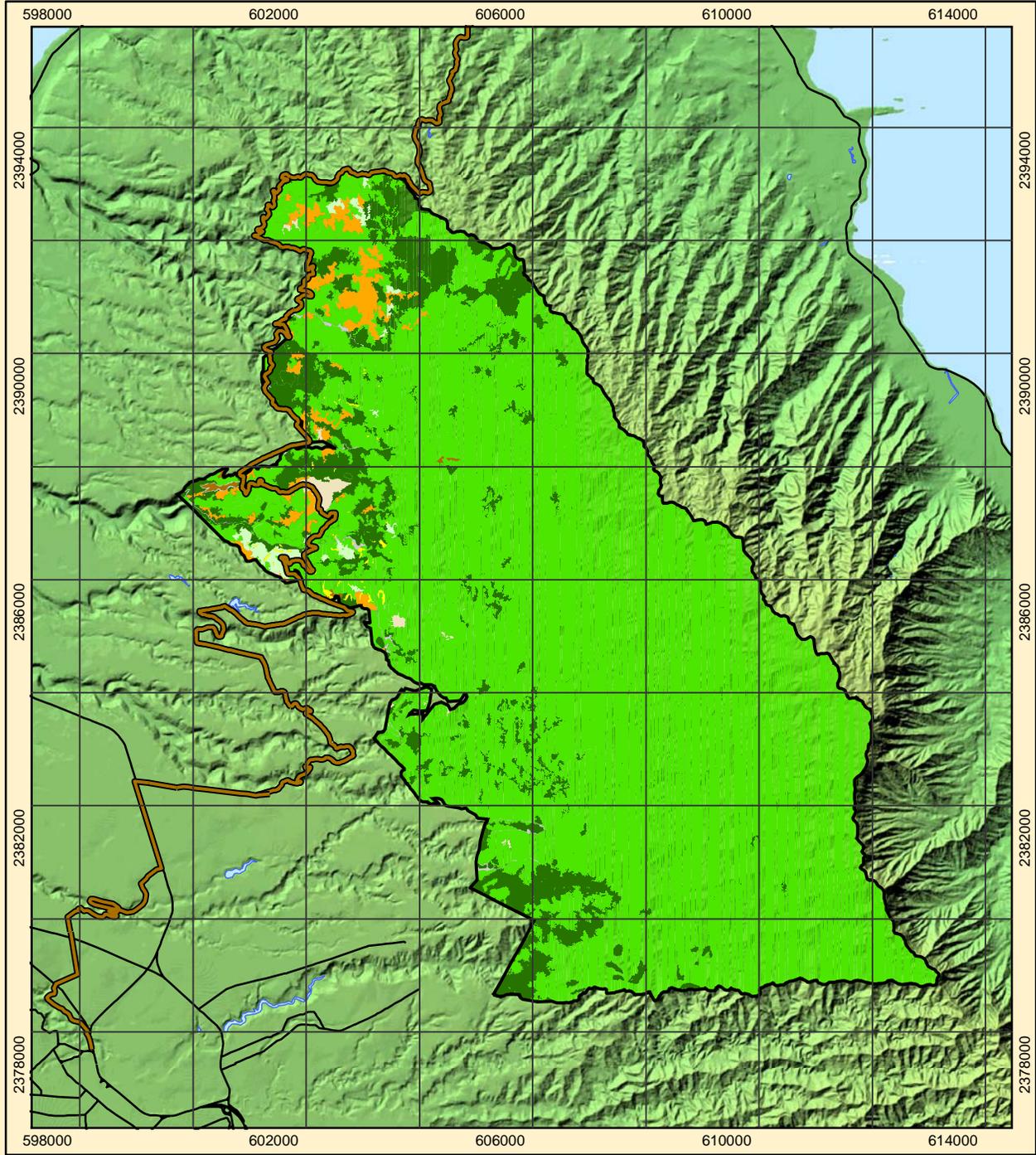
a. Biological Sensitive Areas (BSA).

