

U.S. FISH AND WILDLIFE SERVICE SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

Scientific Name:

Festuca hawaiiensis

Common Name:

Lead region:

Region 1 (Pacific Region)

Information current as of:

06/01/2013

Status/Action

Funding provided for a proposed rule. Assessment not updated.

Species Assessment - determined species did not meet the definition of the endangered or threatened under the Act and, therefore, was not elevated to the Candidate status.

New Candidate

Continuing Candidate

Candidate Removal

Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status

Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species

Range is no longer a U.S. territory

Insufficient information exists on biological vulnerability and threats to support listing

Taxon mistakenly included in past notice of review

Taxon does not meet the definition of "species"

Taxon believed to be extinct

Conservation efforts have removed or reduced threats

More abundant than believed, diminished threats, or threats eliminated.

Petition Information

Non-Petitioned

Petitioned - Date petition received: 05/11/2004

90-Day Positive:05/11/2005

12 Month Positive:05/11/2005

Did the Petition request a reclassification? **No**

For Petitioned Candidate species:

Is the listing warranted(if yes, see summary threats below) **Yes**

To Date, has publication of the proposal to list been precluded by other higher priority listing?
Yes

Explanation of why precluded:

Higher priority listing actions, including court-approved settlements, court-ordered and statutory deadlines for petition findings and listing determinations, emergency listing determinations, and responses to litigation, continue to preclude the proposed and final listing rules for this species. We continue to monitor populations and will change its status or implement an emergency listing if necessary. The Progress on Revising the Lists section of the current CNOR (<http://endangered.fws.gov/>) provides information on listing actions taken during the last 12 months.

Historical States/Territories/Countries of Occurrence:

- **States/US Territories:** Hawaii
- **US Counties:** Hawaii, HI, Maui, HI
- **Countries:** United States

Current States/Counties/Territories/Countries of Occurrence:

- **States/US Territories:** Hawaii
- **US Counties:** Maui, HI
- **Countries:** United States

Land Ownership:

All populations of this species are on State lands. Two individuals are within the Puu Anahulu State Game Management Area; the remaining plants are within the adjacent Pohakuloa Training Area, leased by the U.S. Army.

Lead Region Contact:

ARD-ECOL SVCS, Jesse D'Elia, 5032312349, jesse_delia@fws.gov

Lead Field Office Contact:

Biological Information

Species Description:

Festuca hawaiiensis is a cespitose (growing in tufts or clumps) annual with numerous erect culms (stems, stalks) 1.6 to 5 feet (ft) (0.5 to 1.5 meters (m)) tall, branching somewhat above the base, and glabrous to slightly puberulent. Sheaths are open and blades flat and smooth, 10 to 16 inches (in) (25 to 40 centimeters (cm)) long, and 0.12 to 0.5 in (0.3 to 1.2 cm) wide. Inflorescences are paniculate, composed of six to eight alternate racemes, with a flattened rachis, and are puberulent and winged. The fruits are ellipsoid, dorsally compressed, and 0.06 to 0.2 in (0.15 to 0.5 cm) long (OConnor 1999, p. 1,547).

Taxonomy:

Festuca hawaiiensis was treated by Hillebrand (1888) as an introduced species, *F. drymeja*, which it is not. These collections should be compared to other extra-Hawaiian species (OConnor 1999, p. 1,547). *F. hawaiiensis* is currently recognized as a distinct taxon in OConnor (in Wagner et al. 1999, p. 1,547), the most recently accepted Hawaiian plant taxonomy.

Habitat/Life History:

Typical habitat is dry forest at an elevation of 6,562 ft (2,000 m) (OConnor 1999, p. 1,547).

Historical Range/Distribution:

Historically, this species was found on Hualalai and Puu Huluhulu on the island of Hawaii, and possibly at Ulupalakua on Maui, but it no longer occurs at these sites (OConnor 1999, p. 1,547).

