

## **5-YEAR REVIEW**

### Short Form Summary

**Species Reviewed:** *Poa mannii* (Mann's bluegrass)

**Current Classification:** Endangered

#### **Federal Register Notice announcing initiation of this review:**

[USFWS] U.S. Fish and Wildlife Service. 2008. Endangered and threatened wildlife and plants; initiation of 5-year status reviews of 70 species in Idaho, Montana, Oregon, Washington, and the Pacific Islands. Federal Register 73(83):23264-23266.

#### **Lead Region/Field Office:**

Region 1/Pacific Islands Fish and Wildlife Office, Honolulu, Hawaii

#### **Name of Reviewer(s):**

Marie Bruegmann, Pacific Islands Fish and Wildlife Office, Plant Recovery Coordinator  
Marilet A. Zablan, Pacific Islands Fish and Wildlife Office, Assistant Field Supervisor for Endangered Species  
Jeff Newman, Pacific Islands Fish and Wildlife Office, Acting Deputy Field Supervisor

#### **Methodology used to complete this 5-year review:**

This review was conducted by staff of the Pacific Islands Fish and Wildlife Office of the U.S. Fish and Wildlife Service (USFWS), beginning on April 29, 2008. The review was based on the final critical habitat designation for *Poa mannii* and other species from the island of Kauai (USFWS 2003), as well as a review of current, available information. The National Tropical Botanical Garden provided an initial draft of portions of the 5-year review and recommendations for conservation actions needed prior to the next five-year review. The evaluation of Samuel Aruch, biological consultant, was reviewed by the Plant Recovery Coordinator. The document was then reviewed by the Assistant Field Supervisor for Endangered Species and Acting Deputy Field Supervisor before submission to the Field Supervisor for approval.

#### **Background:**

For information regarding the species listing history and other facts, please refer to the Fish and Wildlife Service's Environmental Conservation On-line System (ECOS) database for threatened and endangered species ([http://ecos.fws.gov/tess\\_public](http://ecos.fws.gov/tess_public)).

#### **Application of the 1996 Distinct Population Segment (DPS) Policy:**

This Policy does not apply to plants.

#### **Review Analysis:**

Please refer to the final critical habitat designation for *Kokia kauaiensis* published in the Federal Register on February 23, 2003 (USFWS 2003) for a complete review of the species' status (including biology and habitat), threats, and management efforts. No new threats and no significant new information regarding the species' biological status have come to light since listing to warrant a change in the Federal listing status of *P. mannii*.

When *Poa mannii* was listed in 1994, four populations were known, containing a total of approximately 125 individuals. These were located in the northwestern and north-central regions of the island of Kauai, in Kalalau, Makaha, Koaie, and Waialae Valleys (USFWS 1994). In 2003, when critical habitat was designated, a total of 6 populations with approximately 268 individuals were known. These were in the right and left branches of Kalalau Valley, Awaawapuhi Valley, Kuia Valley, Kauhao Valley, Na Pali Coast State Park-Na Pali-Kona Forest Reserve, and Waimea Canyon State Park (USFWS 2003). From observations between 1991 and 2008, at least 13 populations are now known. Based on observations since 2000, these populations total at least 100 individuals.

In Awaawapuhi Valley in May 1994, *Poa mannii* was seen at 1,067 meters (3,500 feet) elevation over a stream bank on north-facing slopes (Lorence and Flynn 1995; Perlman 2008). *Poa mannii* was seen in Hanakoa Valley in June 2000 at 366 meters (1,200 feet) elevation, and again in 2008. Approximately 30 individuals of *P. mannii* were seen at the end of the main trail, in the back of the valley on the west fork of the stream, on the southeast side, near the waterfall and plunge-pool, along lower seeping walls adjacent to the rushing waterfall at 366 meters (1,200 feet) elevation (National Tropical Botanical Garden 2008; Wood 2009).

Around the Kalalau Valley rim, *Poa mannii* was seen many times between 1991 and 1998 at various locations from 550 to 1,203 meters (1,804 to 3,950 feet) elevation. In June 1996, the species was observed at 335 meters (1,099 feet) elevation, and in May 2004, at 1,128 meters (3,700 feet) elevation (Perlman 2008; Wood 2009). The numbers of individuals were not recorded. On Kauhao Ridge, in Kokee State Park, a clump of *P. mannii* was observed growing near the gauging station and ditch, on north facing mesic forest cliffs at 926 meters (3,040 feet), in March 1991 (Lorence and Flynn 1995; Wood 2009).

