3.6 HAWAII

The island of Hawaii is the largest of the Hawaiian Islands. It covers approximately 4,028 square miles and is still growing because of continual eruptions of Kilauea. Resorts and most residential developments are located in coastal areas. Hilo, located on the east side of the island, is the county seat. Current and proposed Hawaii Range Complex (HRC) operations on the island of Hawaii addressed in this Environmental Impact Statement (EIS)/Overseas EIS (OEIS) are located at Pohakuloa Training Area (PTA), Bradshaw Army Airfield, and Kawaihae Pier.

3.6.1 HAWAII OFFSHORE

Hawaii Offshore addresses ocean areas within 12 nautical miles (nm) of the island of Hawaii, including ranges and training areas where activities are performed by the Navy. Discussions include the area offshore of the Kawaihae Pier. This offshore area is within the Hawaiian Islands Humpback Whale National Marine Sanctuary. The Kawaihae Pier itself is not part of the Hawaiian Islands Humpback Whale National Marine Sanctuary boundaries

3.6.1.1 KAWAIHAE PIER—OFFSHORE

Kawaihae Pier is located within the Kawaihae Harbor on the northwestern corner of the island of Hawaii. Kawaihae Harbor is a deep-water port, one of two on the island of Hawaii. Expeditionary Assault exercises are conducted at Kawaihae Pier. Activities primary consist of offloading and loading vehicles and equipment from a landing ship at an existing boat ramp.

This section describes the environmental resources that would be affected by the No-action Alternative, Alternative 1, or Alternative 2 for Kawaihae Pier Offshore. Of the 13 environmental resources considered for analysis, airspace, air quality, cultural resources, geology and soils, hazardous material and waste, health and safety, land use, noise, socioeconomics, transportation, utilities, and water resources are not addressed.

3.6.1.1.1 Biological Resources—Kawaihae Pier—Offshore

Region of Influence

The region of influence includes the area up to 12 nm offshore of the pier that may be affected by proposed operations.

Affected Environment

Vegetation

A small beach area containing no vegetation is located immediately adjacent to the pier.

Threatened and Endangered Plant Species

No threatened or endangered plant species have been identified within the harbor area.

Wildlife

Habitat areas of particular concern have not been identified within the harbor. A coral reef of management concern is located at Kawaihae Harbor. It is at risk from extensive development at the commercial harbor and from recent and continued development at the small boat harbor. Another coral reef, Puako Reef, is located approximately 3 to 4 miles (mi) from Kawaihae Harbor. (National Park Service, 2004)

The following coral information is summarized from the more extensive data provided in the *Marine Resources Assessment for the Hawaiian Islands Operating Area* (U.S. Department of the Navy, 2005c). Overall, coral communities of Hawaii are considered to be in good condition. The growth of coral reefs around the island of Hawaii is correlated to the intensity and frequency of wave disturbance. Coral reefs are primarily found on the western (leeward) side of the island, which includes the offshore area between Waikui and Mahukona (Figure 3.6.1.1.1-1). During summer, an occasional Kona storm generates storm swells of about 10 to 20 feet (ft) in height that can remove accreted reefs on the leeward side. (U.S. Department of the Navy, 2005c)

