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JUL 23 1997

Lt. Colonel Lloyd E. Mues
Department of the Army
Pohakuloa Training Area
APO AP 96556

Dear Lieutenant Colonel Mues:

The U.S. Fish and Wildlife Service (Service) has reviewed the revised draft Environmental Assessment for the Addition of Two Firing Lanes to Range 8 Pohakuloa Training Area (PTA), Island of Hawaii (EA), Island of Hawaii. This action would open two firing lanes at Range 8 for light and heavy machine gun use and add more frequent use of heavy machine guns to the two lanes currently being used at Range 8. This document represents the Service's Biological Opinion on the effects of that action in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (ESA). This Biological Opinion was prepared using the following information:

- 1) Draft Environmental Assessment for the Addition of Two Firing Lanes to Range 8 Pohakuloa Training Area, Island of Hawaii, dated May 1997;
- 2) Big Island Plant Cluster Recovery Plan, U.S. Fish and Wildlife Service, September 1996;
- 3) the biological literature (see Literature Cited section at the end of the document); and
- 4) information provided by individuals knowledgeable about the species and the project.

Our log number for this consultation is 1-2-97-F-06. Copies of pertinent materials and documentation are maintained in an administrative record in the Service's office in Honolulu, Hawaii.

The addition of two firing lanes to Range 8 and the more frequent use of heavy machine guns to the two lanes currently being used at Range 8 would address the Army's need to train and

qualify units more quickly on machine gun skills, allowing them more time for other training activities while they are at PTA. The species covered by this consultation is the federally threatened plant *Silene hawaiiensis* (Hawaiian catchfly). Other native plant species located in the area are *Dodonaea viscosa* (aalii), *Styphelia tameiameia* (pukiawe), and federal species of concern *Tetramalopium humile* var. *sublaeve* (sub-alpine pamakani). These species are not subject to this consultation because they are not listed under the ESA or proposed for listing.

Consultation History

Your initial request for informal consultation was received by the Service on February 1, 1996. On February 27, 1996, a Service biologist from our office and Army personnel conducted a site visit to Range 8 to discuss impacts of the proposed range expansion. At the conclusion of this visit, the Service biologist explained to Army personnel that additional information was necessary to better describe the project and how the Army proposed to mitigate and/or minimize the impacts to *Silene hawaiiensis*. In December 1996, the Service received a request to review a draft November 1996 Environmental Assessment for the Addition of Two Firing Lanes to Range 8 Pohakuloa Training Area, Island of Hawaii. We reviewed the draft EA and in our response recommended that once our comments were incorporated into the EA, the Army should initiate formal consultation. Your request for formal consultation and the revised draft May 1997 Environmental Assessment for Addition of Two Firing Lanes to Range 8 Pohakuloa Training Area, Island of Hawaii (EA), were received by the Service on May 16, 1997.

Biological Opinion

Description of the Proposed Action

Range 8 at PTA is presently used primarily for light machine gun (7.62mm) target practice. Heavy machine guns (50 caliber) are also used on an intermittent basis. At present, four firing lanes lie within an area measuring about 1,200 yards (yds) (1097 meters (m)) by 900 yds (823 m). Pop-up targets are located at various distances (up to 875 yds (800 m) from the firing stations) within the four lanes. For several years, only two northern firing lanes have been used for training. To meet present demand for machine gun training, the U.S. Army proposes to activate the other two southern firing lanes and to upgrade berms that protect targets and control equipment to enable more frequent use of 50 caliber machine guns on the entire range. On an annual basis, about 1,300 soldiers train at this range, firing about 500,000 rounds of ammunition over about 80 training days. Those numbers may increase by 25 % to 30 % if the other two firing lanes are opened for use.

Maintenance activities performed on the target arrays and associated equipment at the range generally require about 3 visits per week by a work party of 1 to 2 persons totaling about 1,500 person-hours of effort per year. Typical maintenance action in the target areas involves

replacement of pop-up targets, servicing batteries and their photovoltaic charging systems, and inspecting and repairing control cables connecting the target apparatus to the control tower. Maintenance personnel use the improved maintenance vehicle trails for primary transport of workers and equipment into the target areas and access most targets and cables on foot.

The U.S. Army has agreed to implement the following specific measures to minimize and mitigate potential adverse impacts to *Silene hawaiiensis*:

1. Crescent-shaped rock berms of about 1 foot (ft) (.3 m) in height will be placed around margins of the *Silene hawaiiensis* plant populations that lie in line-of-sight of firing stations and are not already afforded protection by the existing site conditions (e.g., plants that are not located in depressions or downslope of existing soil or rock mounds). The crescent center of each berm will face the appropriate firing station. Berm margins will be located no closer than 1.6 ft (0.5 m) to individual plants and will provide each plant population with 180 degrees of protection relative to the appropriate firing station. During annual monitoring of the plant populations by the Army's Environmental Office, the effectiveness of protection of the plants by existing site conditions and the artificial berms will be assessed. New protective measures will be implemented if necessary.
2. To ensure that maintenance vehicles do not stray off-road near threatened plant populations, boulders of about 2 ft (.6 m) diameter will be placed at 10 ft (3.1 m) spacing along a 475 ft (144.8 m) section of the maintenance trail.
3. Vehicles other than those used for range maintenance purposes will not be allowed downrange of the firing stations.
4. *Silene hawaiiensis* populations on the range will be monitored by the Army's Environmental Office once a year for abundance and condition. If significant declines are noted in the *S. hawaiiensis* populations, the Army will cooperate with the U.S. Fish and Wildlife Service in identifying and implementing measures to alleviate or reverse any significant (measured) declines in those populations.
5. Approximately 50 *Silene hawaiiensis* will be enclosed in a proposed fence enclosure at Kipuka Kalawamauna for off-site mitigation. The 1400-acre fenced area will protect plants from grazing, trampling and weed introductions by ungulates. Additionally, at least several hundred acres of potential *S. hawaiiensis* habitat will be included in that area and two other areas where fencing is proposed for mitigation of other actions at PTA. The three areas will enclose a total of 2,452 acres.
6. Risk of fire damage to *Silene hawaiiensis* at Range 8 is considered to be low due to the sparse and patchy nature of vegetative fuel in the area. Most (over 90%) of the land area is barren pahoehoe lava rock. The common native shrubs present in the area tend to have very

green foliage and thus have low flammability. Weeds such as *Pennisetum setaceum* (fountain grass) are the main contributors of dry, flammable fuel, and these weeds will be hand-pulled from areas very near to the *S. hawaiiensis* plants. Weed removal will be performed once a year (during monitoring of the plant populations) and weeds located less than 1 ft (.3 m) from *S. hawaiiensis* will be cut with hand tools to avoid damage to root systems of the threatened plants.

7. Three backpack water sprayers will be available for quick access fire response at Range 8 whenever live-fire training is occurring and personnel on site will be familiar with the location and effective use of the sprayers. Personnel responsible for extinguishing fires and conducting other emergency activities within Range 8 will be familiar with the locations of *Silene hawaiiensis* to prevent trampling of the plants. Additionally, a hum-vee vehicle with a 300 gallon water tank/pumper will be on stand-by at the range.

8. Firing of weapons will be performed only from the firing stations.

Biology and Population Status of the Species

Silene hawaiiensis is a sprawling shrub with climbing stems (Wagner *et al.* 1990). Stems are 6-16 inches (in) (15-40 centimeters (cm)) long, generally are covered with short, sticky hairs and arise from an enlarged root. Leaves are slender, 0.2-0.6 in (6-15 cm) long and 0.02-0.03 in (.5-.8 millimeters (mm)) wide, often recurved and stalkless. Flowers are white and sometimes maroon and are arranged in loose, elongated clusters that are highly sticky. *S. hawaiiensis* occurs in montane and subalpine dry shrubland with *Metrosideros polymorpha*, *Sophora chrysophylla*, *Vaccinium reticulatum* (ohelo), *Styphelia tameiameia*, and *Dodonaea viscosa* (aalii). Individuals occur in weathered lava, but are found on variously aged lava flows and cinder substrates as well, at elevations between 3,000-8,500 ft (900-2,575m) (U.S. Fish and Wildlife Service 1996).

Silene hawaiiensis is known only from the Big Island, on the western slopes of Mauna Kea; the summit of Hualalai; Humuula Saddle; northern, southern, western, and northwestern slopes of Mauna Loa; and Kilauea Crater (Wagner *et al.* 1990, 59 FR 10305, HHP1991u1-u10, NTBG 1991). Since 1975, at least 11 populations numbering over 11,000 plants have been identified from the Hamakua District, Humuula Saddle, North Kona, PTA, and Hawaii Volcanoes National Park. At the time of listing (June 1994), these populations were thought to be comprised of about 3,000 individuals (59 FR 10305). However, surveys recently conducted in Hawaii Volcanoes National Park confirm three populations of *Silene hawaiiensis* consisting of over 5,500 known plants (L. Pratt, personal communication 1995), and surveys in PTA confirm approximately 3,500 to 6,500 known plants.

Browsing, trampling, habitat degradation, and spread of alien weeds by feral animals (goats, pigs, and sheep) threaten the continued survival of *Silene hawaiiensis*. Fragile branches and

stems are easily broken. Browsing damage, consisting of the stripping away of new leaves, has been observed in the population on the lower northern slope of Mauna Loa, thus compromising the viability of these individuals. Competition for space and the increased fuel load resulting from encroachment of alien plant taxa, particularly fountain grass, are significant threats to the survival of *S. hawaiiensis*, as well. In certain areas where new lava is flowing from Kilauea, plants may be enveloped by molten lava rock and/or consumed by fire. *S. hawaiiensis* may be increasingly vulnerable in areas where human habitation is expanding or development is occurring. Critical habitat was not designated at the time of listing, because the publication of precise maps and descriptions of critical habitat in the *Federal Register* would increase the degree of threat to these plants from take and vandalism (59 FR 10305).

