Final Finding of No Significant Impact
for
25th Combat Aviation Brigade and Army National Guard
Hawai‘i Aviation Landing Zones at Pōhakuloa Training Area

PROPOSED ACTION

Military helicopter pilots need to train on varied terrain, under diverse conditions, and at multiple altitudes. This includes austere (i.e., harsh, severe) environments such as mountainous terrain with its associated high wind, turbulence, and atmospheric instability. Pilots need to understand how differing conditions affect the flight performance and handling characteristics of helicopters. The Proposed Action is to construct four aviation landing zones (LZs) for training within the boundaries of the Pōhakuloa Training Area (PTA) on the island of Hawai‘i. These LZs would be used in conjunction with regularly scheduled training exercises at PTA. Training hours would not be increased under the Proposed Action.

The purpose of the Proposed Action is to provide additional aviation LZs at PTA above 8,000 ft (2,438 m) for training use by military aviation units, including and the 25th Infantry Division – 25th Army Combat Aviation Brigade (CAB) and the Hawai‘i Army National Guard (HIARNG) to meet the proficiency requirements found in US Army Pacific Command (USARPAC) 350-1-7, “Proponent and Additional Training Program.” The need for the Proposed Action is to ready military aviation units to successfully complete their missions.

The U.S. Army Garrison, Hawai‘i (USAG-HI) which manages PTA for the CAB and other Army units and the HIARNG co-prepared an EA, *25th Combat Aviation Brigade and Army National Guard, Hawai‘i, Aviation Landing Zones Environmental Assessment*, to publicly disclose the results of an environmental impact analysis to construct aviation LZs for training use at the PTA. The action being proposed does not involve the acquisition of additional land, training outside of the current installation boundary, or live-fire exercises conducted outside of the approved/existing PTA impact area.

The four additional LZs, an access trail (also known as the Pioneer Trail), and a trail linking the four LZs would be constructed on the northern slope of Mauna Loa, within the southern PTA boundary. Construction duration for the Proposed Action is estimated to be 40 days.

The LZs, access trail, and trail linking the LZs would be constructed by leveling the substrate using heavy equipment, including bulldozers, graders and excavators. The LZs would differ in size to enable various helicopters to conduct a variety of flight and landing maneuvers of varying complexity. The LZs would be located at elevations from 8,520 to 8,800 ft (2,597 to 2,682 m) and are approximately 1.2 to 1.7 mi (1.9 to 2.7 km) apart. On one of the LZs, a pinnacle feature approximately 35 × 20 ft (11 × 6 m) and 15 ft (4.6 m) tall would be constructed to provide additional training opportunities.

Flights would originate at Bradshaw Army Airfield and proceed by any permissible flight path and altitude within PTA’s airspace and perimeter to any of the proposed LZs. Multiple helicopters could be in the air and/or conducting maneuvers simultaneously, if pilots maintain a distance of at least 328 ft (100 m) from each other. Approximately 10% of PTA’s current total

flight hours would be spent at the proposed LZs. The Proposed Action would include flight maneuvers, landing maneuvers, and troop activities conducted under the CAB and HIARNG's training schedules.

The Proposed Action is the USAG-HI's and HIARNG's preferred alternative, because the additional LZs would provide training opportunities under austere, mountainous flight and landing conditions, which are often encountered in theater but not available as training areas elsewhere on PTA.

ALTERNATIVES

In addition to the preferred alternative, five alternatives were fully evaluated in the EA:

- Alternative 1 – Proposed Action but with an Alternate Trail Location. This alternative is the same as the proposed alternative, except for the location of the access trail. The alternative trail runs parallel to, but east of, the Pioneer Trail.
- Alternative 2 – Construction of Only One LZ. This alternative includes the access trail and one LZ.
- Alternative 3 – Construction of Only Two LZs. This alternative includes the access trail, two LZs, and the trail that links the two LZs.
- Alternative 4 – Construction of Only Three LZs. This alternative includes the access trail, three LZs, and the trail that links the three LZs.
- No Action Alternative – No construction of any LZs at PTA above 8,000 ft (2,438 m) for training use by military aviation units. This alternative would not meet the purpose and need; however, the No Action Alternative is required by the National Environmental Policy Act (NEPA) to be fully considered and serve as the baseline with which to compare the Action Alternatives.

Other alternatives considered but not studied in detail as they would not meet the purpose and need for the Proposed Action include constructing LZs without trail construction, using LZs without leveling the substrate, locating LZs at other locations within PTA, and training exclusively with simulators.