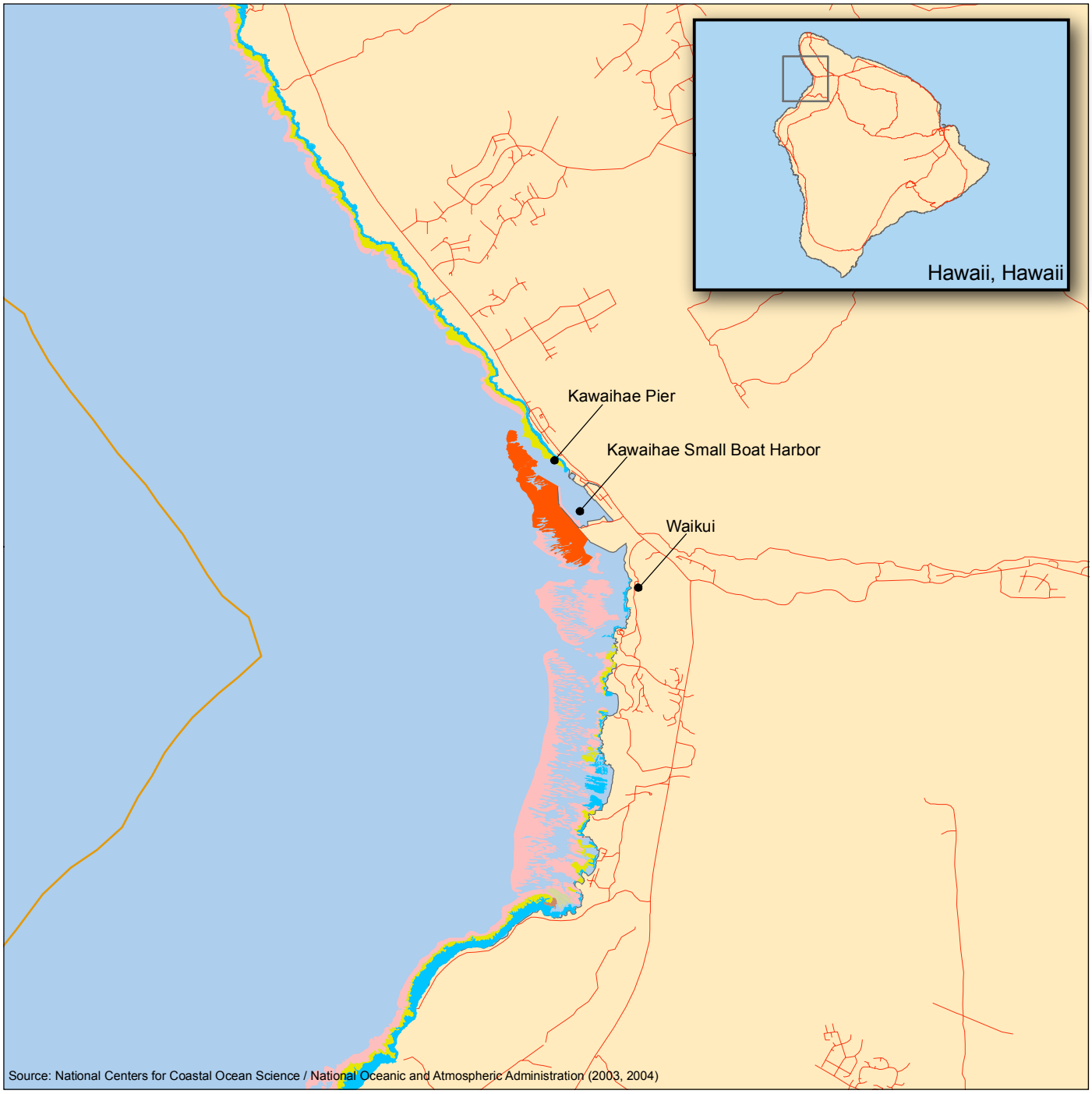
North of Waikui, there is a fairly large spur-and-groove reef system (1.3 nm long and 590 to 1,772 ft wide) off the Kawaihae Small Boat Harbor (Figure 3.6.1.1.1-1). This is the only spur-and-groove reef that the National Centers for Coastal Ocean Science/National Oceanic and Atmospheric Administration (2003) benthic habitat mapping program recorded for the island of Hawaii. From the Kawaihae Small Boat Harbor to Malae Point, the shoreline is flanked by a narrow intertidal area consisting of uncolonized volcanic rock (approximately 131 ft wide); just seaward there is a strip of colonized volcanic rock (131 to 459 ft wide) and aggregated coral heads (131 to 459 ft wide). Another 2.2 nm north of Malae Point, there is similar habitat zonation and sizes. From Malae Point to Makaohule Point the widths of colonized volcanic rock and aggregated coral head habitats range from 328 to 820 ft and 590 to 1,181 ft, respectively. (U.S. Department of the Navy, 2005c)

Threatened and Endangered Wildlife Species

No threatened or endangered species have been identified within the harbor. However, the water on this leeward side of the island provides good habitat for humpback whale (*Megaptera noveangliae*) mother and calf pods and for resting dolphin pods (National Park Service, 2004). No critical habitat is present (National Park Service, 2004).

Hawaiian Islands Humpback Whale National Marine Sanctuary

The Kawaihae Pier area is not part of the Hawaiian Islands Humpback Whale National Marine Sanctuary boundaries (National Oceanic and Atmospheric Administration, 2001).



EXPLANATION

- Road
- 3-Nautical Mile Line
- Uncolonized Volcanic Rock/Boulder
- Aggregated Coral
- Colonized Volcanic Rock/Boulder
- Spur and Groove Reef
- Colonized Pavement
- Scattered Coral/Rock in Unconsolidated Sediment
- Land

NORTH 0 3,000 6,000 12,000 Feet

Offshore Hardbottom Habitats Near Kawaihae Pier

Island of Hawaii

Figure 3.6.1.1.1-1

3.6.2 HAWAII ONSHORE

3.6.2.1 POHAKULOA TRAINING AREA (PTA)

PTA is a sub-installation of Schofield Barracks. It is located near the center of the island of Hawaii between three volcanoes: Mauna Kea, Mauna Loa, and Hualalai. The mission of Pohakuloa Training Area is to provide training of full-scale live firing exercises for the 25th Infantry Division (Light), U.S. Army Garrison, Hawaii. PTA also provides training facilities for other branches of the U.S. military and friendly foreign forces.

This section describes the environmental resources that would be affected by the No-action Alternative, Alternative 1, or Alternative 2 for Pohakuloa Training Area. Of the 13 environmental resources considered for analysis, air quality, hazardous materials and hazardous waste, geology and soils, land use, socioeconomics, transportation, utilities, and water resources are not addressed.

3.6.2.1.1 Airspace—PTA

Appendix C includes a detailed description of airspace.