(1)The vegetation at KLOA varies according to the surrounding topography. Mixed open forests characterize the higher elevations. Below 607m (1,500 ft) above sea level, open guava forests with shrubs and Bermuda grass characterize the vegetation. Ten native natural community types have been identified, two of which are considered rare.

(2)Portions of KLOA have been designated BSA-1 and –2 areas. There are several BSA-1 areas and one larger BSA-2 area in KLOA.

Kawailoa Training Area Fuels

Figure 5



1:110,000

0 2,500 5,000 Meters

0 1 2 Miles

Data Source: Center for Environmental Management of Military Lands 2003
IKONOS 4 meter Multispectral Imagery

Fuels

- Christmas Berry Shrublands
- Developed/Denuded
- Eucalyptus Forest
- Ironwood Forest
- Kukui Forest
- Mixed Forest
- Short Alien Grassland
- Tall Alien Grassland

Legend

- Installation Boundary
- Surface Water Body
- Primary Roads
- Military Vehicle Trail

b. Protected Species.

(1) KLOA has large contiguous tracts of native forest. According to a Biological Assessment from March of 2003, there are 17 federally listed plant taxa at KLOA. There are also 5 listed invertebrates.

(2) Table 7.3.2 lists the federally listed species identified at KLOA.

c. Cultural Resources.

(1) Cultural resources identified at KLOA (79 known sites) include a complex of agricultural sites, a habitation complex, and an enclosure. The majority of these sites are located along the numerous stream channels. In Anahulu Valley (Kawailoa Uka) there are rock shelters used in pre-European contact times dating to 1280 A.D.; burial caves; a pond field; irrigation sites; habitation terraces dating from the 1600s; walls; and enclosures. Minor agricultural features such as stone mounds, alignments and simple terraces are also evident.

(2) Areas with high probability of archaeological sites include stream valleys. One such area along Anahulu Stream was identified in a 1992 survey. The remainder of KLOA is in the moderate probability category for archaeological resources, including steep slopes that could contain rock shelters and burial caves.

(3) Seven of the 40 archaeological sites reported by Kirch (1992) in Kawailoa Uka in 1982 are located within the KLOA, just inside the area's western boundary. Many of these sites correspond to landholdings and Land Commission Awards in Kawailoa-uka. These sites include three habitation terraces, three pond field irrigation systems, and a series of earthen terraces. Three additional sites are located just outside the project area to the west.

(4) All sites identified in the KLOA would be considered significant under Criterion D as resources that "have yielded, or may be likely to yield, information important in prehistory or history." In addition, burial caves and burial platforms identified in the training area would be considered significant due to their cultural importance to native Hawaiians.

d. Wildfire Prevention Analysis

(1) A wildfire prevention analysis requires that a parcel of land be divided by significant barriers to fire, either manmade or natural, in order to create units that are then given a pre-suppression priority. Because there are no readily definable barriers within KLOA, it is not possible to carry out a wildfire prevention analysis.

(2) Generally speaking, however, areas at low elevation are dominated by flammable alien species, while higher elevations are less fire prone. Conversely, low elevations harbor few federally listed species, while high elevations contain many. For these reasons, pre-suppression dollars would be best spent in low elevation areas concentrated around heavily used training locations.

CHAPTER 7 – FIRE MANAGEMENT AREAS – KLOA

7.3.5. Fire Protection.

a. A new RAWS will be purchased and placed at Puu Kapu in fiscal year 2004 to facilitate fire danger rating at KLOA.

b. Firebreak System.

(1) There are no existing firebreaks at KLOA, though Drum road that can serve as a control line during fire suppression (Figure 6). It will not be kept at firebreak standards and will be maintained only for vehicle access.

(2) There are no plans for any firebreaks to be built in KLOA.

(3) Several other roads throughout the installation will serve to provide access for fire fighting vehicles.

c. Fuels Modification.

