

## 5-YEAR REVIEW

### Short Form Summary

**Species Reviewed:** *Pritchardia schattaueri* (Ioulu)

**Current Classification:** Endangered

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

[USFWS] U.S. Fish and Wildlife Service. 2013. Endangered and threatened wildlife and plants; Initiation of 5-year status reviews of 44 species in Oregon, Hawaii, Guam, and the Northern Mariana Islands. Federal Register 78(24):8185-8187.

**Lead Region/Field Office:**

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

**Name of Reviewer(s):**

Chelsie Javar-Salas, Plant Biologist, PIFWO

Marie Bruegmann, Plant Recovery Coordinator, PIFWO

Kristi Young, Programmatic Deputy Field Supervisor, PIFWO

**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 March 4, 2013. The review was based on a review of current, available information since the last 5-year review for *Pritchardia schattaueri* (USFWS 2009). The evaluation by Chelsie Javar-Salas, Plant Biologist, was reviewed by the Plant Recovery Coordinator. It was subsequently reviewed and approved by the Programmatic Deputy Field Supervisor.

**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 at: [http://ecos.fws.gov/tess\\_public](http://ecos.fws.gov/tess_public).

**Review Analysis:**

Please refer to the previous 5-year review for *Pritchardia schattaueri* published on June 2, 2009 (available at: [http://ecos.fws.gov/docs/five\\_year\\_review/doc2438.pdf](http://ecos.fws.gov/docs/five_year_review/doc2438.pdf)) for a complete review of the species' status, threats, and management efforts. No significant new information regarding the species' biological status has come to light since listing to warrant a change in the Federal listing status of *P. schattaueri*.

This long-lived perennial is endangered and endemic to Hawaii Island (USFWS 1998). The status and trends for *Pritchardia schattaueri* are provided in the tables below.

**New status information:**

- There are 12 wild individuals of *Pritchardia schattaueri* in a single population in South Kona (J. Wagner, Future Forests Nursery, pers. comm. 2015). There are approximately 450 reintroduced individuals at The Nature Conservancy's Kona Hema Preserve (J. Wagner, pers. comm. 2015). Seventeen individuals were

reintroduced into a Natural Area Reserve System on Hawaii Island (Volcano Rare Plant Facility 2013, 2014). The Nature Conservancy (2012) reintroduced 51 individuals of *P. schattaueri* in the Kona Hema Preserve.

- The number of wild individuals has remained stable from the 12 individuals reported in the previous 5-year review. However, the number of reintroduced individuals has increased from 109 individuals reported in the previous 5-year year to 518 individuals in 2015.

#### New threats:

- Climate change destruction or degradation of habitat – Fortini *et al.* (2013) conducted a landscape-based assessment of climate change vulnerability for native plants of Hawaii using high resolution climate change projections. Climate change vulnerability is defined as the relative inability of a species to display the possible responses necessary for persistence under climate change. The assessment by Fortini *et al.* (2013) concluded that *Pritchardia schattaueri* is highly vulnerable to the impacts of climate change. Furthermore, *P. schattaueri* was identified as a species that will have no overlapping area between current and future climate envelope (areas that contain the full range of climate conditions under which the species is known to occur) by 2100. Therefore, additional management actions are needed to conserve this taxon into the future.

#### New management actions:

- Ungulate monitoring and control – The ungulate fence at Kona Hema Preserve was inspected bi-weekly from 2009 to 2012, and monitored for ingress of pigs (*Sus scrofa*) and mouflon sheep (*Ovis musimon*) (The Nature Conservancy 2012).
- Invasive plant monitoring and control – Weed control for *Psidium cattleianum* (strawberry guava), *Anemone hupehensis* (Japanese anemone), *Cenchrus setaceus* (fountain grass), and *Passiflora tarminiana* (banana poka) is ongoing within the Kona Hema Preserve (The Nature Conservancy 2012).
- Captive propagation for genetic storage and reintroduction
  - The Volcano Rare Plant Facility (2013) has two plants growing in their nursery that represents two populations. The Facility propagated eight plants for reintroductions to occur next year. Meanwhile, 13 individuals were reintroduced into a Natural Area Reserve System.
  - In 2014, there were two plants growing in the Volcano Rare Plant Facility (2014) that represented two populations. The Facility propagated four plants for reintroductions this year and additional four plants for reintroductions to occur next year.
  - Waimea Valley (2014) has two trees in their gardens.
- Reintroduction / translocation
  - The Nature Conservancy (2012) reintroduced 51 individuals of *P. schattaueri* in their Kona Hema Preserve.
  - Four individuals were reintroduced in a Natural Area Reserve System on Hawaii Island (State of Hawaii Department of Land and Natural Resources 2014).

#### Synthesis:

Stabilizing, downlisting, and delisting objectives are provided in the Big Island II: addendum to the recovery plan for the Big Island plant cluster (USFWS 1998), based on whether the species is an annual, a short-lived perennial (fewer than 10 years), or a long-lived perennial. *Pritchardia schattaueri* is a long-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* (at other than the plant's natural location, such as a nursery or arboretum) collection. In addition, a minimum of three populations should be documented on the Big Island (Island of Hawaii). Each of these populations must be naturally reproducing and increasing in number, with a minimum of 25 mature individuals per population.