Region of Influence

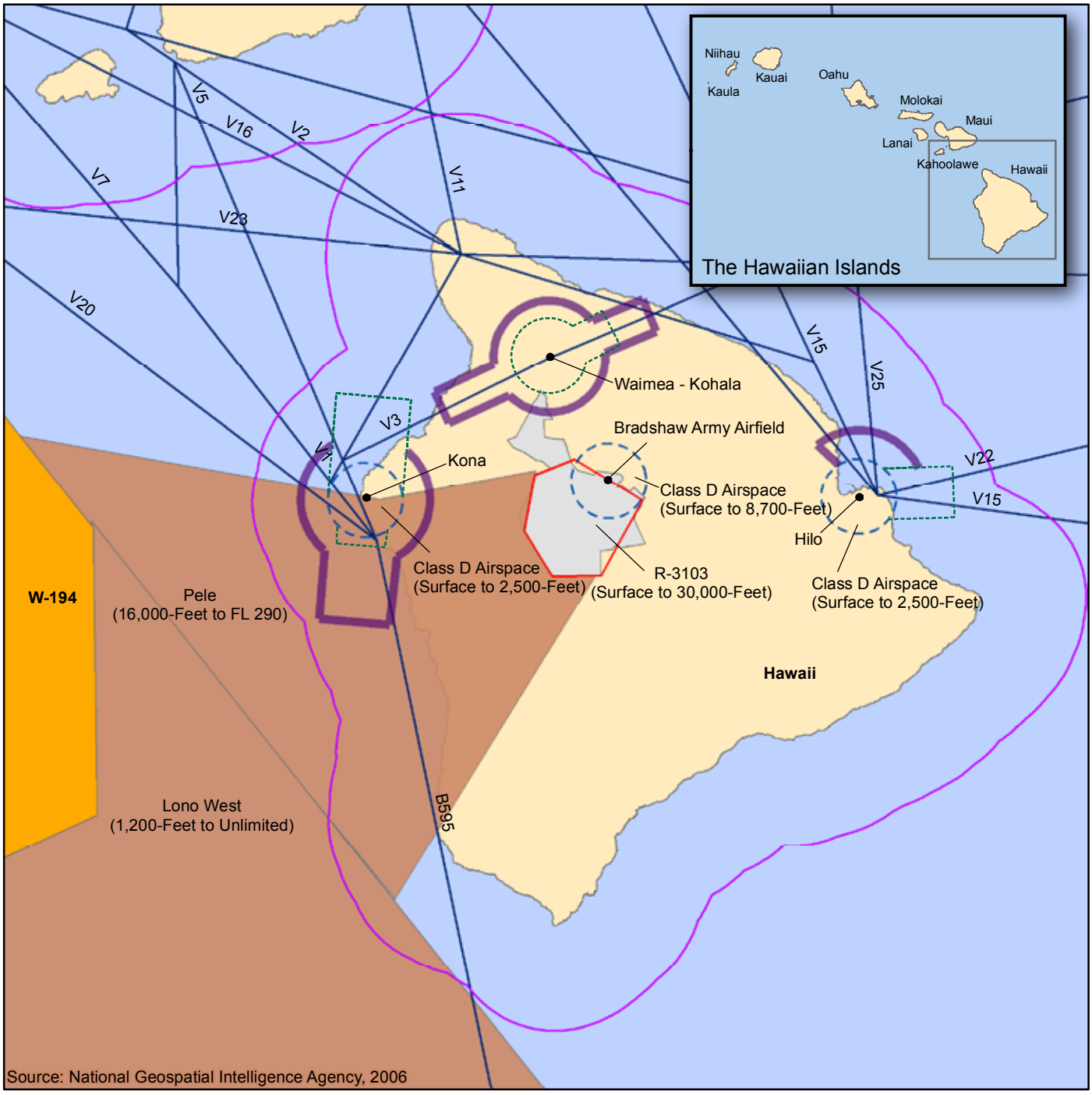
The PTA region of influence includes selected airspace within the territorial limits of the island of Hawaii as shown on Figure 3.6.2.1.1-1. The primary operations occur above the PTA and within the Pele transition area between PTA and Warning Area W-194.

Affected Environment

The affected airspace in the PTA region of influence is described below in terms of its principal attributes: controlled and uncontrolled airspace, special use airspace, en route airways and jet routes, airports and airfields, and air traffic control. There are no military training routes in the region of influence.

Controlled and Uncontrolled Airspace

The airspace in the PTA region of influence includes uncontrolled Class G airspace (see Appendix C), which extends from the surface to a ceiling of 1,200 ft, and controlled Class E airspace, which is airspace above 1,200 ft unless the special use airspace, discussed below, is activated. Bradshaw Army Airfield, located within PTA, is surrounded by Class D airspace extending from the surface to a ceiling of 8,700 ft. There is also class D airspace at the Kona and Hilo airports extending from the surface to 2,500 ft. (National Aeronautical Charting Office,



EXPLANATION

- Airway
- Class E Airspace with Floor at the Surface
- Class E Airspace with Floor 700-Feet Above Surface
- 12-Nautical Mile Line
- Class D Airspace
- Oahu Warning Area
- Restricted Airspace
- Air Traffic Control Assigned Airspace (ATCAA)
- Pohakuloa Training Area
- Land

NORTH 0 10 20 40 Nautical Miles

Airspace Use Surrounding Pohakuloa Training Area

Island of Hawaii

Figure 3.6.2.1.1-1

2006) However, because the PTA impact area and Bradshaw Army Airfield are located at an elevation approximately 6,000 ft above Hilo and Kona, those airports are typically not within the region of influence.