Current Range Distribution:

Currently, *Festuca hawaiiensis* is known from Puu Anahulu State Game Management Area to Kipuka Alala in the Pohakuloa Training Area (PTA), on the island of Hawaii (Hawaii Biodiversity and Mapping Program (HBMP) 2008).

Population Estimates/Status:

This species is restricted to an area of less than 10 square-miles (mi²)(26 square-kilometers (km²)) and is known from four populations, totaling approximately 1,000 individuals, ranging from Puu Anahulu to Kipuka Alala on the western portion of PTA (HBMP 2008). Two of the four occurrences consist of one individual plant each and are located in the States Puu Anahulu Game Management Area.

Threats

A. The present or threatened destruction, modification, or curtailment of its habitat or range:

Festuca hawaiiensis is highly and imminently threatened by feral pigs (*Sus scrofa*), goats (*Capra hircus*), sheep (*Ovis aries*), and mouflon (*Ovis musimon*). All of these species are known to degrade and destroy habitat (HBMP 2008). Evidence of the activities of feral pigs, goats, sheep and mouflon has been reported in

areas where *F. hawaiiensis* is known to occur (Bio2007, pers. comm.; U.S. Fish and Wildlife Service (FWS) 2003).

Pigs of Asian ancestry were introduced to Hawaii by the Polynesians, and the Eurasian type was introduced to Hawaii by Captain James Cook in 1778, with many other introductions thereafter (Tomich 1986, p. 121). Some pigs raised as food escaped into the forests of Hawaii, Kauai, Oahu, Molokai, Maui, and Niihau, and are now managed as a game animal by the State to optimize hunting opportunities (Tomich 1986, p. 125; State of Hawaii 2001). In a study conducted in the 1980s on feral pig populations in the Kipahulu Valley on Maui, the deleterious effects of feral pig rooting on native forest ecosystems was documented (Diong 1982, entire). Kipahulu Valley consists of a diverse composition of native ecosystems, from near sea level to alpine, and forest types ranging from mesic to wet, *Acacia koa* (koa) and/or *Metrosideros polymorpha* (ohia). Rooting by feral pigs was observed to be related to the search for earthworms, with rooting depths averaging 8 in (20 cm) greatly disrupting the leaf litter and topsoil layers and contributing to erosion and changes in ground topography (Diong 1982, pp. 143-150). The feeding habits of pigs were observed to create seed beds, enabling the establishment and spread of weedy species such as *Psidium cattleianum* (strawberry guava) (Diong 1982, pp. 164-165). The study concluded that all aspects of the food habits of pigs are damaging to the structure and function of the Hawaiian forest ecosystem (Diong 1982, pp. 166-167).

The goat, a species originally native to the Middle East and India, was successfully introduced to the Hawaiian Islands in 1792. Currently, populations exist on Kauai, Oahu, Maui, Molokai, and Hawaii. Goats browse on introduced grasses and native plants, trample roots and seedlings, cause erosion, and promote the invasion of alien plants. Goats are able to forage in extremely rugged terrain and have a high reproductive capacity (Clarke and Cuddihy 1980, p. C20; van Riper and van Riper 1982, pp. 34-35; Scott et al. 1986, pp. 352-358; Tomich 1986, pp. 150-156; Culliney 1988, pp. 336-337; Cuddihy and Stone 1990, p. 64). A study of goat predation on the native *Acacia koa* forest on the island of Hawaii has shown that grazing pressure by goats can cause the eventual extinction of *A. koa* because it is unable to reproduce (Spatz and Mueller-Dombois 1973). An enclosure analysis demonstrated that release from goat pressure by fencing resulted in an immediate recovery in height growth and numbers of vegetative resprouts of *A. koa* (Spatz and Mueller-Dombois 1973, p. 876). A study at Puu Waawaa on the island of Hawaii demonstrated that prior to management actions in 1985, regeneration of endemic shrubs and trees in the grazed area was almost totally lacking, contributing to the invasion of the forest understory by exotic grasses and weeds. After the removal of grazing animals in 1985, *A. koa* and *Metrosideros* spp. seedlings were observed geminating by the thousands (Department of Land and Natural Resources (DLNR) 2002, p. 52). Habitat degradation and predation by goats are potential threats where populations of *F. hawaiiensis* occur within PTA (Jacobs 2007, pers. comm.).