In Kawaiula Valley in April 2000, about 30 individual clumps of *Poa mannii* were seen growing in a 100-square-meter (1,020-square-foot) area in rocky mesic drainage with moderately steep slopes at 823 meters (2,700 feet) elevation (Wood 2009).

Along the Koaie River in Waimea Canyon 1 to 2 kilometers (0.62 to 1.2 miles) upstream from Lonomea Shelter, on the southeast side of the river, *Poa mannii* was seen at 540 to 560 meters (1,772 to 1,837 feet) elevation in April 1991 (Lorence and Flynn 1995). *Poa mannii* was seen again in Koaie Canyon in June 2005 (Tangalin 2009). The numbers of individuals were not reported.

In Kuia Valley, in the fall of 1993, *Poa mannii* was seen at 731 meters (2,400 feet) elevation (Perlman 2008; Wood 2009). *Poa mannii* was again seen in 1997, in the Kuia Natural Area Reserve, on north facing slopes at 701 meters (2,300 feet) elevation. In April 2000, about 20 individuals of *P. mannii* were observed at 814 meters (2,670 feet) elevation in Kuia drainage, below the confluence of its upper branches (Wood 2009). Several scattered clumps of *P. mannii* were seen in Mahanaloa Valley in January 1994 and April 1996, at 549 to 610 meters (1,800 to 2,000 feet) elevation (Perlman 2008;

Wood 2009). One hundred individuals were also seen in January 1994 on steep north facing slopes at 671 to 732 meters (2,200 to 2,400 feet) elevation (Wood 2009).

At Makaha Ridge and Makaha Valley in the Puu Ka Pele Forest Reserve, *Poa mannii* was observed between 1988 and 1996, on rock walls in a steep narrow canyon with a seasonal stream at 460 to 549 meters (1,509 to 1,800 feet) elevation (Lorence and Flynn 1995; Perlman 2008; Wood 2009). Twenty individuals were observed in January 1993 at 549 meters (1,800 feet) elevation. Thirty individuals were seen there in November 1994, at 853 to 914 meters (2,800 to 3,000 feet) elevation, and it was also seen in 1995 at 823 to 853 meters (2,700 to 2,800 feet) elevation. In 2007, about 15 individuals of *P. mannii* were observed on steep slopes in the north fork of Makaha's upper drainage at 899 meters (2,950 feet) elevation (Wood 2009).

*Poa mannii* was observed in Nualolo Valley below the trail on the north side at 991 meters (3,250 feet) in December 1994 (Wood 2009). One hundred or more individuals of *P. mannii* were observed in Poomau Canyon in January 1993, up a side stream to the left (Perlman 2008; Wood 2009). *Poa mannii* was observed on a ridge between Waialae and Nawaimaka Valleys, above Waialae Falls, between 950 and 1,050 meters (3,117 and 3,445 feet) in May 1991 (Lorence and Flynn 1995). *Poa mannii* was observed in Waimea Canyon State Park, Kukui Trail, past its junction with Iliau Loop Trail in March 1985, and on the trail below the hunter check-in station at 877 meters (2880 feet) elevation in April 1991 (Lorence and Flynn 1995).

Although described as a perennial, *Poa mannii* appears to die back each year, with few rhizomes surviving to the following year. During this dieback period, several invasive introduced plant species have been noted to overtake its cliff habitat, especially *Erigeron karvinskianus* (daisy fleabane), which can completely cover basalt cliff habitats in short periods of time. Numbers of individuals fluctuate because *P. mannii* is an annual (Wood 2009).

All three native species of *Poa* in the Hawaiian Islands are endemic to the island of Kauai. *Poa mannii* is distinguished from both *Poa siphonoglossa* and *Poa sandvicensis* by its fringed ligule (thin outgrowth where the leaf and leafstalk meet) and from *Poa sandvicensis* by its shorter panicle (a branched cluster of flowers in which the branches have unbranched flowers) branches (USFWS 1994).

*Poa mannii* typically grows on moist vertical cliff faces or dripping, wet rock faces often on northern exposures in partial shade, where it is rare or scattered but occasionally frequent. It grows in lowland or montane diverse mixed mesic, *Metrosideros polymorpha* (ohia), or *Acacia koa* (koa) – *M. polymorpha* forest or shrubland between elevations of 327 and 1,222 meters (1,072 and 4,009 feet) (USFWS 2003).