Special Use Airspace

The R-3103 restricted area (Figure 3.6.2.1.1-1) lies above the PTA, extending from the surface to 30,000 ft (Table 3.6.2.1.1-1). The time of use is intermittent; notification is made by Notice to Airmen 12 hours in advance. The area is scheduled through the Navy Fleet Area Control and Surveillance Facility Pearl Harbor, which coordinates with the Honolulu Combined Facility. When R-3103 is active, Bradshaw Army Airfield Tower maintains control of a corridor of airspace for aircraft arriving or departing Bradshaw Army Airfield and PTA. Aircraft operating outside this corridor must coordinate with Range Control to enter or exit the airspace and to obtain specific routes for flights within Restricted Airspace R-3103 (U.S. Army Garrison, Hawaii, 1996). When the airspace is scheduled to be inactive, the agency releases it back to the Honolulu Combined Facility, and, in effect, the airspace is no longer restricted. (U.S. Department of the Army, 2004; Federal Aviation Administration, 2006)

Table 3.6.2.1.1-1. Special Use Airspace in the Island of Hawaii Region of Influence

Warning/ATCAA Number/Name	Location	Altitude (Ft)	Time of Use		Controlling Agency
			Days	Hours	
R-3103	Restricted Airspace	To 30,000	Intermittent	By Notice to Airmen	HCF
Pele	Between W-194 and R-3103	16,000 to FL290		By request	HCF

Notes:
W = Warning
ATCAA = Air Traffic Control Assigned Airspace
FL = Flight Level (FL 290 = 29,000 ft)
HCF = Honolulu Combined Facility
Source: Federal Aviation Administration, 2006

Although there are no formal, published military training routes on the island of Hawaii, the R-3103 restricted area is used for helicopter training exercises, with an average of 900 aircraft movements per month, 99 percent of which involve helicopters. Typical training involves the use of 10 rotary-winged aircraft at any one time. During deployment training, one or two C-130s would be involved about twice a year. (U.S. Department of the Army, 2004)

Naval aircraft use of the R-3103 restricted area includes Navy and Marine Corps fighter and attack aircraft crews training during training operations. A Strike Warfare exercise would typically involve a flight of 2 to 10 aircraft training in air-to-ground missile firing, conventional ordnance delivery, and precision-guided munitions firing. All Strike Warfare Training at PTA uses inert munitions.

There is also one Air Traffic Control Assigned Airspace (ATCAA) area within the region of influence (Pele) that provides additional controlled airspace between R-3103 and Warning Area W-194 (Table 3.6.2.1.1-1).

En Route Airways and Jet Routes

As shown on Figure 3.6.2.1.1-1, there is one oceanic route (B595) located approximately 18 nm west of PTA, running along the eastern side of the island, terminating near Kona. Several low altitude Air Traffic Service (ATS) routes are located near Kona, and several others are located approximately 26 nm west of PTA at Hilo. One ATS route is located approximately 15 nm north of PTA.

Airports and Airfields

Bradshaw Army Airfield, located within PTA, is surrounded by Class D airspace extending from the surface to a ceiling of 8,700 ft. As described earlier, the Hilo and Kona airports and associated airspace are below the airspace typically utilized at PTA. Both Hilo and Kona are surrounded by Class D airspace. Both include surface Class E airspace extensions and additional Class E extensions, with a floor 700 ft above the surface. The Waimea airfield is located approximately 15 nm north of PTA at an altitude of 2,671 ft. It is surrounded by surface Class E airspace with additional Class E airspace extensions with a floor 700 ft above the surface. Air traffic in the region of influence is managed by the Honolulu Air Route Traffic Control Center.

3.6.2.1.2 Biological Resources—PTA

For the purpose of discussion, terrestrial biological resources have been divided into the areas of vegetation and wildlife (including threatened and endangered species) and environmentally sensitive habitat. A list of some of the regulations that govern biological resources is provided in Appendix C.

Region of Influence

The region of influence is the area within or adjacent to PTA that could be affected by proposed operations.

Affected Environment

Vegetation

Lava with little vegetative development covers approximately 25 percent of the installation. Treelands are dominated primarily by `oh`a lehua (*Metrosideros polymorpha),* which is a member of the myrtle family and is the most abundant tree in Hawaii. Shrublands are the most diverse plant communities on the installation (14 different types). Dominant shrubs include naio *(Myoporum),* mamane *(Sophora),* a`ali`i *(Dodonaea),*`aweoweo *(Chenopodium),* and pukiawe *(Styphelia).* Introduced plants are components of all habitats on PTA. (U.S. Department of Agriculture, 1990; U.S. Department of the Army, 2004; 2006)

Threatened and Endangered Plant Species

Fourteen Federally endangered plants and one threatened one, listed in Table 3.6.2.1.2-1, are known or expected to occur in the region of influence.