Sheep have become established on the island of Hawaii (Tomich 1986, p. 156) since their introduction almost 200 years ago (Cuddihy and Stone 1990, pp. 65-66). Sheep roam the upper elevation dry forests of Mauna Kea, Mauna Loa, and Hualalai (above 3,300 ft (1,000 m)), causing damage similar to that of goats (Stone 1985, p. 260). Sheep have decimated vast areas of native forest and shrubland on Mauna Kea and continue to do so as a managed game species (Stone 1985, p. 260; Cuddihy and Stone 1990, p. 65).

The European mouflon is a species of wild sheep native of Corsica and Sardinia (Clark 1964, pp. 3-5). They are currently established on the islands of Lanai and Hawaii (Giffin 1982; Pacific Island Ecosystems at Risk 2007). Most are found at higher elevations on Mauna Kea where they were released between 1962 and 1966, but they are also known from Kahuku Ranch on the southern slopes of Mauna Loa. Feral sheep-mouflon hybrids are known where range overlaps between the two occur (Giffin 1982). Mouflon-sheep are both grazers and browsers. In range studies done on the effects of mouflon grazing and browsing, plant species found to be most affected were *Sophora chrysophylla* (mamane), *Vaccinium* sp. (ohelo), *Geranium* sp. (hinahina), and native grasses (Giffin 1982; Scowcroft and Conrad 1992, p. 661).

Hawaiian ecosystems, having evolved without disturbance of hoofed mammals, are susceptible to large-scale disturbance by pigs, goats, and other introduced ungulates (Loope et al. 1991, p. 3). Because of demonstrated

habitat modifications by feral pigs, goats, sheep, and mouflon, such as destruction of native plants, disruption of topsoil leading to erosion, and establishment and spread of nonnative plants; the FWS believes they are all potential threats to *F. hawaiiensis*.

B. Overutilization for commercial, recreational, scientific, or educational purposes:

None known.

C. Disease or predation:

Predation by feral pigs, goats, sheep, and mouflon are potential threats to *Festuca hawaiiensis* throughout its current range. Browsing by ungulates has been observed on many native plant species, including common and rare or endangered species (Cuddihy and Stone 1990, pp. 63-67; Loope et al. 1991, p. 3). Because Hawaii's native plants evolved without any browsing or grazing mammals present, many lost natural defenses to such impacts (Merlin and Juvik, p. 597).

Predation by feral pigs is a potential threat to *F. hawaiiensis*. In a study conducted in the 1980s, feral pigs were observed browsing on young shoots, leaves and fronds of a wide variety of plants, of which over 85 percent were endemic species (Diong 1982, p. 138). A stomach content analysis in this study showed that the pigs' food sources consisted of native plants, 60 percent of which were *Cibotium* spp. (tree ferns), alternating with *Psidium cattleianum* when it was available. Pigs were observed felling and removing the bark of *Clermontia*, *Cibotium*, *Coprosma*, *Psychotria*, and *Hedyotis* species (herbaceous and woody plants), and causing enough damage to kill larger trees over a few months of repeated feedings (Diong 1982, pp. 138, 144).

As stated above, predation and habitat degradation by goats are potential threats where populations of *F. hawaiiensis* occur within PTA (Jacobs 2007, pers. comm; Bio 2007, pers. comm.). Feral goats eat native vegetation, are able to forage in extremely rugged terrain, and have a high reproductive capacity. Elimination of rare native plants such as *Argyroxiphium kauense* and *A. sandwicense* ssp. *sandwicense* (Hawaiian silverswords), *Canavalia kauensis* (awikiwiki), and a number of Maui species (*Plantago princeps*, *Schiedea haleakalaensis*, *Stenogyne microphylla*), from areas heavily foraged by goats has been documented (Cuddihy and Stone 1990, p. 64).