SUMMARY OF ENVIRONMENTAL EFFECTS

The EA, which is incorporated by reference into this Finding of No Significant Impact (FNSI), analyzed the potential effects of the proposed action and alternatives. Complete environment impact discussions for all resources are found in Sections 4, 5, and 6 (Conclusions) of the EA. A summary of the more notable less-than-significant impact findings follow.

Air Quality

Based on air quality modeling, the maximum concentration of fugitive dust generated from construction and operations activities result in values below the state and U.S. Environmental Protection Agency emission thresholds.

Biological Resources

Potential habitat for food and cover is limited to all but a few species in the area of the proposed LZs and trails. Impacts to sensitive species from construction activities are anticipated to be low

because of the lack of habitat and the implementation of measures to mitigate potential habitat loss and species injury/death. Near the LZs, the potential impact between helicopters and sensitive species is low because of the locations of known bird and bat habitat, the lack of potential habitat near the LZs, established flight procedures, and mitigations to prevent collisions. The overall potential impacts from noise to sensitive species are anticipated to be low, because species would not be attracted to noise and would vacate the area until the noise subsides, the duration of noise events will be less than 10 minutes.

Cultural Resources

A survey conducted in February and March 2013 of the LZs and proposed trails of the Action Alternatives revealed no cultural resources directly within the LZs, but the survey did identify three potential cultural sites located on the northern portion of Pioneer Trail. Under the Action Alternatives, no cultural sites would be directly impacted. The only cultural sites identified during the 2013 survey are located a minimum of 111.5 ft (34 m) from the proposed Pioneer Trail and could be avoided during construction activities. No direct impacts would occur from project activities. The noise analysis found that cultural practitioners in areas near PTA may experience and perceive noise as a distraction/annoyance under all Action Alternatives. However, the extent and magnitude of the distraction would be dependent on the distance the practitioner is from the noise source (i.e., PTA) at any point in time during use of the LZs. Modeled average noise levels were compatible with current recreational land uses, as outlined in Army Regulation 200-1. Noise from flights using the proposed LZs would be expected to be of short duration and should not obstruct or curtail practitioner activities.

Noise

The number of training flights at PTA, which would not be increased under the Action Alternatives, would not alter the existing sound levels, and the annual average noise levels from aviation activities would remain compatible with the surrounding land uses. Helicopter use of the proposed LZs may annoy Mauna Loa Forest Reserve recreational users in the immediate vicinity of the LZs. However, the low number of operations would minimize annoyance potential.

Recreation

Recreationists using the Mauna Loa Forest Reserve to the south of the LZs may experience short-term increases in noise during the construction phase, and operations activities may be perceived as slight noise annoyances and visual distractions.

CONSERVATION MEASURES

In addition to following best management practices, the following conservation measures will be implemented:

General

- Ensure Hawaii Volcanoes National Park is on the distribution list for all Section 106 consultation activities, especially future activities involving aviation and over flights.
- Implement a multi-faceted petrel study and survey, including the use of radar, thermal imaging, song meter recordings, and ground truthing, and share the data collected with the U.S. Fish and Wildlife Service to determine if there is sufficient justification to reassess the "not likely to adversely affect" determination.

Construction Phase

- Conduct consultations with Mauna Loa Observatory staff regarding construction activities.
- Mark locations for known plant species, identify potential nesting habitat prior to construction activities, and observe construction operations to avoid any potential incidental deaths
- Construct LZs outside of the peak breeding seasons for Migratory Birds Treaty Act (MBTA)-protected species within the action area, to include Hawaiian Petrel, Band-rumped Storm Petrel, Omao, and Apapane.
- Notify Mauna Loa Observatory air-quality instrumentation personnel prior to conducting construction activities.
- Implement best management practices for dust suppression, such as spraying water during leveling and surface moving/disturbing activities.
- Implement construction best management practices outlined in the U.S. Fish and Wildlife Service's 2003 Biological Opinion for PTA help to reduce the risk associated with introducing invasive species.

Operations Phase

- Conduct consultations with Mauna Loa Observatory staff regarding operations activities, specifically addressing development of a training notification procedure and implementing strict controls on additional activities at the LZs.
- Notify Mauna Loa Observatory air-quality instrumentation personnel prior to conducting training operations.
- Notify Hawaii Volcanoes National Park backcountry office personnel prior to conducting training operations.
- Develop and implement a wildlife aircraft strike hazard plan to reduce potential airstrikes between helicopters and avian species.
- Conduct the majority of flight operations during the day to allow birds to roost at night
- Discontinue use of specific LZs for a period when the presence of nesting birds is observed within 328 ft (100 m) of an LZ.