Table 3.6.2.1.2-1. Listed Species Known or Expected to Occur in the Vicinity of the Proposed Action

Scientific Name	Common Name	Federal Status
Plants		
*Asplenium fragile var. insulare**	Fragile fern	E
Haplostachys haplostachya	Honohono (Hawaiian mint)	E
*Hedyotis coriacea**	Kio`ele (leather-leaf sweet ear)	E
*Isodendrion hosakae**	Aupauka	E
Lipochaeta venosa	Nehe	E
*Neraudia ovata**	Big Island ma`oloa (spotted nettle brush)	E
*Portulaca sclerocarpa**	Po`e (purselane)	E
*Silene hawaiiensis**	Hawaii catchfly	T
*Silene lanceolata**	Lanceleaf catchfly	E
*Solanum incompletum**	Popolo ku mai (Hawaiian prickle leaf)	E
*Spermolepis hawaiiensis**	Hawaii scaleseed (Hawaiian parsley)	E
Stenogyne angustifolia	Ma`ohi`ohi (creeping mint)	E
Tetramolopium arenarium spp *arenarium**	Mauna Kea pamakani	E
*Vigna owahuensis**	Mohihihi	E
*Zanthoxylum hawaiiense**	A`e (Hawaiian yellow wood)	E
Birds		
Branta sandvicensis	Nene (Hawaiian goose)	E
Buteo solitarius	`Io (Hawaiian hawk)	E
Loxioides bailleui	Palila (finch-billed honeycreeper)	E
Pterodroma phaeopygia sandwichensis	`Ua`u (Hawaiian petrel)	E
Mammals		
Lasiurus cinereus spp. *semotus*	Hawaiian hoary bat	E

Source: Shaw, 1997; U.S. Fish and Wildlife Service, 2006b; U.S. Department of the Army, 2004; 2006

Notes:

* Critical habitat originally proposed for this plant, but later determined unnecessary by the U.S. Fish and Wildlife Service due to the management actions put forth in the Integrated Natural Resources Management Plan and Ecosystem Management Plan of the installation.

Key to Federal Status:

T Threatened
E Endangered

Wildlife

No reptiles have been documented on PTA. Wild pigs (*Sus scrofa*), goats (*Capra hircus*), sheep (*Ovis aries*), cats (*Felis catus*), and dogs (*Canis familiaris*) have been observed on PTA. U.S. Army Garrison Hawaii is proposing to construct and maintain fence units on PTA to protect threatened and endangered species and their habitats from the impact of introduced ungulates (hoofed mammals). The program would involve the removal of all ungulates from within the fence units. Without a physical barrier, sheep, pigs, and goats would continue to damage native natural communities and threatened and endangered species. (U.S. Department of the Army, 2006) Mouflon sheep, (*Ovis musimon*), cows, Norway rats (*Rattus norvegicus)*, and house mice (*Mus musculus*) are also present.

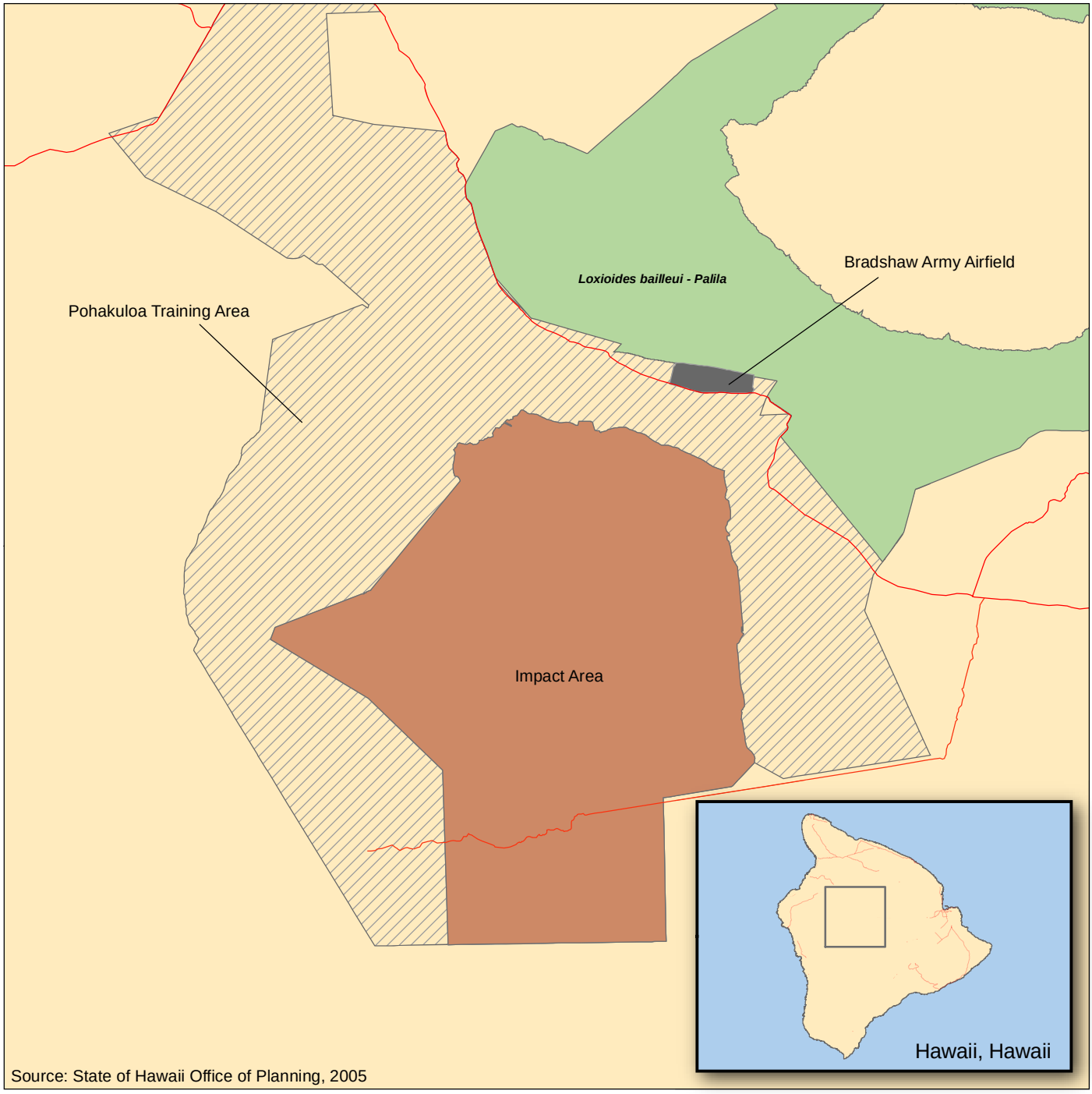
Endemic birds common to PTA are the `apapane (a honeycreeper) (*Himatione sanguinea*) and Hawaii `amakihi (a honeycreeper) (*Hemignathus virens*). The `i`iwi (a honeycreeper) (*Vestiaria coccinea*), Hawaii `elepaio (flycatcher) (*Chasiempis sandwichensis*), and ōma`o (Hawaiian thrush) (*Myadestes obscurus*) are present, but less common to PTA. The first `elepaio nest observed on PTA was discovered during a 2006 survey (U.S. Army Garrison, Hawaii, 2006). The pueo (Hawaiian owl) *(Asio flammeus sandwichensis)* is also present (U.S. Department of the Army, 2006). Nonnative bird species include Erckel's francolin (*Francolinus erckelii*), black francolin (*Francolinus francolinus*), California quail (*Callipepla californica*), and Japanese quail (*Coturnix japonica)*. (U.S. Department of the Army, 2004)