The interim stabilization goals for this species have not been met, as only 12 wild individuals are known and none of the reintroduced individuals are reproductive yet (Table 1). In addition, all threats are not being sufficiently managed throughout all of the populations (Table 2). Therefore, *Pritchardia schattaueri* meets the definition of endangered as it remains in danger of extinction throughout its range.

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

- Surveys / inventories – Survey geographical and historical range for a current assessment of the species' status.
- Captive propagation for genetic storage and reintroduction
  - Continue collection of genetic resources for storage, propagation, and reintroduction into protected suitable habitat within historical range.
  - Evaluate genetic resources currently in storage to determine the need to place additional genetic resources in long-term storage due to this species' vulnerability to climate change.
- Ungulate monitoring and control – Maintain existing exclosures and monitor for potential incursions.
- Invasive plant monitoring and control – Eradicate invasive introduced plants within ungulate exclosures and maintain exclosures free of invasive plants.
- Population viability monitoring and analysis – Monitor wild and outplanted individuals.
- Fire monitoring and control – Develop and implement a fire management plan at the existing exclosure.
- Climate change adaptation strategy – Research the suitability of habitat for reintroducing this species in the future due to the impacts of climate change. Develop a strategy for preventing the extinction of this species if no suitable habitat is predicted in the future.
- Alliance and partnership development – Initiate planning and contribute to implementation of ecosystem-level restoration and management to benefit this taxon.

**Table 1. Status and trends of *Pritchardia schattaueri* from listing through current 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>
1996 (listing)	12	10	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
1998 (recovery plan)	12	56	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
2003 (critical habitat)	12	Unknown	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
2009 (5-yr review)	12	109	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
2015 (5-yr review)	12	518	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	Partially

**Table 2. Threats to *Pritchardia schattaueri* and ongoing conservation efforts.**

<b>Threat</b>	<b>Listing factor</b>	<b>Current Status</b>	<b>Conservation/ Management Efforts</b>
Ungulates – degradation of habitat and herbivory	A, C, D, E	Ongoing	Partially, Kona Hema fenced
Invasive introduced plants	A, E	Ongoing	Partially, weed control occurs at Kona Hema
Residential and commercial development	A	Ongoing	None
Illegal collection of seed for horticultural trade	B	Ongoing	None
Rodent predation or herbivory – rats	C	Ongoing	None
Volcanic activity	E	Ongoing	None
Fire	E	Ongoing	None
Low numbers	E	Ongoing	Partially, captive propagation for genetic storage and reintroduction
Climate change	A, E	Increasing	None

**References:**

See previous 5-year review for a full list of references (USFWS 2009). Only references for new information are provided below.

Fortini, L., J. Price, J. Jacobi, A. Vorsino, J. Burgett, K. Brinck, F. Amidon, S. Miller, S. Gon II, G. Koob, and E. Paxton. 2013. A landscape-based assessment of climate change vulnerability for all native Hawaiian plants. Technical report HCSU-044. Hawaii Cooperative Studies Unit, University of Hawaii at Hilo, Hawaii. 141 pages.

State of Hawaii Department of Land and Natural Resources. 2014. Department of Land and Natural Resources, Division of Forestry and Wildlife, Section 6 final report for plant habitat management, Natural Area Reserves, Hawaii. July 1, 2013 – December 30, 2013. 9 pages. Unpublished.

The Nature Conservancy. 2012. Final progress report, Partners for fish and wildlife program grant, habitat restoration on Kona Hema Preserve. Unpublished report submitted to the U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, Honolulu, Hawaii.

[USFWS] U.S. Fish and Wildlife Service. 1998. Big Island II: Addendum to the recovery plan for the Big Island plant cluster. U.S. Fish and Wildlife Service, Portland, Oregon. 88 pages + appendices.

[USFWS] U.S. Fish and Wildlife Service. 2009. *Pritchardia schattaueri* 5-year review short form summary. Pacific Islands Fish and Wildlife Office, Honolulu, Hawaii. 7 pages.

Volcano Rare Plant Facility. 2013. Report on controlled propagation of listed and candidate species, as designated under the U.S. Endangered Species Act. Unpublished.

Volcano Rare Plant Facility. 2014. Report on controlled propagation of listed and candidate species, as designated under the U.S. Endangered Species Act. Unpublished.

Waimea Valley. 2014. Report on controlled propagation of listed and candidate species, as designated under the U.S. Endangered Species Act. Unpublished.

**Personal communication:**

Wagner, Jill. 2015. Owner and Biological Services Consultant, Future Forests Nursery and Hawaii Forest Initiative. E-mail to Chelsie Javar-Salas, Pacific Islands Fish and Wildlife Office, dated February 14, 2015. Subject: Request for info for 5-year reviews.

**U.S. FISH AND WILDLIFE SERVICE**  
**SIGNATURE PAGE for 5-YEAR REVIEW of *Pritchardia schattaueri* (loulu)**

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

Appropriate Listing/Reclassification Priority Number, if applicable: \_\_\_\_\_

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

Maria M. Buegman

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