*Poa mannii* grows in Hanakoa, adjacent to introduced *Aleurites moluccana* (kukui) forest associated with relic mesic vegetation dominated by introduced vegetation, with *Asplenium unilaterale* (pamoho), *Boehmeria grandis* (akolea), *Carex meyenii* (no common name [NCN]), *Deparia cataracticola* (NCN), *Diospyros sandwicensis* (lama),

*Eragrostis variabilis* (kawelu), *Hibiscus kokio* (kokio ula), *Isachne pallens* (NCN), *Kadua affinis* (manono), *K. cookiana* (awiwi), *K. elatior* (awiwi), *Lipochaeta connata* (nehe), *Machaerina angustifolia* (uki), *Munroidendron racemosum* (NCN), *Plantago princeps* var. *longibracteata* (laukahi kuahiwi), *Psydrax odorata* (alahee), *Rauvolfia sandwicensis* (hao), *Selaginella arbuscula* (lepelepe a moa), *Sphenomeris chinensis* (palapalaa), and *Syzygium cumini* (java plum) (National Tropical Botanical Garden 2008).

On Kauhao Ridge, *Poa mannii* grows in mesic forest with *Acacia koa*, *Alphitonia ponderosa* (kauila), *Dubautia latifolia* (koholapehu), *Melicope anisata* (mokihana), *Metrosideros polymorpha*, *Panicum nephelophilum* (konakona), *Pleomele aurea* (hala pepe), *Pouteria sandwicensis* (alaa), *Zanthoxylum dipetalum* (kawau), and *Z. kauaense* (ae) (Wood 2009).

In Kalalau Valley, *Poa mannii* grows on *Metrosideros polymorpha* montane wet and diverse mesic cliffs with associated species including *Artemisia australis* (ahinahina), *Bidens cervicata* (kookoolau), *Boehmeria grandis*, *Carex meyenii*, *C. wahuensis* (NCN), *Chamaesyce remyi* (akoko), *Cheirodendron* sp. (olapa), *Coprosma* sp. (pilo), *Diplazium sandwichianum* (hoio), *Doryopteris decipiens* (kumuniu), *Doryopteris decora* (NCN), *Dryopteris unidentata* (akole), *Dubautia* sp. (naenae), *Eragrostis variabilis*, *Exocarpos luteolus* (heau), *Gouania meyenii* (NCN), *Hibiscadelphus woodii* (hau kuahiwi), *Kadua flynnii* (NCN), *Labordia helleri* (kamakahala), *Lepidium serra* (anaunau), *Lipochaeta connata* var. *acris*, *Lysimachia glutinosa* (NCN), *Lysimachia kalalauensis* (NCN), *Melicope pallida* (alani), *M. puberula* (alani), *Myrsine wawraea* (kolea), *Neraudia* sp. (NCN), *Nototrichium divaricatum* (kului), *Nototrichium sandwicense* (kului), *Panicum lineale* (NCN), *Perrottetia sandwicensis* (olomea), *Peucedanum sandwicensis* (makou), *Plantago princeps* var. *anomala* (laukahi kuahiwi), *Ranunculus mauiensis* (awa Kanaloa), *Remya montgomeryi* (NCN), *Schiedea attenuata* (NCN), *Schiedea membranacea* (NCN), *Stenogyne campanulata* (NCN), *Tetraplasandra waialealae* (NCN), *Touchardia latifolia* (olona), *Wikstroemia* sp. (akia), and *Wilkesia hobdyi* (dwarf iliau) (Perlman 2008; Tangalin 2009; Wood 2009).