Threatened and Endangered Wildlife Species

The only native terrestrial mammal in the Hawaiian Islands, the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), is known to occur on PTA (Table 3.6.2.1.2-1). Of the four endangered forest birds listed in Table 3.6.2.1.2-1, only the `io (Hawaiian hawk) (*Buteo solitarius*) and nene (*Branta sandvicensis*) have been recorded in the past 5 years at PTA. The Federally endangered Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*), a seabird, has also been known to occur on PTA (Colorado State University, 2002). (U.S. Department of the Army, 2004; 2006)

Environmentally Sensitive Habitat

Critical habitat is the term used in the Endangered Species Act to define those areas of habitat that are known to be essential for an endangered or threatened species to recover and that require special management protection. The U.S. Fish and Wildlife Service determined that critical habitat for 12 plants (see Table 3.6.2.1.2-1) was not necessary since the PTA Integrated Natural Resources Management Plan and Ecosystem Management Plan encompass management actions that will benefit the listed species for which critical habitat was originally proposed (Federal Register, 2003b). Critical habitat has been designated on the installation (Figure 3.6.2.1.2-1) for one of the larger Hawaiian honeycreepers, the palila (*Loxioides bailleui*), although this bird has not been observed in recent years. Up to 96 percent of the palila population and nearly all of the successful breeding occur on the southwestern slope of Mauna Kea (U.S. Fish and Wildlife Service, 2003). The mamane-naio forest on the central plateau of Hawaii is the prime habitat of the palila, an endangered native bird (University of Hawaii Kapiolani Community College, undated).



EXPLANATION

- Road
- Critical Habitat
- Bradshaw Army Airfield
- Impact Area
- Pohakuloa Training Area
- Land

NORTH 0 1 2 4 Miles

Critical Habitat - Pohakuloa Training Area

Island of Hawaii

Figure 3.6.2.1.2-1

3.6.2.1.3 Cultural Resources—PTA

Appendix C includes a description of cultural resources and the laws and regulations pertaining to them.

Region of Influence

The region of influence for cultural resources at PTA encompasses existing, heavily disturbed impact and training areas, trails, and roads and PTA facilities where Live Fire Exercises (LFX) would take place and Large Area Tracking Range (ground relay stations) would be added.

Affected Environment

Archaeological Resources (Prehistoric and Historic)

PTA is part of a large cultural landscape that includes Mauna Kea, Mauna Loa, and the Saddle area between them. Researchers of Hawaiian culture (Maly, 1999; McEldowney, 1979; and Langlas et al., 1997) indicate that this landscape is spiritually and historically one of the most important places in Hawaiian tradition and history. Evidence of the area's significance is confirmed by physical and archaeological remains and through the many oral histories that describe historical events and uses of the area (U.S. Department of the Army, 2004,). Site types encompass traditional activities such as bird hunting for feathers and meat, quarrying volcanic glass, and lithic workshop locations for manufacturing the adzes made from Mauna Kea basalt. The Saddle region also displays numerous trails used for movement both cross-island and to the Mauna Kea and Mauna Loa summits. The Umi heiau on the slopes of Hualalai (south of PTA) is believed to have been built by the legendary chief "Umi a Liloa" around 1600 and derives some of its importance from its location at the juncture of several of these trails. Cave shelters are abundant due to an extensive natural lava tube system in the area; historically they have been a source of limited water and have provided refuge from the elements.