Feral sheep and mouflon are known to browse numerous native plant species, including *Chenopodium oahuense*, *Coprosma* sp., *Dubautia* sp., *Geranium* sp., *Leptecophylla tameiameia*, *Myoporum sandwicense*, *Sophora chrysophylla*, *Vaccinium* sp., and native grasses (Giffin 1976, 1982; Scowcroft and Conrad 1992, p. 661). Therefore, it is likely that sheep and mouflon also browse on this species, impacting it directly as well as the surrounding habitat.

D. The inadequacy of existing regulatory mechanisms:

Festuca hawaiiensis is not currently protected under Hawaii's endangered species law (HRS, Sect. 195-D) or the Federal Endangered Species Act (16 U.S.C. §1531-1544).

Pigs, goats, sheep and mouflon are managed in Hawaii as game animals, but many herds populate inaccessible areas where hunting is difficult, if not impossible, and therefore has little effect on their numbers (Hawaii DLNR 1999, 2003; Hawaii Heritage Program 1990, p. 3).

E. Other natural or manmade factors affecting its continued existence:

Festuca hawaiiensis occurs on military lands and is directly threatened by military activities, which include fires from training exercises, trampling by troops, and damage by vehicles (HBMP 2008; FWS 2003). *F. hawaiiensis* is also threatened by fire-prone alien plant species that degrade and destroy habitat and

outcompete native plants (HBMP 2008). Extinction from randomly occurring natural or human-caused events are also potential threats to this species (Shaw et al. 1997, pp. 8-9; FWS 2003).

Because Hawaiian plants were subjected to fire during their evolution only in areas of volcanic activity and from occasional lightning strikes, they are not adapted to recurring fire regimes and do not quickly recover following a fire. Alien plants are often better adapted to fire than native plant species, and some fire-adapted grasses have become widespread in Hawaii (DAntonio and Vitousek 1992, pp. 64-65, 70-74; Friefelder et al. 1998, pp. 286-287). Native shrubland and dry forest can thus be converted to land dominated by alien grasses. The presence of such species in Hawaiian ecosystems greatly increases the intensity, extent, and frequency of fire, especially during drier months or drought. Fire-adapted alien plant taxa can reestablish in a burned area, resulting in a reduction in the amount of native vegetation after each fire. Fire can destroy dormant seeds as well as plants, even in steep or inaccessible areas. Fires may result from natural causes, or may be accidentally or purposely started by humans (Cuddihy and Stone 1990, pp. 29-31; DAntonio and Vitousek 1992, pp. 70-74; Friefelder et al. 1998, pp. 286-287). At PTA, fires are often started by military training activities but many originate on adjacent State lands (Jacobs 2007, pers. comm.).

The nonnative plant that is reported to be the greatest threat to *F. hawaiiensis* is *Pennisetum setaceum* (fountain grass) (Shaw et al. 1997, pp. 9-10). *P. setaceum*, a grass native to northern Africa, was introduced to many areas as an ornamental, and is now naturalized in Hawaii. This grass is a serious pest in dry areas. It is an aggressive colonizer, and outcompetes most native species. *P. setaceum* is also fire-adapted, and burns swiftly and hot, causing extensive damage to the surrounding habitat (OConnor 1999, p.1,581). Repeated wildfires, originating primarily on adjacent State lands, have led to *P. setaceum* attaining dominance of the ground cover of portions of PTA (Shaw et al. 1997, p. 9; Jacobs 2007, pers. comm.). We are unaware of any control methods for this species beyond herbicide application and control by selective grazing (University of Hawaii 2013).