*Poa mannii* grows in Kawaiula Valley in *Acacia koa* – *Metrosideros polymorpha* montane mesic forest with patches of diverse mesic forest, with associated species including *Alphitonia ponderosa*, *Alyxia stellata* (maile), *Antidesma platyphyllum* (hame), *Bobea brevipes* (ahakea lau lii), *Bonamia menziesii* (NCN), *Broussaisia arguta* (kanawao), *Carex meyenii*, *Carex wahuensis* subsp. *wahuensis*, *Charpentiera elliptica* (papala), *Cheirodendron trigynum* (olapa), *Coprosma foliosa* (pilo), *C. waimeae* (olena), *Cryptocarya mannii* (holio), *Cyrtandra kauaiensis* (ulunahele), *Deparia marginalis* (NCN), *Dianella sandwicensis* (ukiuki), *Dicranopteris linearis* (uluhe), *Diplazium sandwichianum*, *Doodia kunthiana* (okupukupu), *Dryopteris fusco-atra* (ii), *Dryopteris unidentata*, *Elaeocarpus bifidus* (kalia), *Elaphoglossum crassifolium* (hoe a Maui), *Elaphoglossum paleaceum* (makue), *Eragrostis variabilis*, *Exocarpos luteolus* (heau), *Freycinetia arborea* (ie ie), *Gahnia beecheyi* (NCN), *Ilex anomala* (kawau), *Isodendron longifolium* (aupaka), *Joinvillea ascendens* subsp. *ascendens* (ohe), *Kadua knudsenii* (NCN), *Lepisorus thunbergianus* (pakahakaha), *Leptecophylla tameiameiae* (pukiawe),

*Luzula hawaiiensis* var. *hawaiiensis* (Hawaii wood rush), *Lysimachia kalalauensis*, *Melicope anisata*, *M. barbiger* (uahiapele), *M. clusiifolia* (kukaemoa), *M. ovata* (alani), *Microlepia strigosa* (palapalai), *Myrsine lanaiensis* (kolea), *Nephrolepis exaltata* subsp. *hawaiiensis* (okupukupu), *Nestegis sandwicensis* (olopua), *Peperomia cookiana* (ala ala wai nui), *P. kokeana* (ala ala wai nui), *Perrottetia sandwicensis*, *Pipturus albidus* (mamake), *P. kauaiensis* (mamake), *Pittosporum glabrum* (hoawa), *P. kauaiense* (hoawa), *Pleomele aurea*, *Polypodium pellucidum* (ae lau nui), *Pouteria sandwicensis*, *Pritchardia minor* (loulou), *Psilotum nudum* (moa), *Psychotria greenwelliae* (kopiko), *P. hexandra* (kopiko), *P. hobyi* (kopiko), *P. mariniana* (kopiko), *Psydrax odorata*, *Pteridium aquilinum* var. *decompositum* (kilau), *Pteris irregularis* (mana), *Sadleria cyatheoides* (amau), *S. pallida* (amau ii), *Santalum freycinetianum* (iliahi), *Scaevola procera* (naupaka kuahiwi), *Selaginella arbuscula*, *Smilax melastomifolia* (pioi), *Streblus pendulinus* (aii), *Syzygium sandwicensis* (ohia ha), *Tetraplasandra kavaiensis* (ohe ohe), *Urera glabra* (opuhe), *Vaccinium dentatum* (ohelo), *Wikstroemia furcata* (akia), *Wilkesia gymnoxiphium* (iliau), *Xylosma hawaiiense* (ae), and *Zanthoxylum dipetalum* (Wood 2009).

In Koaie Valley, associated species include *Alectryon macrococcus* (mahoe), *Bidens cosmoides* (kookoolau), *Cyanea leptostegia* (haha lua), *Dodonaea viscosa* (aalii), *Elaeocarpus bifidus*, *Kadua cordata* subsp. *waimeae* (kopa), *Kadua knudsenii*, *Lobelia yuccoides* (panaunau), *Melicope barbiger*, *M. ovata*, *Pouteria sandwicensis*, *Psychotria greenwelliae*, and *Xylosma hawaiiense* (Perlman 2008; Tangalin 2009).

The mesic valleys of Kuia and Mahanaloa have *Metrosideros polymorpha* – *Acacia koa* montane mesic forest with patches of diverse mesic with *Aleurites moluccana*, *Alphitonia ponderosa*, *Antidesma platyphylla*, *Asplenium aethiopicum* (iwa iwa a Kane), *Bidens sandwicensis* (kookoolau), *Carex meyenii*, *Chamaesyce atrococca* (akoko), *Chamaesyce celastroides* var. *hanapepensis* (akoko), *Coprosma waimeae*, *Cyperus hypochlorus* (ahu awa), *Diellia pallida* (NCN), *Diospyros hillebrandii* (lama), *D. sandwicensis*, *Dodonaea viscosa* (aalii), *Doryopteris* sp., *Dryopteris unidentata*, *Elaeocarpus bifidus*, *Eragrostis variabilis*, *Euphorbia haeleleana* (NCN), *Kadua affinis*, *K. knudsenii*, *Kokia kauaiensis* (kokio), *Lepidium serra*, *Lepisorus thunbergianus*, *Leptecophylla tameiameiae*, *Lipochaeta fauriei* (nehe), *Melanthera fauriei* (nehe), *Melicope anisata*, *M. barbiger*, *M. ovata*, *Nesoluma polynesianum* (keahi), *Nestegis sandwicensis*, *Peucedanum sandwicense*, *Pittosporum kauaiensis*, *Pleomele aurea*, *Pipturus albidus*, *Pisonia sandwicensis*, *Pouteria sandwicense*, *Psychotria greenwelliae*, *P. hobyi*, *Schiedea kauaiensis*, *S. membranacea*, *Tetraplasandra kauaiensis*, *T. waimeae*, and *Wikstroemia furcata* (Perlman 2008; Wood 2009).