In the late 1800s, cattle and sheep ranching was the primary activity within the PTA area. There were two primary land leases during those years—the John Parker lease (ca. 1876-1891) situated in the western portion of what is now the PTA, and the Waimea Grazing and Agricultural Company lease (ca. 1860-1891) situated in the eastern portion. The latter completed a wagon road from one of its remote sheep stations near the Saddle Road (at Humuula) to Waimea to transport wool to the harbor at Kawaihae, and a portion of that road is still visible. A number of stone walls were also constructed during the 1890s (U.S. Department of the Army, 2004).

Approximately 30 percent of the PTA has been surveyed for archaeological resources, and 291 prehistoric and historic archaeological sites and traditional resources sites have been recorded (U.S. Department of the Navy, Commander, Third Fleet 2004, and 2006 and U.S. Department of the Navy, 2002a; U.S. Department of the Army, 2004,); additional sites have been recorded within adjacent areas. Typical site types include lava tubes, walls, trails, shelters (including C-shape), lithic scatters, quarries, shrines, cairns (ahu), platforms, and pits of unclear origin. Appendix H contains a list of PTA sites recommended as eligible for inclusion in the National Register of Historic Places (NRHP). One site, the Bobcat Trail Habitation Cave, is already listed in the NRHP. (U.S. Department of the Army, 2004)

Historic Buildings and Structures

PTA's first use as a military installation began in 1938 with the building of the Kaumana Road for military access between Hilo and Waimea (i.e., the Saddle Road). The new road allowed development of the Saddle Training Area, which consisted of the Bradshaw Army Airfield and the PTA. Permanent and consistent use of PTA began in the 1950s (Hays, 2002). In 2002, a historic evaluation of 129 buildings and structures was conducted of the cantonments within the PTA and Bradshaw Army Airfield (Hays, 2002). Of the 129 facilities evaluated, 107 were recommended as historic with 20 recommended for retention; however, the report has not been submitted to the Hawaii State Historic Preservation Office for concurrence (Godby, 2007). Eleven of the 20 were recommended for indefinite maintenance (Buildings T-001, T-39, T-90, T-109, T-184, T-230, T-246, T-285, T-286, T-290, and T-293.) (Hays, 2002) (see Section 3.6.2.2.3).

Traditional Resources

An oral history survey of PTA that included both interviews and a field visit with eight of the informants was conducted by Social Research Pacific, Inc. in 2002. The survey focused on place names, trail systems, and known Native Hawaiian structures. The report from this survey includes information gleaned from previous works, including McEldowney (1982), which contains oral accounts and written evidence about the Mauna Kea summit area; other early accounts from western visitors passing through the area (Maly, 1999); and myth and legend material found in Elbert (1959) and Kamakau (1992). Specific types of traditional sites identified in the region include agricultural terraces and enclosures, habitation shelters, and rock art sites. Some of the archaeological sites described above may have traditional components or be considered traditional sites as well.

3.6.2.1.4 Health and Safety—PTA

Appendix C includes a detailed discussion of health and safety resources laws and regulations.

Region of Influence

The region of influence is the area of the PTA where proposed operations are planned.

Affected Environment

The affected environment is in an isolated area in the center of PTA with restricted access and located away from the civilian population. Safety and health precautions are covered in *Pohakuloa Training Area External Standing Operating Procedures* and are briefed by the Pohakuloa Training Area Operations Center.

For missile and weapons systems, the Range Safety Office at PTA establishes criteria for the safe execution of the test operation in the form of Range Safety Approval and Range Safety Operational Plan documents. These plans are required for all weapon and target systems using PTA. The plans include the allowable launch and flight conditions and flight control methods necessary to contain the missile flight and impacts within the predetermined impact hazard areas. All hazard areas are checked and determined to be clear of nonessential personnel and aircraft prior to an exercise.

Ammunition is brought from Wheeler Army Airfield or Lualualei to PTA via boat or helicopter. If boats are used, the ammunition is driven from Kawaihae Harbor to PTA. Once ammunition is brought to PTA, it is temporarily stored in ammunition holding areas on PTA. At completion of training, unused ammunition is returned to the ammunition supply point on Wheeler Army Airfield. Permanent ammunition storage is not authorized on PTA. Ranges at PTA have designated surface danger zones, whose construction is based on information in Army Regulation 385-63 and the draft update of this regulation. For 2 years prior to 2004, there were no accidents pertaining to the transporting, storage, or firing of ammunition at PTA that risked public safety. (U.S. Department of the Army, 2004)

3.6.2.1.5 Noise—PTA

Appendix C includes a definition of noise and the main regulations and laws that govern it.

Region of Influence

The region of influence for noise analysis is the area within and surrounding PTA in which humans and wildlife may suffer annoyance or disturbance from proposed operations noise sources at PTA.