The original native flora of Hawaii consisted of about 1,400 species, nearly 90 percent of which were endemic. Of the current total native and naturalized Hawaiian flora of 1,817 taxa, 47 percent are introduced species, and nearly 100 of those species are considered pests (Smith 1985, p. 180; Wagner et al. 1999a, p. 45). Confirmed personal observations (HBMP 2008) and several studies (Cuddihy and Stone 1990, p. 74; Robichaux et al. 1998, p 4) indicate nonnative plant species may out-compete native plants similar to *F. hawaiiensis*. Competition may be for space, light, water, or nutrients, or there may be a chemical produced that inhibits growth of other plants (Smith 1985, pp. 227-230; Cuddihy and Stone 1990, p. 74). In addition, nonnative pest plants found in habitat similar to that of this species have been shown to make the habitat less suitable for native species (Smith 1985, pp. 240-241; Loope and Medeiros 1992, p. 7-8; Medeiros et al. 1992, p. 30; Ellshoff et al. 1995, pp. ii, 3-4; Meyer and Florence 1996, p. 778; Medeiros et al. 1997, pp. 23-24; Loope et al. 2004, p. 1,472). In particular, alien pest plant species degrade habitat by modifying availability of light, altering soil-water regimes, modifying nutrient cycling, or altering fire characteristics of native plant communities (Smith 1985, pp. 227-230; Cuddihy and Stone 1990, p. 74; Vitousek et al. 1997, pp. 6-10). Because of demonstrated habitat modification and resource competition by nonnative plant species in habitat similar to the open mixed shrubland to the dry forest habitat of *F. hawaiiensis*, the FWS believes nonnative plant species are a threat to this species.

With only four known populations, restricted to an area of less than 10 mi² (26 km²), extinction from randomly occurring natural or human-caused events are potential threats to this species. Species like *F. hawaiiensis* that are endemic to single small islands are inherently more vulnerable to extinction than widespread species because of the higher risks posed to a single population by genetic bottlenecks, random demographic fluctuations, and localized catastrophes such as hurricanes (Mangel and Tier 1994, pp. 607, 612; Pimm et al. 1988, pp. 757-758, 777).

Conservation Measures Planned or Implemented :

The FWS has funded several projects to establish fenced exclosures and water catchment systems to support

outplanting efforts for native species including *Festuca hawaiiensis* on State lands (Puu Anahulu and Puu Waawaa) (FWS 2002). *F. hawaiiensis* also may benefit from firebreaks funded by the FWS (FWS 2002; Donoho 2007, pers. comm.). The firebreaks have been constructed to the west of the known populations of *F. hawaiiensis* on State lands at Puu Waawaa and Puu Anahulu. These require regular maintenance to remove the build-up of fuels and Wildland Urban Interface funds have been applied toward their maintenance (Nakahara 2007, pers. comm.). Under the terms of a Biological Opinion (BO) provided by the FWS in 2003 to the U.S. Army regarding training activities at PTA, the Army will provide protection to this species. Actions defined in the BO include construction of ungulate exclosures, firebreaks, and removal of nonnative plants from within the exclosures. To date, two exclosures totaling approximately 5,500 acres (ac) (2,226 hectares (ha)) have been constructed in the Kipuka Alala area and protect several hundred *F. hawaiiensis* individuals at PTA. Nonnative plant control and fuel reduction is ongoing within both units (York 2007, pers. comm.; Jacobs 2007, pers. comm.). The western fence unit, which is still under construction, will encompass approximately 21,500 ac (8,700 ha) at PTA and will protect the PTA population of *F. hawaiiensis* (FWS 2003).

Summary of Threats :

Based on our evaluation of habitat degradation and loss due to military training activities, fire, feral ungulates (pigs, goats, feral sheep and mouflon), and competition with nonnative plants, we conclude there is sufficient information to develop a proposed listing rule for this species due to the present and threatened destruction, modification, or curtailment of its habitat and range, and the displacement of individuals of *Festuca hawaiiensis* due to competition with nonnative plants for space, nutrients, water, and light. Habitat loss due to military training activities, fire, and competition with nonnative plants, and predation by feral pigs, goats, sheep, and mouflon are all potential threats to *F. hawaiiensis*. There are no ex situ collections. The small number of remaining individuals and limited geographic range makes this species susceptible to randomly occurring natural or human caused events. We find that this species is warranted for listing throughout all of its range, and, therefore, find that it is unnecessary to analyze whether it is threatened or endangered in a significant portion of its range.