(1) Fuel modifications by mechanical crushing, chemical herbicide, and prescribed burning techniques (where applicable) shall be utilized whenever possible and necessary. Where it is not possible to crush and/or prescribed burn, selective clearing and removal with hand labor will be considered.

(2) There are no plans for any fuels management at KLOA at this time. The sole exception to this is for the Kawaihoa to Schofield Barracks Military Vehicle Trail. Should this trail be built, unmanaged fuels will be cut and/or herbicided wherever they occur. Fine fuels will be kept to less than 1 foot in height and/or less than 20% crown cover. Determination of the state of the fuels will occur once annually and will be via calibrated ocular estimation. It is unlikely that much if any fuels management will be required along this route as the majority passes through heavily managed agricultural fields.

7.3.6 Project Budget FY 03 to 05*

PROJ/FEWR NO.	PROJECT TITLE	EST COST (x \$1000)	FUNDED BY	FY
TA100223J	Install New KLOA RAWS Unit (Pu'u Kapu)	18	DPW ENV	O4
TA100233J	Fuel Modification/Vegetation Control KLOA	30	DPW ENV	O4
	Total	48		

*See Annex I for the sustainment budget

Kawailoa Training Area Firebreaks and Fuels Management

Figure 6



1:110,227

0 2,500 5,000 Meters

0 1 2 Miles

Data Source: Center for Environmental Management of Military Lands 2003
USARHAW IFSO

Legend

- Proposed Fuels Management Area
- Installation Boundary
- Training Areas
- Surface Water Body
- Roads**
 - Primary
 - Secondary
 - Tertiary
 - Military Vehicle Trail

CHAPTER 7 – FIRE MANAGEMENT AREAS – KLOA

Table 7.3.2
 Federally Listed Endangered and Threatened Species
 At Kawaiiloa Training Area*

Status	Hawaiian / Common Name	Scientific Name
PLANTS:		
Endangered	‘Akoko, koko, kokomalei	<i>Chamaesyce rockii</i>
Endangered	‘Oha, haha, ‘ohawai	<i>Cyanea acuminata</i>
Endangered	‘Oha, haha, ‘ohawai	<i>Cyanea crispa</i>
Endangered	haha, ‘ohawai	<i>Cyanea humboldtiana</i>
Endangered	haha, ‘ohawai	<i>Cyanea koolauensis</i>
Endangered	haha, ‘ohawai	<i>Cyanea st. johnii</i>
Endangered	None	<i>Cyrtandra dentata</i>
Endangered	None	<i>Cyrtandra viridiflora</i>
Endangered	Nanu, na’u	<i>Gardenia mannii</i>
Endangered	None	<i>Hesperomannia arborescens</i>
Endangered	Alani	<i>Melicope lydgatei</i>
Endangered	Wawai’iole	<i>Phlegmariarus nutans</i>
Endangered	None	<i>Phyllostegia hirsuta</i>
Endangered	None	<i>Pteris lidgatei</i>
Endangered	None	<i>Sanicula purpurea</i>
Endangered	Ohe’ohe	<i>Tetraplasandra gymnocarpa</i>
Endangered	None	<i>Viola oahuensis</i>
ANIMALS:		
Endangered	Pupu kanioe, pupu kuahiwi, kahuli	<i>Achatinella apexfulva</i>
Endangered	Pupu kanioe, pupu kuahiwi, kahuli	<i>Achatinella byronii</i>
Endangered	Pupu kanioe, pupu kuahiwi, kahuli	<i>Achatinella lila</i>
Endangered	Pupu kanioe, pupu kuahiwi, kahuli	<i>Achatinella livida</i>
Endangered	Pupu kanioe, pupu kuahiwi, kahuli	<i>Achatinella sowerbyana</i>

*According to Biological Assessment for Endangered Species Act, Section 7 Consultation on Routine Military Training and Transformation of the Second Brigade to a Stryker Brigade Combat Team, 25th Infantry Division (Light), U.S. Army Hawaii. Various Sites, Island of Oahu. 21 March, 2003.