Environmental Baseline

The environmental baseline describes the status of the species and factors affecting the environment of the species or critical habitat in the proposed action area contemporaneous with the consultation in process. The baseline includes State, local, and private actions that affect a species at the time the consultation begins. Unrelated Federal actions that have already undergone formal or informal consultation are also a part of the environmental baseline. Federal actions within the action area that may benefit listed species or critical habitat are also included in the environmental baseline.

About 3,500 to 6,500 *Silene hawaiiensis* plants occur at PTA, and approximately 80 of these individuals occur in eight small populations at Range 8. Vegetation at Range 8 is dominated by very sparse cover of the native shrub aalii and pukiawe. Alien plant species, primarily small herbs and grasses (especially fountain-grass), are common throughout the area. Ungulates, alien plants, military exercises, and fire continue to threaten *S. hawaiiensis* at Range 8.

Effects of the Action on Listed Species

This section includes an analysis describing direct and indirect effects on the species from the proposed action and its interrelated and interdependent activities.

If the preferred alternative is selected and all described mitigation measures are adopted, potential impacts to *Silene hawaiiensis* as a result of firing activity and range maintenance will be minimized but may not be completely avoided. Even with the implementation of mitigation measures, misdirected or ricocheting machine gun rounds may inadvertently damage some individuals of *S. hawaiiensis*. Additionally, although the risk of fire damage to these plants is low due to distribution and amount of vegetative fuel, it is possible that fires will be carried into the *S. hawaiiensis* populations before being controlled, particularly during periods of high wind. According to information provided in the draft EA, over the period of March 1 through September 30, 1996, the PTA Fire Department reported 11 fires on Range 8 during live-fire

training. It is postulated that most or all of the fires were started by tracer rounds. Such fires are likely to continue at PTA, with possible adverse effects to the *S. hawaiiensis* populations in Range 8.

Cumulative Effects

Cumulative effects include the effects of future State, local, or private actions affecting endangered or threatened species or critical habitat that are reasonably certain to occur within the area of the Federal action subject to this consultation. Future Federal actions that are unrelated to the proposed action will be subject to the consultation requirements established in section 7 of the Act, and therefore, are not considered cumulative to the proposed action. No cumulative effects to *Silene hawaiiensis* are identified at this time.

Conclusion

After reviewing the current status of *Silene hawaiiensis*, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the implementation of the preferred alternative with accompanying minimization/mitigation procedures described in the May 1997 revised draft EA, is not likely to jeopardize the continued existence of *S. hawaiiensis*. No critical habitat has been designated for this species; therefore, none will be affected.

Incidental Take Statement

Sections 7(b)(4) and 7(o)(2) of the ESA do not apply to the incidental take of listed plant species. However, protection of listed plants is provided to the extent that the ESA requires a Federal permit for removal or reduction to possession of endangered plants from areas under Federal jurisdiction, or for any action that would remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law.

Conservation Recommendations

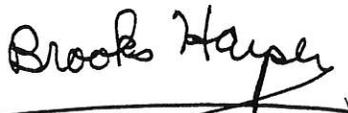
Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility for these species.

The Service commends the Army's Ecosystem Management efforts and we encourage the implementation of the Fire and Endangered Species Management Plans that have been written as part of this program, to the maximum extent possible. We appreciate the opportunity to continue working with the Army in order to achieve its conservation goals on its installations in Hawaii. Even though the effects of the realignment of Saddle Road are being addressed under a separate Biological Opinion, the Service would like to emphasize the importance of the Army monitoring the large, stable population of *Silene hawaiiensis* located at the north-east corner of PTA to evaluate the effects of the realignment of Saddle Road on this currently healthy population. If it is determined that ungulates are negatively impacting this population, measures (such as fencing) should be taken to protect this population.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

This concludes formal consultation for opening two firing lanes at Range 8 for light and heavy machine gun use and adding more frequent use of heavy machine guns to the two lanes currently being used at Range 8. Pursuant to 50 CFR 402.16, reinitiation of formal consultation is required if the action is significantly modified in a manner not discussed above, if new information becomes available on listed species, or a new species is listed or critical habitat designated that may be affected by the action. Any questions or comments should be directed to the Program Leader for Interagency Cooperation, Margo Stahl, or Fish and Wildlife Biologist Elizabeth Sharpe of my staff at (808) 541-3441.

Sincerely,


Brooks Harper
Field Supervisor
Ecological Services

cc: Rich Hill, RO
Scott Henderson, PTA

Literature Cited

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- National Tropical Botanical Garden. 1991. Accession data for *Silene hawaiiensis*, 915038, dated January 15, 1991, Lawai, Kauai.
- U.S. Fish and Wildlife Service. 1996. Big Island Plant Cluster Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR. 202pp.
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