In Mahanaloa Valley, below Kuia and above the Poopooiki confluence, *Poa mannii* grows in diverse mesic forest with *Delissea kauaiensis* (NCN), *Diellia pallida*, *Diospyros* sp., *Euphorbia haeleleana*, *Flueggea neowawraea* (mehamehame), *Isodendron laurifolium*, *Kokia kauaiensis*, *Melanthera fauriei*, *Morinda trimera* (noni kuahiwi), *Pouteria sandwicensis*, *Psychotria* spp., and *Pteralyxia kauaiensis* (Wood 2009).

In Makaha Valley, *Poa mannii* occurs in *Eragrostis* lowland dry shrub vegetation and *Acacia koa* – *Metrosideros polymorpha* mesic forest with associated species including *Artemisia* sp., *Antidesma* sp., *Alphitonia* sp., *Alyxia stellata*, *Bidens* spp., *Carex* spp., *Chamaesyce atrococca*, *C. halemanui*, *Coprosma* spp. (pilo), *Cyrtandra wawrae* (haiwale), *Cystopteris douglasii*, *Dianella sandwicensis*, *Diellia pallida*, *Dodonaea viscosa*, *Doodia* sp., *Dryopteris unidentata*, *Doryopteris decipiens*, *Lepidium serra*, *Leptecophylla tameiameia*, *Panicum nephelophilum*, *Pisonia sandwicensis*, *Psychotria mariniana*, *Remya kauaiensis* (NCN), *Schiedea nuttallii* (NCN), *Tetraplasandra kawaiensis*, *Wilkesia gymnoxiphium*, and *Zanthoxylum dipetalum* (Wood 2009).

On the Nualolo Trail, *Poa mannii* was seen in *Metrosideros polymorpha* – *Acacia koa* montane mesic forest with *Alphitonia ponderosa*, *Eragrostis variabilis*, *Carex* spp., *Claoxylon* (laukea), *Dodonaea viscosa*, *Melicope* spp., *Peucedanum sandwicense*, *Psychotria* spp., *Wilkesia gymnoxiphium*, and *Xylosma* sp. (Wood 2009). *Poa mannii* was seen in Poomau Canyon with *Antidesma platyphyllum*, *Bobea timonioides* (ahakea), *Caesalpinia kawaiensis* (uhiuhi), *Flueggea neowawraea*, *Hibiscus waimeae* (kokio keokeo), *Lepidium serra*, *Lipochaeta connata*, *Nototrichium sandwicensis*, *Peucedanum sandwicense*, and *Tetraplasandra* sp. (Wood 2009). Waimea Canyon cliffs habitat has associated species including *Bidens cosmoides*, *Lepidium serra*, *Melicope barbiger*, *Panicum beecheyi* (NCN), *Panicum nephelophilum*, *Peucedanum sandwicense*, *Schiedea stellarioides* (lauhilihi), and *Schiedea viscosa* (NCN) (Perlman 2008; Tangalin 2009).