For species that are being removed from candidate status:

_____ Is the removal based in whole or in part on one or more individual conservation efforts that you determined met the standards in the Policy for Evaluation of Conservation Efforts When Making Listing Decisions(PECE)?

Recommended Conservation Measures :

- Protect all individuals from feral pigs, goats, sheep, and mouflon by removing these species from areas where *F. hawaiiensis* populations exist and preventing reinvasion through the use of exclosures.
- Protect populations from military training exercises, trampling by troops, and damage by vehicles.
- Protect populations from fire by removing nonnative grasses and maintaining firebreaks.
- Control alien plants through physical, mechanical, and biological control methods, as well as herbicides when necessary.
- Reintroduce individuals into suitable habitat within historic range that is being managed for known threats to this species.
- Investigate and confirm taxonomy.
- Propagate and maintain genetic stock.

Priority Table

Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/Population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/Population	6
Moderate to Low	Imminent	Monotype genus	7
		Species	8
		Subspecies/Population	9
	Non-Imminent	Monotype genus	10
		Species	11
		Subspecies/Population	12

Rationale for Change in Listing Priority Number:

Magnitude:

This species is highly threatened by pigs, goats, sheep, and mouflon that degrade and destroy habitat, by nonnative *Pennisetum setaceum* that carries fires and competes for light, space, and nutrients, and by military training activities. Threats to the dry forest habitat of *Festuca hawaiiensis*, and to individuals of this species, occur throughout its range and are expected to continue or increase without control. Feral ungulates have been fenced out of a portion of the Kipuka Alala area where populations of *F. hawaiiensis* occur; firebreaks have been constructed and nonnative plants have been reduced, but both require regular maintenance. The majority of the Kipuka Alala population is still impacted by threats from fire and will require long-term monitoring and management.

Imminence :

Threats to *Festuca hawaiiensis* from military training activities, nonnative plants, and from pigs, goats, sheep and mouflon are considered imminent because they are ongoing. Predation by feral pigs, goats, sheep and mouflon, and fire, are potential threats to populations and are considered non-imminent.

Yes Have you promptly reviewed all of the information received regarding the species for the purpose of determination whether emergency listing is needed?

Emergency Listing Review

No Is Emergency Listing Warranted?

The species does not appear to be appropriate for emergency listing at this time because the immediacy of the threats is not so great as to imperil a significant proportion of the taxon within the time frame of the routine listing process. Several hundred individuals are protected inside exclosures at Kipuka Alala but fences must be continually maintained to prevent incursion. Nonnative plant numbers have been reduced in the populations that are fenced. In addition, the FWS has funded several projects to construct and maintain firebreaks to the west of the known populations of *Festuca hawaiiensis* and other listed species. These require regular maintenance to remove the build-up of fuels; Wildland Urban Interface funds have been

applied toward the maintenance of firebreaks. If it becomes apparent that the routine listing process is not sufficient to prevent further losses that may result in this species' extinction, then the emergency rule process for this species will be initiated. We will continue to monitor the status of *F. hawaiiensis* as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures.

Description of Monitoring:

The information in this form is based on the results of a meeting of 20 botanical experts held by the Center for Plant Conservation in December 1995, and was updated by personal communication with Loyal Mehrhoff from the FWS and Robert Shaw from Colorado State University in 1996. In 2004, the Pacific Islands Fish and Wildlife Office contacted the following species experts: Robert Hobdy, retired from the Hawaii Division of Forestry and Wildlife (DOFAW); Joel Lau, Hawaii Natural Heritage Program; Arthur Medeiros, U.S. Geological Survey Biological Resources Discipline (USGS-BRD); Hank Oppenheimer, resource manager for the Maui Land and Pineapple Company; and Steve Perlman and Ken Wood, National Tropical Botanical Garden. New information regarding fire impacts from military training on this species was provided in 2006 (Ashfield 2006, pers. comm.). In 2005 and 2006, species experts were contacted but no new information was received on this taxon. New status information was provided in 2007 by Mike Donoho and Miles Nakahara (DOFAW), Kealii Bio (USGS-BRD), and by Darrell York, Jefferson Jacobs and Kathy Kawakami (U.S. Army Environmental Division PTA). No new information was provided in 2008 or 2009. In 2010 and 2011, we contacted the species experts listed below and received no new information on this species. In 2012, information was provided by the State and incorporated into this form.

