

## 5.0 Threat Assessments and Stabilization Priority Tiers for the Oahu Action Area

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### Management unit (MU) and population units (PUs) threats

Part of the necessary background information for the management of the target taxa is a clear assessment of the threats that can hamper the stabilization of each taxon. Fire ignition and introduction of alien taxa, such as weeds and pest animals, are the most important of these threats in the Oahu action area, and have been characterized in the Oahu Biological Assessment (U.S. Army 2003). In many cases, the threats that are not training-related are held in common among all or most of the target taxa. For example, feral ungulates such as goats and pigs are primary threats to both habitat and individual rare taxa, and the distribution of pigs and goats in the Waianae region (and other target taxon population locations) is generally well known. Other threats are particularly important for certain target taxa (*e.g.*, powdery mildew affects many of the mints; *Phyllostegia* sp., *Stenogyne kanehoana*). A discussion of the threats to each target taxon, a table of the priority PUs for management actions and a table defining *in situ* threats can be found in each one of the individual taxon summaries (see individual species Taxon Summaries and Stabilization Plans). Specific threat categories assessed include:

- alien plants (weeds)
- erosion
- feral ungulates
- fire
- human activities
- invertebrate pests
- pathogens
- small mammals

In many cases, the specific threats (*e.g.*, the predatory alien snail *Euglandina rosea* as a predator of *Achatinella* species, and rats as a predator of Elepaio) are well documented. In cases where the impacts of suspected threats upon target taxa are undocumented or poorly understood (*e.g.*, invertebrate predation on target plants), research needed to gain insight as to the significance of the threat is identified. Additionally, there are impacts of a threat upon target taxa that are well documented but methods to adequately control the threat have not yet been developed (*e.g.*, black twig borer control). The Army has and will continue to support research on various threat control research projects via supporting a full time protection research specialist, supporting graduate student projects, and cooperative projects with other agencies (see <http://www.botany.hawaii.edu/faculty/duffy/DPW.htm> for current Army year end reports for research project descriptions). Recently the Army helped support research on slug abundance and response to slug treatment, rate of damage from black twig borer to *Fluggea neowawraea*, and is currently supporting research on *Euglandina rosea*, and rat densities.

Field experts including members of the Army natural resources staff determined the level of threat posed by each category to each particular target species. Based on this threat information the Oahu Implementation Team (OIT) integrated threat management, research and monitoring

recommendations within each of the individual stabilization plans (see individual species Stabilization Plans).

The Army has been an active participant and supporter in efforts to identify and control incipient alien species through multiagency programs such as the Oahu Invasive Species Committee (OISC). Through this proactive, preventative approach the Army hopes to minimize future management costs by helping to control incipient populations.

## **5.1 Army Stabilization Prioritization for the OIP**

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Due to the current and historical low level of impact to federally listed species by military training to the summit areas (where most of the OIP target taxa are located in these training areas) of the Kawaihoa Training Area (KLOA) and Schofield Barracks East Range (SBER) the Army is proposing a three-tiered approach to species stabilization in these areas. Currently, the Army may train via foot maneuvers in the upper portions of both training areas. However, in practice, foot maneuvers or bivouac in these species sensitive areas have not taken place in the past ten years. Current training maneuvers within KLOA and SBER, include the use of designated landing zones and surrounding areas for bivouac. Thus, the implementation of the Oahu Implementation Plan (OIP) within KLOA and SBER action areas will be based on the low level of threat resulting from Army training.

The Army's stabilization approach is three-tiered based on (1) current training levels within each training area (2) foot maneuvers on trails, and (3) foot maneuvers off trails. Tier 1, year 2 will begin with the finalization of this document as approved by both the USFWS and the Army. Species covered in each stabilization tier are listed in Table 5.1. Year 1 of Tier 2 will begin after the initiation of military training along major trails in KLOA or SBER. Year 1 of Tier 3 will begin after the initiation of military training both on and off major trails in KLOA and SBER.

With the implementation of each Army Stabilization Tier, full taxon stabilization is the goal of the Oahu Implementation Team (OIT). This means that when training maneuvers warrant activation of the respective Army Stabilization Tier the affected species will receive full taxon stabilization as described in each species stabilization plan, as opposed to just stabilizing the affected PUs (see individual species Stabilization Plans). The use of any of the Tier 2 and 3 areas for military training requires stabilization for all Tier 2 and 3 species.