PUBLIC INVOLVEMENT

The public's participation is essential to a successful National Environmental Policy Act (NEPA) analysis. The Council on Environmental Quality and 32 *Code of Federal Regulations* 651, *Environmental Analysis of Army Actions*, provide for opportunities for the public to participate in the EA process. In accordance with these public notification requirements, the U.S. Army Garrison Hawai'i provided the opportunity for the public to participate in the NEPA process to promote open communication and assist in the decision-making process.

All persons and organizations having an interest in the Proposed Action were encouraged to participate in the EA process. A notice of availability (NOA) of the EA and draft FNSI was published in the *Hawaii Tribune Herald* and *West Hawaii Today* newspapers, on December 19 and 21, 2013. A NOA was also published in the State of Hawai'i Office of Environmental Quality Control "Environmental Notice" on December 23, 2013, which started the 30-day period for formal public review and comment on the EA and draft FNSI.

The EA and draft FNSI were made available for public review at the Hilo Public Library, Kailua–Kona Public Library, and Thelma Parker Memorial Public and School Library.

Additionally, the Army provided an electronic version of the EA and draft FNSI through its NEPA website at http://www.garrison.hawaii.army.mil/NEPA/NEPA.htm. Comments were accepted through January 18, 2014.

CONCLUSION

I have considered the results of the analysis in the EA, supporting studies, comments provided during the public comment and review period, proposed conservation measures and the Army's mission requirements. I have found that the analysis fulfills the requirements of the NEPA, and associated Council on Environmental Quality requirements, as well as requirements of 32 CFR 651, *Environmental Analysis of Army Actions.*

Based on this review, I have determined that Alternative 1 – Proposed Action, as presented on page 2, best meets the Army's purpose and need. This decision optimizes training readiness by providing landing zones in austere environmental conditions so that pilots can meet their doctrinal training requirements. Alternative 1, the Proposed Action, would result in no significant direct, indirect, or cumulative impacts on the resources previously discussed. Accordingly, the preparation of an environmental impact statement is not required.

Pursuant to 32 CFR 651,

RICHARD A. FROMM
Colonel, US Army
Commanding

15 MAY 2015
Date

Annex to Finding of No Significant Impact: Summary of Comments Received and Responses

The USAG-HI reviewed comments received during the public comment period to determine whether the proposed action had potentially significant impacts that could not be reduced to less than significant with appropriate mitigation. Thirteen comment letters were received from individuals and groups. Approximately 183 unique comments were identified from the correspondence. All comment documents were read in their entirety to identify unique issues. The issues identified were grouped by similarity to reveal themes. This section presents the identified themes and the Army's responses.

PROPOSED ACTION

Commenters noted that the analysis for petrel assumed the majority of operations were being conducted during daylight hours but the proposed action stated maneuvers would be conducted during the day and at night, without further specification about night operations. Commenters expressed concerns about night operations and impacts to endangered species. Commenters also asked whether numerous maneuvers and adequate training could be accomplished in the 10 minute per training episode reported. Commenters also asked how training on low angle, low elevation slopes of Mauna Loa prepares pilots for flights in Afghanistan. One commenter also asked why landing zones and pinnacles were needed in light of the High Altitude Aviation Training Site (HAATS) student book articulating the method for simulating this training.

The most repeated concerns about the proposed action were provided by personnel/organizations associated with Mauna Loa Observatories. Regarding the proposed action, National Oceanic and Atmospheric Administration (NOAA) requested strict controls on additional activities and site use be established to prevent mission creep and that specific training (e.g., power generation, bivouacking, artillery training, and the idling of vehicles) not be conducted. NOAA also requested that no fuel, lubricants, fire retardants, chemical washing agents, or related chemicals be stored at the landing sites and that none of these chemicals be dumped or leaked into the lava. NOAA noted as an example that a minimal amount of oil could contaminate air measurements at the observatory for years. NOAA stated that the observatory measures effluents from Asia and can detect gases at one part in a trillion and that they also makes measurements of part per-trillion levels of halons, for example, which are common fire retardants used in aircraft.