Affected Environment

Noise levels surrounding PTA are typically low due to the area having a low population and low volume of traffic on nearby roads. The noise levels within PTA can be high due to military training, such as artillery firing and low-flying aircraft, including helicopters and jet fighters. With the exception of the cantonment area, no noise-sensitive land uses are affected by existing noise levels. Because troops are not permanently based at PTA, all troop housing is used for troops who are visiting PTA to participate in training exercises.

The Army is developing an environmental noise management plan for PTA. This plan is intended to improve land use compatibility and notification to surrounding communities about the scheduling and nature of military training operations (U.S. Department of the Army, 2004).

Wildlife receptors at PTA are described in Section 3.6.2.1.2, Biological Resources.

3.6.2.2 BRADSHAW ARMY AIRFIELD

Bradshaw Army Airfield is located on the northern boundary of PTA and supports maneuver training. It has a 3,700-ft airstrip and a small cantonment area.

This section describes the environmental resources that would be affected by the No-action Alternative, Alternative 1, or Alternative 2 for Bradshaw Army Airfield. Of the 13 environmental resources considered for analysis, air quality, geology and soils, hazardous materials and hazardous waste, health and safety, land use, noise, socioeconomics, transportation, utilities, and water resources are not addressed.

3.6.2.2.1 Airspace—Bradshaw Army Airfield

Appendix C includes a detailed description of airspace.

Region of Influence

The region of influence for Bradshaw Army Airfield is similar to that described for airspace at PTA (Section 3.6.2.1.1).

Affected Environment

The affected airspace for Bradshaw Army Airfield is the same as that described in Section 3.6.2.1.1 for PTA.

3.6.2.2.2 Biological Resources—Bradshaw Army Airfield

Appendix C includes a detailed description of biological resources.

Region of Influence

The region of influence is the area within or adjacent to Bradshaw Army Airfield that could be affected by proposed operations.

Affected Environment

Since Bradshaw Army Airfield is located on the northern boundary of PTA, its affected environment is similar to that described in Section 3.6.2.1.2.

Vegetation

The majority of the open area is vegetated with native plants and is identified as Subalpine dryland.

Threatened and Endangered Plant Species

Plant species listed in Table 3.6.2.1.2-1 could also potentially be located on Bradshaw Army Airfield.

Wildlife

Since the area has been cleared for the runway, only small mammals and birds are likely to be in the region of influence. However, other wildlife species listed above at PTA could also potentially occur at Bradshaw Army Airfield.

Threatened and Endangered Wildlife Species

The endangered Hawaiian hoary bat could pass through the area, as well as the `io and nene.

Environmentally Sensitive Habitat

Critical habitat for the endangered palila has been established both north and southeast of Bradshaw Army Airfield (see Figure 3.6.2.1.2-1), but none is located in the immediate vicinity of the airfield.

3.6.2.2.3 Cultural Resources—Bradshaw Army Airfield

Appendix C includes a description of cultural resources and the laws and regulations pertaining to them.

Region of Influence

The region of influence for cultural resources at Bradshaw Army Airfield encompasses the building where a new ground relay station will be added.

Affected Environment

Archaeological Resources (Prehistoric and Historic)

Bradshaw Army Airfield is located within PTA (see Figure 2.1-5); therefore, the prehistoric and historic context for the facility is the same as described for PTA. There are no known significant archaeological resources within Bradshaw Army Airfield; however, there are numerous archaeological sites identified within the adjacent PTA (see Section 3.6.2.1.3). (U.S. Department of the Navy, 2002a)

Historic Buildings and Structures

Identification of historic buildings and structures at Bradshaw Army Airfield is the same as described for PTA (see Section 3.6.2.1.3.)

Traditional Resources

Bradshaw Army Airfield is within the PTA; therefore, the traditional resources context for the facility is the same as described for PTA. There are no known traditional resources sites within the Bradshaw Army Airfield (see Section 3.6.2.1.3). (U.S. Department of the Army, 2004)

3.6.2.3 KAWAIHAE PIER

Kawaihae Pier is located within the Kawaihae Harbor on the northwestern corner of the island of Hawaii. Kawaihae Harbor is a deep-water port, one of two on the island of Hawaii. Expeditionary Assault exercises are conducted at Kawaihae Pier. Activities primarily consist of offloading and loading vehicles and equipment from a landing ship at an existing boat ramp.

This section describes the environmental resources that would be affected by the No-action Alternative, Alternative 1, or Alternative 2 for Kawaihae Pier. Of the 13 environmental resources considered for analysis, airspace, air quality, cultural resources, geology and soils, hazardous material and waste, health and safety, land use, noise, socioeconomics, transportation, utilities, and water resources are not addressed.

3.6.2.3.1 Biological Resources—Kawaihae Pier

Appendix C includes a detailed description of biological resources.

Region of Influence

The region of influence includes the beach and other areas adjacent to the pier that may be affected by proposed operations.

Affected Environment

Vegetation

A small beach area containing no vegetation is located immediately adjacent to the pier.

Threatened and Endangered Plant Species

No threatened or endangered plant species have been identified within the harbor area.

Wildlife

Terrestrial wildlife at Kawaihae Pier is limited to transitory birds and small mammals.

Threatened and Endangered Wildlife Species

No threatened or endangered species have been identified within the harbor.

Environmentally Sensitive Habitat

No critical habitat is present (National Park Service, 2004).