### **Monitoring for Army Training Effects and Weed Spread Prevention**

The Army has planned surveys for all human access points within the training areas. These include: roads, landing zones, and hiking trails. Surveys for incipient or excessively problematic invasive species will be conducted twice a year in coordination with the Oahu Early Detection (OED) Project and the Oahu Invasive Species Committee (OSIC). If incipient invasive species are found, the Army will fund the eradication of these species. These weed surveys will alert the Army DPW Natural Resources Program to any adverse impacts that may be occurring and will minimize the anticipated effects from training. The findings of these surveys may stimulate activation of the 2<sup>nd</sup> and/or 3<sup>rd</sup> stabilization tiers. Hiking trails not currently utilized in KLOA and SBER will be surveyed periodically to monitor the baseline of the target taxa prior to military training along trails. The Army Natural Resources Program will also be informed of trail

use by Army Range Control. Monitoring for impacts and decline of the target taxa may also be done during regular rare plant and snail surveys conducted outside of proposed management units (see Chapter 6: Monitoring and Adaptive Management; and Cost Estimate Assumption 19.1 Non-Management Unit Incipient Control Areas).

Additionally, the Army will monitor for effects on endangered waterfowl near Dillingham Military Reservation. If impacts from training are considered a threat, noise barriers may be erected. Training in this area is not occurring at the present time however, the Army monitors the area once a quarter for the presence of endangered waterfowl. Surveys, every six months along the proposed military training route, indicate the presence of the Hawaiian Coot (*Fulica americana*) and Hawaiian Common Moorhen (*Gallinula chloropus sandvicensis*). Both species are Federally listed endangered. The Army Natural Resources Program will propose mitigation measures for noise impacts prior to the initiation of training in this area.

### **Future Army Training Needs**

If the Army's future training needs change, the stabilization requirements may also change. **A reconsultation with the U.S. Fish and Wildlife Service must occur in the case of any changes to the military actions affecting these species.**

### **Army Stabilization Tier 1**

The first tier of Army stabilization is for species that are threatened by the current level of training on all Oahu Army Training Areas (excluding Makua). As a result, all eleven species occurring on Schofield Barracks Military Reservation (SBMR) and Kahuku Training Area (KTA) will have full stabilization efforts underway starting in year one of the OIP (see table 5.1). This is due to the use of live fire in SBMR and off road tactical maneuvers at KTA along with the anticipation of limited live fire training at KTA as a result of the Army Transformation (Army, 2003). Subsequent to the draft OIP, the Army determined that all the Oahu Plant Extinction Prevention (OPEP) species should also be at Tier 1 stabilization priority because of their rarity. The Army will work with OPEP to manage these species both in and out of the action area. Therefore, there are 15 plant species to be stabilized under Tier 1. In addition to the Tier 1 species the Army will conduct surveys for snail species that have no extant populations known; two days a year for each species.

Current use and impact level at KLOA and SBER is low and limited to lower elevation landing zones and roads. Helicopter over-flights are also conducted but do not pose a threat to federally listed species. LZ's and roads are monitored twice a year to minimize the impact from any new weed introductions. All military training vehicles are also washed between training areas to minimize weed introductions.

A total of 26 MUs or MU subunits are planned for Tier 1 stabilization efforts. Six of these are at or near completion. All Tier 1 MUs will be first priority for the OIP. The stabilization of these species will occur in areas with the best habitat available and will be conducted both inside and outside the action area (AA). Tier 2 and 3 fences may be constructed prior to those tiers being initiated, pending funding, as a proactive management measure.

As mentioned above, Tier 1 stabilization efforts include a program of monitoring along roads, hiking trails, and LZs utilized for military training efforts at the present time.

### **Army Stabilization Tier 2**

The second tier of stabilization will be activated when training maneuvers occur along hiking trails in the upper boundaries of KLOA or SBER. Tier 2 stabilization will initiate the stabilization of 14 additional species. Monitoring along currently used LZs will prevent the spread of any incipient weed populations introduced there. Thus, Tier 2 will only be initialized once training maneuvers occur along hiking trails not adjacent to the LZs currently utilized. Once this type of training use is scheduled, Army Natural Resources Staff will work with the unit requesting use to educate them about the natural resources to minimize impact. In order to determine if foot maneuvers are adversely impacting the listed species baseline and periodical monitoring will be done along trails proposed for use by the Army. Thus, pre and post training monitoring will demonstrate the level of impact to the target taxa. The stabilization of these species will occur in areas with the best habitat available and will be both inside and outside the AA. Seven MUs or MU subunits are planned for Tier 2 stabilization efforts.