NOAA requested, at a minimum the following mitigations: 1) Implement dust abatement procedures such as watering the disturbed lava to reduce dust release during construction and helicopter landing operations, and; 2) Keep helicopters from flying higher than absolutely needed to land at 8,500 ft., avoid flying any aircraft closer than 2 miles from the observatory, and never fly above 11,000 ft. in the vicinity of the observatory (item 2 is for the safety of the helicopter crews, as the observatory operates laser beams of various wavelengths both day and night). NOAA also requested a procedure be established between the two parties so that Mauna Loa Observatory (MLO) would be notified when all landing operations commence and when they completed for "all operations, day or night, indefinitely." Additionally, the Heliophysics Science Division requested the Army work closely with the solar observatory personnel to address their concerns adequately, stating that "the loss of this location [Mauna Loa Solar

Observatory] as an ideal solar observing facility would be devastating to the scientific community.

Response: Overall, it is expected that construction and operation of the LZ would have minimal impact on Hawaiian Petrel (HAPE) and Band-rumped Storm Petrel (BSTP) species. Minimal impact is anticipated because there is no evidence of a petrel colony near the proposed LZs, noise from helicopters will attenuate with above ground distance, petrels are not expected to transit the PTA during nighttime because petrel density in the flyway is low, and petrels tend to fly low and erratic at high elevations and will be able to avoid helicopters due to their maneuverability (Memorandum for Record (MFR) 2014). The Army has complied with current regulations under the Endangered Species Act (ESA) and received a not likely to adversely affect (NLAA) concurrence for HAPE and BSTP from US Fish and Wildlife Service (USFWS). The USFWS concurrence was based on a comprehensive review of all data available at the time of consultation, including recent publications and personnel communication with subject matter experts. Furthermore, the Army will be implementing a multi-faceted petrel study and survey (MFR 2014). Data from these surveys will be shared with USFWS to determine if there is sufficient justification to reassess the NLAA determination (MFR 2014). Additional mitigations include the development of a Wildlife Aircraft Strike Hazard Plan to reduce potential airstrikes.

Training activities such as hovering, go-arounds, slope operations, pinnacle and ridgeline operations, and reconnaissance while flying low as 100 feet) include all those activities that could be conducted within a 10 minute flight; however, it highly unlikely that they would all occur during a flight.

The LZs would provide locations that allow pilots and troops to be trained to proficiency in austere environmental conditions above 8,000 ft. Missions at 14,000 feet on Mauna Kea, or over 14,000 feet in Afghanistan are not a part of this action. This training readiness is required for upcoming deployments, which could be to locations at higher altitudes. It is unknown to the Army at this time the location of future deployments.

The Army cannot simulate the required mountain flight and landing proficiencies defined in section 2.1.1 of the EA.

ALTERNATIVES TO THE PROPOSED ACTION

Commenters stated that training should occur at another location, such as in Colorado, or that the LZs be located further north within PTA, further away from the Mauna Loa Observatory.

Comments targeted to specific alternatives the Army proposed were provided by personnel/organizations associated with the Mauna Loa Observatories. These commenters said they could give qualified support to the no leveling alternative or the alternative that uses only one (at most two) LZ(s), specifically the LZ(s) located the furthest away from Mauna Loa Observatories.

Response: The Army concluded that alternatives other than the proposed action would not meet the purpose and need of the project which is to provide training in austere environments about 8,000 ft.

NEPA PROCESS

Commenters stated concerns about the analysis being sufficiently comprehensive and that the impact of the LZs extends well past the area that was analyzed. A commenter also noted the lack of access to Army-conducted studies that were cited in the EA. A few commenters requested a full environmental impact statement be developed for the proposed action, citing Hawaii Revised Statutes requirements.

Commenters associated with the operations at Mauna Loa Observatories stated that the EA did not discuss the potential impacts and mitigation strategies for each of the Army alternatives on the sensitive monitoring equipment located at, and operations conducted by, the Mauna Loa Observatories. A NOAA commenter stated, "It is NOAA's professional judgment that adverse pollution effects from the landing pad activities will impact the long-term science conducted at MLO."

Response: The Army feels that the analysis is comprehensive. The Army is responsible for the analyses it conducts/uses in meeting NEPA process requirements. The Army's EA fulfills the requirement of Hawaii regulations as follows: 343-5 (8) (A):

- Except as otherwise provided, an environmental assessment shall be required for actions that:
    - (8) Propose the construction of new or the expansion or modification of existing helicopter facilities within the State, that by way of their activities, may affect:
    - (A) Any land classified as a conservation district by the state land use commission under chapter 205.

VALUED ENVIRONMENTAL COMPONENTS

Aesthetics

Commenters stated concerns that the presence of the pinnacle, landing zones, and helicopters would detract from their aesthetic, sightseeing and recreational experiences.

Response: It is the Army's conclusion that the construction of the proposed LZs would not significantly impact the visual sensitivity of the area surrounding the LZs, because these areas are not identified as areas of high scenic quality and are not readily accessible to or used by a large number of people. Based on the viewshed analysis, the proposed LZs and access trail could potentially be viewed from three observer points. As noted in section 4.5.3.1, of the EA, the relative small size of the proposed activities and the distance and angle at which the observer from any observation point would be viewing the actions makes it very unlikely that the action would be noticed.

Air Quality

The majority of comments regarding air quality came from staff/personnel associated with the Mauna Loa Observatories, such as NOAA, the Rice Space Institute, and the Heliophysics

Science Division. These commenters stated concerns about the impacts from the Army's proposed construction and training operations to the air quality monitoring work being conducted at the observatories. The National Center for Atmospheric Research, operator of the Mauna Loa Solar Observatory provided an example of degraded data from a construction project conducted approximately 1 mile north of their facility as an example of the potential impacts the Army's training could have to their monitoring operations. The commenters stated that the additional dust and emissions generated from these activities would compromise the integrity of the atmosphere, and their equipment, data collection, and environmental monitoring operations at the observatories. Commenters from these organizations stated their desire to work closely with the Army to reach solutions that met both organizations' needs.

Response: The Army concluded that the results of the dust analysis shown in section 4.6.1 of the EA identified that in a worst case, dust would be carried up to 500 ft up into the atmosphere. With mitigation such as spraying water during construction, the dust produced would be much less. The Army does not anticipate that dust will affect the observatories.

Natural Resources-Fauna

A large number of comments were submitted related to concerns about impacts of the proposed action to endangered species and species of concern. The comments covered topic areas of noise, vibration, visual intrusions generated by low flying, night activities during the breeding season, harassment and disorientation of species, the need for more comprehensive monitoring studies of habitat and nesting, and the lack of consideration of relevant data from other researchers and organizations, such as the Hawaii Volcanoes National Park. A commenter also asked whether or not biological resources within caves and lava tubes would be impacted. Specific species mentioned in the comments included HAPE, BSTP, bat, Omao and Apapane and ants.

Response: The Army has based its conclusions on the research and surveys that were conducted for this project, which are documented in a memorandum for record (MFR 2014) provided with the EA. The majority of flights will occur during the daytime, with some flights occurring at night to facilitate training purposes. Nighttime on the ground troop training is not part of the proposed action; therefore no effects to HAPE or BSTP are expected from foot traffic in the action area. Overall, it is expected that construction and operation of the LZs would have minimal impact on HAPE and BSTP species.

Data collected and evaluated by the PTA Natural Resources Office is not consistent with the presence of an active HAPE or BSTP colony in the action area. Thus, minimal impact is anticipated because there is no evidence of a petrel colony near the proposed LZs, noise from helicopters will attenuate with above ground distance, petrels are not expected to transit the PTA during nighttime because petrel density in the flyway is low, and petrels tend to fly low and erratic at high elevations and will be able to avoid helicopters due to their maneuverability.

Vibration during construction of the LZs is not considered to be a concern for petrels. Suitable openings for burrows were not located within the proposed LZ construction areas. Above-ground areas will be surveyed for potential sign of nesting activity and marked for avoidance prior to construction. Furthermore, petrels are not likely to be attracted to the action area because artificial light sources will not be placed at the LZs, and military helicopters typically use a combination of steady and flashing red, green and white lights for navigation. Petrels are attracted to bright light from fixed points and colored lights are less attractive. Also, white strobe

lights on an aircraft may function to make the craft more visible to birds and aid in avoidance behavior.

The timing of the presence surveys the Army conducted was appropriate because HAPE and BSTP are known to occupy display sites on Hawaii Island starting in early May and return in late May. Additionally, BSTP has been detected at PTA beginning in late May, with increasing frequency in mid-June. Song meter placement was optimized to cover each LZ and as much potential HAPE habitat as possible. Because of limited information available on the life history and distribution of BSTP and HAPE the Army will be implementing a multi-faceted petrel study and survey.

A significant areal extent was covered at various rates of intensity during the avifauna, botanical, Hawaiian hoary bat, invasive ant, and petrel surveys conducted for the LZs. Particularly, the area immediately within and surrounding the action area was very well covered because members of each survey team were trained to look for all types of biological resources, including for signs of avian activity. The Army feels that if eggs, nests, or other signs of avian activity were present on the ground surface or amongst broken rock they would have been detected.

Large cave openings will be avoided during trail construction as a matter of safety and no large lava tubes are present in the LZ construction areas. The Army has complied with current regulations under the ESA and received a NLAA concurrence for HAPE and BSTP from the USFWS. The Army is under no legal obligation to assess impacts to native insect species and other mineral and microbial resources in the action area, and it is not a function of the PTA Natural Resources Office to survey for those resources.

Reponses specific to concerns addressing specific species follow:

- The Hawaiian Hoary Bat is more frequently associated with roosting and foraging within forest structure rather than open habitat. Based on available literature, bats are unlikely in the action area. Airstrikes as a result of training operations are unlikely because they are extremely rare, and helicopters are typically slow-moving at the elevations proposed for these training operations.

- The BSTP is a candidate species for federal listing. According to the ESA Consultation Handbook, while consultations are required when the proposed action may affect listed species, a conference is required only when the proposed action is likely to jeopardize the continued existence of a proposed species or destroy or adversely modify proposed critical habitat. Even though the BSTP does not currently have federal protection status and the Army is under no regulatory obligation to confer on it, the Army included BSTP in the effects analysis for construction and operation of the LZs because it is US FWS guidance to give candidate species the same consideration as threatened and endangered species whenever possible.

- The Omao is a MBTA protected species, not federally-listed species. Intra-island comparisons of Omao are not relevant to this project. According to the MBTA, all Omao are treated the same legally regardless of what part of the island they are on. Because the US Congress amended the MBTA to provide for the accidental death of MBTA species stemming from military readiness activities (National Defense Authorization Act 2003), the

Army has limited liability in the unlikely event of the accidental death of nesting Omao due to the proposed action. The Army assessed potential effects from the proposed action to Omao during the NEPA process. The Army would only be required to confer with US FWS to minimize or mitigate significant adverse effects in the event the proposed military readiness activities were to result in a significant adverse effect to the entire population of Omao. While the Army determined no significant impacts from the proposed project to population of Omao, the Army will nevertheless conscientiously pursue efforts to reduce or eliminate impacts to known nesting sites; i.e., the Army will consider constructing the LZs outside of the peak breeding seasons for Omao.

- Inter-island comparisons of HAPE are not relevant to this project. In the federal regulatory environment all HAPE are treated the same legally, regardless of what island they are on. The army has complied with current regulations under the ESA and received a NLAA concurrence for HAPE and BSTP from USFWS. However, the Army did review the hazardous critical procedures (HCP) for Construction of the Advanced Technology Solar Telescope at the Haleakala High Altitude Observatory Site (National Science Foundation 2010). Because the Army's construction project is limited in scale and duration and is not located within an existing HAPE colony, many of the minimization measures are inappropriate for this project. Because audio data from the proposed project are not consistent with the presence of an active HAPE colony, noise and vibration impacts to nesting HAPE are not expected.

Overall, the current body of literature regarding HAPE and BSTP species is not in agreement, is not consistent, and is not conclusive. The literature does not indicate likelihood of behavioral consequences to petrels as a result of aircraft operations nor does it support the decision to stop training at PTA with a preponderance of evidence. However, the Army acknowledges that there is limited information available on the life history and distribution of HAPE at PTA and on Hawaii Island. Furthermore, the Army will be implementing a multi-faceted petrel study and survey. Data from these surveys will be shared with USFWS to determine if there is sufficient justification to reassess the NLAA determination. Additional mitigations included with the proposed action include the development of a Wildlife Aircraft Strike Hazard Plan to reduce potential airstrikes.

Natural Resources-Flora

A commenter requested information about invasive plant species likely to grow in the bulldozed areas.

Response: Botanical surveys documented the following invasive species in the action area: hairy cat's ear (*Hypochaeris radicata*), fireweed (*Senecio madagascariensis*), and southern rockbell (*Wahlenbergia gracilis*). To prevent the spread of invasive plants to and from the action area, standard operating procedures require that all vehicles and equipment be inspected and cleaned prior to entering and before leaving the project site. Aircraft inspection and cleaning protocols are also in place and must be implemented prior to missions. In addition, construction best management practices outlined in the USFWS's 2003 biological opinion for PTA help to reduce the risk associated with introducing invasive species

Cultural Resources
Commenters requested additional information regarding cultural resources outside of PTA, for example, trails and bird pits. Commenters also stated that the sight of the pinnacle and sights and sounds associated with helicopters will shatter the tranquility of the area, disrupting wilderness experiences and cultural and spiritual practices. Commenters also expressed concerns about the level of experience personnel have to locate and assess cultural resources.

Response: The noise analysis shows noise would not extend past the areas indicated on page 4-39, Figure 4-15 of the EA. According to section 4.5.3.1, the training operations would not significantly impact the visual sensitivity from any of the observer points throughout the analysis area. However, it is anticipated that helicopters would be barely visible from most locations and short in duration. Clouds, haze, trees, etc., would limit the ability to see a helicopter from many of the distant locations. Additionally, the density of helicopters from the proposed training operations would not appear to be greater than the existing density of military and commercial aircraft in the saddle region. Training operations would not obscure or change any of the viewing areas.

The cultural resources team that surveyed the site has the experience, knowledge, and skills required to effectively perform the surveys. Resources within the project area, and analysis buffer area, were studied and disclosed in the EA.

GENERAL COMMENTS

General comments covered a number of topics. Most commenters reiterated their desire to participate in consultations and maintain open communications with the Army to address any problems that arise.

Response: The Army values its relationships with its Hawaii neighbors and thanks you for your comment.

Human Health
Commenters stated concerns regarding depleted uranium and the radiological control areas on PTA and concerns about exposure.

Response: The action alternatives are not located within or near any of the depleted uranium (DU) radiological control areas (section 4-13.5) Exposure to DU is highly unlikely.

Noise
Commenters questioned the use of community noise and sensitivity to humans metrics as the methods for determining noise impacts. Commenters also asked why noise impacts were only analyzed to a point 0.5 miles from the LZs when the lava landscape offers little noise shielding. Commenters then requested that a soundscape analysis be conducted. The National Park Service expressed concerns about noise from training operations impacting visitor experience and designated wilderness. Other commenters expressed concerns about the impacts of noise to wildlife, particularly to HAPE and BSTP species.

Commenters also suggested that the research used for the analysis (for example, Rylander et al. 1974 and Social Science Research to Inform Soundscape Management, Department of Forestry,

Virginia Polytechnic Institute and State University, S. Lawson, 2007) was either dated, out of context, or not considered.

One commenter stated that the Army inappropriately applied the Department of Defense's Operational Noise Manual Guidance, to the affects analysis because "the specific reaction to noise is dependent on the species, and the reaction of a specific species can only be known after subsequent studies…results from studies cannot be applied across species when applying noise results to species that were not studied for noise impacts." Thus, according to the commenter, "results were applied to species that were never studied for noise impacts and are [at] risk for extinction." Commenters also requested that the effects of vibration be studied and disclosed.

Response: The current assessment includes noise levels for operations occurring at 50 and 100 feet above ground level. The Rylander paper used in the annoyance assessment is a compilation of noise studies done in areas near both large and small airports, and assessed annoyance levels of residents living in the vicinity of these airports. Annoyance levels for residents exposed to aircraft noise in their homes on a daily basis are expected to be higher than that of recreational users exposed to noise on an intermittent basis, and use of this information is considered to be conservative. Additionally, the permissible sound levels presented in section 3.8.3 of the EA for conservation lands apply to stationary noise sources (i.e., construction activities) as outlined in the Hawaii Administrative Rules (Title 11, Chapter 46, section 4(a)); this assessment is included in section 4.8.3.1. However, these noise levels are not applicable to transient noise sources (i.e., helicopter activities). Helicopter noise impacts were assessed by (1) comparison to ADNL levels for various land uses as outlined in Army Regulation 200-1, and (2) the likelihood of annoyance based on maximum noise levels.

As provided in the EA, the analysis shows noise would not extend past the areas indicated on page 4-39, Figure 4-15. Sound propagation due to ground effects, which is dependent on the type of terrain, has a negligible effect on noise levels at distances greater than 100 meters from the noise source. The assessment used maximum noise levels based on the direct line distance between the source and the receptor (i.e., the "slant distance").

Regarding comments associated with specific research papers, the Rylander paper used in the annoyance assessment is a compilation of numerous noise studies in areas near both large and small airports. It states that studies done on areas exposed to less than 50 over-flights per hour indicate that "...successively higher noise levels are tolerated as the number of exposure [flights] decreases." While the 2007 study cited contains very valuable information on park soundscapes, it does not contain information specifically correlating annoyance levels for park visitors associated with aircraft noise levels in decibels. The Rylander paper was used because it contains the information necessary to perform a quantitative assessment.

The closest distance between the Mauna Loa Observatory Road and the proposed landing zones is over 2 miles; other trails and backcountry cabins are located further away. Noise levels at that distance are expected to be less than 60 dBA (i.e., lower than normal conversational noise levels).