Threats to *Poa mannii* include habitat damage and trampling by pigs (*Sus scrofa*) and goats (*Capra hircus*) (Factors A and D), and competition with invasive introduced plant species, especially *Erigeron karvinskianus* and *Lantana camara* (lantana) (Factor E). Other introduced plants which compete with *P. mannii* include *Acanthospermum australe* (spiny-bur), *Adiantum hispidulum* (rough maidenhair fern), *Ageratina riparia* (spreading mist flower), *Ageratum conyzoides* (billy goat weed), *Andropogon glomeratus* (bluestem), *Axonopus fissifolius* (narrow-leaved carpetgrass), *Blechnum appendiculatum* (NCN), *Bromus rigidus* (ripgut grass), *Bryophyllum pinnatum* (airplant), *Carex* sp. (NCN), *Christella dentata* (downy wood fern), *Cyperus meyenianus* (NCN), *Deparia petersenii* (NCN), *Grevillea robusta* (silk oak), *Hedychium gardnerianum* (kahili ginger), *Leucaena leucocephala* (koa haole), *Melinis minutiflora* (molasses grass), *Passiflora tarminiana* (banana poka), *P. ligularis* (sweet granadilla), *Pinus elliotti* (slash pine), *Pluchea carolinensis* (sourbush), *Psidium cattleianum* (strawberry guava), *P. guajava* (common guava), *Rubus argutus* (prickly Florida blackberry), *R. rosifolius* (thimbleberry), *Sacciolepis indica* (Glenwood grass), *Setaria parviflora* (yellow foxtail), *Setaria palmifolia* (palmgrass), and *Schinus terebinthifolius* (Christmas berry) (Factor E). Abundant pig damage was observed in Kawaiula Valley (Factors A and D) (Wood 2009). Landslides are a threat in the steep habitat, especially where goats are active (Factor E). Fire is also a threat in the dry habitats where this species occurs (Factor E). Reduced reproductive vigor and/or extinction from stochastic events due to the small number of existing populations and individuals are also potential threats (Factor E) (Tangalin 2009; USFWS 1994; Wood 2009).

Browsing of *Poa mannii* by feral goats (*Capra hircus*) and mule deer (*Odocoileus*

*hemionus*) was observed (Factor C) (USFWS 1994; Wood 2009), and rats (*Rattus rattus*) are also considered a threat, presumably as seed predators (Factor C) (Wood 2009).

Climate change may also pose a threat to *Poa mannii* (Factors A and E). However, current climate change models do not allow us to predict specifically what those effects, and their extent, would be for this species.

Over 600 seeds are in storage at the National Tropical Botanical Garden. No propagation has been undertaken recently, and no plants are being grown *ex situ* (off site) (National Tropical Botanical Garden 2009).

Stabilizing, downlisting, and delisting objectives are provided in the recovery plan for plants from the island of Kauai (USFWS 1995), based on whether the species is an annual, a short-lived perennial (fewer than 10 years), or a long-lived perennial. *Poa mannii* is a short-lived perennial, and to be considered stable, the taxon must be managed to control threats (*e.g.*, fenced) and be represented in an *ex situ* collection. In addition, a minimum of three populations should be documented on the island of Kauai. Each of these populations must be naturally reproducing and increasing in number, with a minimum of 50 mature individuals per population.

The interim stabilization goals for this species have not been met (see Table 1), as only one population has more than 50 mature individuals and all threats are not being managed. Therefore, *Poa mannii* meets the definition of endangered as it remains in danger of extinction throughout its range.

#### **Recommendations for Future Actions:**

- Collect seed from all populations for genetic storage and reintroduction.
- Establish additional populations within suitable protected habitat.
- Work with Hawaii Division of Forestry and Wildlife and Hawaii State Parks to initiate planning and contribute to implementation of ecosystem-level restoration and management to benefit this species.
- Survey all sites to determine current status of the species.
- Research the life history and reproductive biology of this annual grass to determine the most useful conservation measures that could be undertaken.

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**Table 1. Status of *Poa mannii* from listing through 5-year review.**

<b>Date</b>	<b>No. wild indivs</b>	<b>No. outplanted</b>	<b>Stability Criteria identified in Recovery Plan</b>	<b>Stability Criteria Completed?</b>
1994 (listing)	125	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No
1995 (recovery plan)	135	0	All threats managed in all 3 populations	No
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
2003 (critical habitat)	268	0	All threats managed in all 3 populations	No
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
2009 (5-year review)	>100	0	All threats managed	No
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No

**U.S. FISH AND WILDLIFE SERVICE**  
SIGNATURE PAGE for 5-YEAR REVIEW of *Poa mannii* (Mann's bluegrass)

Pre-1996 DPS listing still considered a listable entity? N/A

**Recommendation resulting from the 5-year review:**

- Delisting
- Reclassify from Endangered to Threatened status
- Reclassify from Threatened to Endangered status
- No Change in listing status

*for* **Field Supervisor, Pacific Islands Fish and Wildlife Office**

  
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Date **AUG 27 2010**