It is important to note however, that with the addition of a dedicated Army DPW fence crew Tier 2 MUs may be built before actual training efforts have increased to require the initiation of this second level of species stabilization. Many of the Tier 2 fenced MUs are relatively small and could be built in a few days by an experienced remote fencing crew. The Army believes this type of proactive effort will protect the habitat in the event of future training impacts to the area and these efforts are supported by the Army's Integrated Natural Resources Management Plan (INRMP) (Army 2001). These types of efforts have already benefited the upper areas of the KLOA through fenced management units built in partnership with the Koolau Mountains Watershed Partnership (KMWP). However, even with the construction of these management units, full stabilization efforts for the Oahu target taxa within those units may not be initiated until trail based training maneuvers are planned and it is determined that these maneuvers will have an effect on any of the target taxa.

### **Army Stabilization Tier 3**

The third tier of stabilization will be initiated if training maneuvers occur off-trail in the upper reaches of KLOA or SBER action areas. If this type of training were initiated there would be a threat from trampling to 2 additional species. Therefore, with the initiation of the third Tier, all species covered in this consultation will receive full stabilization actions. The initiation of this third tier of stabilization will not require the construction of any additional MUs as the stabilization of these species is currently planned to occur within existing fenced units or within MUs slated for Tier 1 or 2 stabilization efforts.

**Table 5.1** Army Target Taxa by Stabilization Priority Tiers. Some species may be located in multiple training areas.

Army Stabilization Tier	Species Name	Army Training Area
Tier 1	<i>Abutilon sandwicense</i>	SBMR
	<i>Chasiempis sandwichensis</i> spp. <i>lbidis</i>	SBMR
	<i>Cyanea koolauensis</i>	KTA, KLOA, SBER
	<i>Cyanea acuminata</i>	SBMR
	<i>Cyanea st.-johnii</i>	KLOA
	<i>Eugenia koolauensis</i>	KTA, KLOA
	<i>Gardenia mannii</i>	SBMR
	<i>Hesperomannia arborescens</i>	SBMR
	<i>Huperzia nutans</i>	KLOA, SBER
	<i>Labordia cyrtandrae</i>	SBMR
	<i>Melicope lydgatei</i>	KLOA
	<i>Phyllostegia hirsuta</i>	SBMR
	<i>Phyllostegia mollis</i>	SBMR
	<i>Pteris lidgatei</i>	KLOA, SBER
	<i>Schiedea trinervis</i>	SBMR
Tier 2- for trail maneuvers	<i>Chamaesyce rockii</i>	KLOA, SBER
	<i>Cyanea crispa</i>	KLOA
	<i>Cyrtandra viridiflora</i>	KLOA, SBER
	<i>Myrsine juddii</i>	KLOA, SBER
	<i>Sanicula purpurea</i>	KLOA, SBER
	<i>Viola oahuensis</i>	KLOA, SBER
	<i>Achatinella apexfulva</i>	KLOA
	<i>Achatinella byronnii/ decipiens</i>	KLOA, SBER
	<i>Achatinella curta</i>	KLOA
	<i>Achatinella leucorraphe</i>	SBER
	<i>Achatinella lila</i>	KLOA
	<i>Achatinella livida</i>	KLOA
	<i>Achatinella pulcherrima</i>	KLOA
<i>Achatinella sowerbyana</i>	KLOA, SBER	
Tier 3- for off trail maneuvers	<i>Cyrtandra subumbellata</i>	SBER
	<i>Lobelia gaudichaudii</i> spp. <i>koolauensis</i>	SBER

### **Selected Bibliography**

U.S. Army. 2001. Integrated Natural Resources Management Plan Oahu Subinstallations 2002-2006. 25<sup>th</sup> Infantry Division (Light), U.S. Army, Hawaii. Prepared by the Center for Environmental Management of Military Lands, Colorado State University, Fort Collins, Colorado.

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