Overall, it is expected that construction and operation of the LZ would have minimal impact on HAPE and BSTP species. Minimal impact is anticipated because there is no evidence of a petrel colony near the proposed LZs, noise from helicopters will attenuate with above ground distance,

petrels are not expected to transit the PTA during nighttime because petrel density in the flyway is low, and petrels tend to fly low and erratic at high elevations and will be able to avoid helicopters due to their maneuverability. Vibration during construction of the LZs is not considered to be a concern for petrels. Because the US Congress amended the MBTA to provide for the accidental death of MBTA species stemming from military readiness activities (National Defense Authorization Act 2003), the Army has limited liability in the unlikely event of the accidental death of nesting MBTA species due to the proposed action (see MFR 2014).

The Army assessed potential effects from the proposed action to MBTA species during the NEPA process. The Army would only be required to confer with USFWS to minimize or mitigate significant adverse effects in the event the proposed military readiness activities were to result in a significant adverse effect to the entire population of an MBTA-protected species. While the Army determined no significant impacts from the proposed project to populations of MBTA-listed species within the action area, the Army will nevertheless conscientiously pursue efforts to reduce or eliminate impacts to known MBTA species nesting sites; i.e., the Army will consider constructing the LZs outside of the peak breeding seasons for MBTA species. Studies have demonstrated that birds can become habituated and can co-exist with loud noises (Peshut and Schell 2011a; Delaney et al. 2000; Pater et al. 2009). Furthermore, published academic literature on the effects of noise on bird species has indicated that they are more affected by ground-based noise, such as hiking and hunting, than air-based noise (Delaney et al 2000). The Army will be implementing a multi-faceted petrel study and survey and data from these surveys will be shared with the USFWS to determine if there is sufficient justification to reassess the NLAA determination (see MFR 2014).

Recreation
Hawaii Volcanoes National Park requested direct notification of the training schedule to alert backcountry users of any potential impacts. (Other comments pertaining to recreation are associated with noise and aesthetics and are addressed in those sections.)

Response: The Army will send a copy of training schedules to the HAVO backcountry office.

Safety
Commenters expressed concerns about the Army's safety record and cited numerous incidents from 1996 to 2011. Comments expressed concern about the age of the helicopters being flown (average 25 years). A commenter asked whether the Fatcow Chinnok, with an extended range fuel system, would be used, and if so, to analyze the impacts for that specific helicopter. The commenter cited concerns about the Fatcow's fuel system and its increased potential for a catastrophic incident and/or fires with hard landings.

Response: The safety record of the 25th CAB is addressed in section 3.4.2 of the EA.

Socioeconomics
A commenter requested additional information be provided as to the economic and social effects of lost opportunities for non-military uses of 132,000 acres—housing, cattle ranching, outdoors experiences, and cultural practices, and what are the long-term costs to health from toxic and hazardous substances at PTA? Additionally, a commenter stated concerns about the high percentage of the population below the poverty level in Hawai'i County.

Response: The socioeconomic impacts of the PTA facility and its overall operation are outside the scope of this EA. The analysis of environmental justice focuses on determining if the action alternatives have a disproportional adverse effect on minority and low income populations. Based on the analysis, the action alternatives would not have a disproportional adverse effect on minority of low income populations.

Water

Commenters raised concerns about potential fuel spills and percolation of fuel to groundwater as shallow as 500 feet.

Response: Army helicopters have self-sealing primary and auxiliary fuel systems for rotary winged aircraft to reduce the possibility of leakage, fire and explosion during impact. The likelihood of a leak that would contaminate groundwater from a crash is extremely low due to these safety features. As stated in the EA, impacts from petroleum, oil and lubricants (POL) use and the potential for releases associated with construction activities would be short-term, because construction activities are expected to last approximately 40 days. Long-term impacts are associated with helicopter use of the LZs. As outlined in Section 3.13.2 (Region of Influence), Army Regulation 200-1 (U.S. Army 2007d) and Department of the Army Pamphlet 200 1 (U.S. Army 2002) list requirements for Army personnel and contractors regarding POL use and spill response. All Army personnel and their contractors are required to follow these standards.

As reported on page 3-38 of the EA, the region of influence lies within the Northwest Mauna Loa Aquifer sector, with a sustainable yield of 30 MGD. Groundwater in these aquifers occurs primarily within older Pleistocene age basalts at subsurface elevations for approximately 3,000 ft (914 m) above sea level or greater than 1,000 ft (305 m) below the surface.