List all experts contacted in 2011:

Name Date Affiliation

Agorastos, Nick 02/16/11 Division of Forestry and Wildlife, Hawaii
Bakutis, Ane 02/16/11 Plant Extinction Prevention Program, Molokai
Ball, Donna 02/16/11 U.S. FWS, Partners Program, Hawaii
Bily, Pat 02/16/11 The Nature Conservancy, Maui
Bio, Kealii 02/16/11 Plant Extinction Prevention Program, Hawaii
Caraway, Vickie 02/22/11 Hawaii Division of Forestry and Wildlife, Oahu
Ching, Susan 02/16/11 Plant Extinction Prevention Program, Oahu
Clark, Michelle 02/16/11 U.S. FWS, Partners Program, Kauai
Duvall, Fern 02/16/11 Hawaii Division of Forestry and Wildlife, Maui
Fay, Kerri 02/16/11 The Nature Conservancy, Maui
Garnett, Bill 02/16/11 National Park Service, Kalaupapa, Molokai
Haus, Bill 02/16/11 National Park Service, Haleakala NP, Maui
Higashino, Jennifer 02/16/11 U.S. FWS, Partners Program, Maui
Imada, Clyde 02/16/11 Bishop Museum, Botany Department
Kawelo, Kapua 02/16/11 U.S. Army, Environmental Division
McDowell, Wendy 02/16/11 Plant Extinction Prevention Program, Kauai
Medeiros, Arthur 02/16/11 U.S. Geological Survey
Moses, Wailana 02/16/11 The Nature Conservancy, Molokai
Oppenheimer, Hank 02/16/11 Plant Extinction Prevention Program, Maui Nui
Perlman, Steve 02/16/11 National Tropical Botanical Garden
Perry, Lyman 02/16/11 Division of Forestry and Wildlife, Hawaii
Pratt, Linda 02/16/11 U.S. Geological Survey, Biological Resources Division
Starr, Forest 02/16/11 U.S. Geological Survey
Stevens, Bryon 02/16/11 DLNR Natural Area Reserves, Maui
Ward, Joe 02/22/11 Puu Kukui Watershed Preserve
Welton, Patti 02/16/11 National Park Service, Haleakala NP, Maui
Wysong, Michael 02/16/11 DLNR Natural Area Reserves, Kauai

The Hawaii Biodiversity and Mapping Program identified this species as critically imperiled (HBMP 2006). Based on the International Union for Conservation of Nature and Natural Resources Red List of Threatened Species, this subspecies is recognized as rare (could be considered at risk) by Wagner et al. (1999b). *Festuca hawaiiensis* is not included in the list of species in Hawaii's 2005 Comprehensive Wildlife Conservation Strategy.

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment:

none

Indicate which State(s) did not provide any information or comment:

Hawaii

State Coordination:

On February 20, 2013, we provided the Hawaii Division of Forestry and Wildlife with copies of our most recent candidate assessments for their review and comment. We received a letter on April 12, 2013, stating that the Hawaii Division of Forestry and Wildlife had no new information concerning this species.

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(FWS) U.S. Fish and Wildlife Service. 2002. Puu Anahulu fuelbreak establishment and maintenance project, scope of work.

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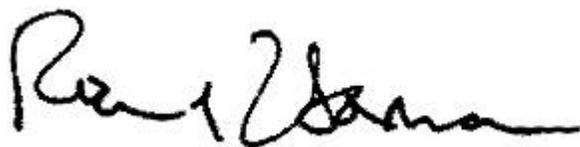
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Approval/Concurrence:

Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes;

the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve:



06/13/2013

Date

Concur:



10/28/2013

Date

Did not concur:

Date

Director's Remarks: