

5-YEAR REVIEW

Short Form Summary

Species Reviewed: *Pritchardia hardyi* (Ioulu)

Current Classification: Endangered

Federal Register Notice announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2020. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status reviews for 129 Species in Oregon, Washington, Idaho, Hawaii, Montana, California, and Nevada. Federal Register 85(48): 14240–14243, March 11, 2020.

Lead Region/Field Office:

Interior Region 12/Pacific Islands Fish and Wildlife Office (PIFWO), Honolulu, Hawai‘i

Name of Reviewer:

Cheryl Phillipson, Biologist, PIFWO

Lauren Weisenberger, Plant Recovery Coordinator, PIFWO

Megan Laut, Conservation & Restoration Team Manager, PIFWO

Methodology used to complete this 5-year review:

This review was conducted by staff of the Pacific Islands Fish and Wildlife Office (PIFWO) of the U.S. Fish and Wildlife Service (Service) beginning in October 2021. The review was based on a review of current, available information since the last 5-year review for *Pritchardia hardyi* (USFWS 2017). The evaluation by Cheryl Phillipson, Biologist, was reviewed by Lauren Weisenberger, Plant Recovery Coordinator, and Megan Laut, Conservation and Restoration Team Manager.

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 (<https://ecos.fws.gov/ecp/species/1602>).

Review Analysis:

Please refer to the previous 5-year review for *Pritchardia hardyi* published in the Federal Register on September 17, 2017 (available at http://ecos.fws.gov/docs/five_year_review/doc2495.pdf) for a complete review of the species’ status, threats, management efforts, and references cited. We are not aware of any significant new information regarding the species’ biological status since listing to warrant a change in the Federal listing status of *P. hardyi*.

This long-lived perennial tree in the Arecaceae (palm) family is endangered and is known from the island of Kaua‘i. The status and trends for *Prtichardia hardyi* are provided in the tables below.

New Status Information:

- Currently, there are eight subpopulations in an area of less than 38 mi² (100 km²) totaling 720 wild individuals of *Pritchardia hardyi* on Kaua‘i (Walsh et al. 2021).

New Threats:

- None reported.

New Management Actions:

- Captive propagation for genetic storage and reintroduction—In 2018, the Waimea Valley Arboretum reported storage of 14 plants/seeds representing two founders (Waimea Arboretum 2018).

Table 1. Status and trends of *Pritchardia hardyi* from listing through current 5-year review.

Date	No. wild individuals	No. outplanted	Interim Stabilization Criteria identified by HPPRCC	Interim Stabilization Criteria Completed?
2010 (listing and critical habitat)	300	0	All threats managed in all 3 populations	No
			Complete genetic storage	Partially, seeds in storage
			3 populations with 100 mature individuals each	Partially
2017 (5-year review)	300–500	0	All threats managed in all 3 populations	No
			Complete genetic storage	Partially
			Reproduction (i.e., viable seeds, seedlings) at all 3 populations	Unknown
			3 populations with 100 mature individuals each	No
2022 (5-year review)	720	0	All threats managed in all 3 populations	Partially, one population in enclosure

			Complete genetic storage	Partially, a few individuals in living collections, viability of stored seeds uncertain
			Natural reproduction at all 3 populations	Unknown
			3 populations with 100 mature individuals each	Partially

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

Threat	Listing factor	Current Status	Conservation/ Management Efforts
Destruction and degradation of habitat by feral ungulates	A	Ongoing	None
Established ecosystem altering invasive plant species degradation of habitat and competition	A, E	Ongoing	None
Climate change degradation and destruction of habitat, including hurricanes	A	Ongoing	None
Collection impacts	B	Ongoing	None
Predation and herbivory by rodents	C	Ongoing	Partial, trapping at one enclosure
Invertebrate predation and herbivory	C	Ongoing	Partial, may have some control under greenhouse conditions and for living collections
Inadequacy of existing regulatory mechanisms—lack of adequate hunting and biosecurity legislation	D	Ongoing	None

Synthesis:

Currently, there are approximately 720 wild individuals of *Pritchardia hardyi* on Kaua‘i. A few individuals are planted in living collections with some seed storage reported; however, the viability of seeds is uncertain.

Stabilizing (interim), downlisting, and delisting objectives are provided in the Kaua‘i Islandwide Recovery Plan (USFWS 2021) and have been updated according to the draft

revised recovery objective guidelines developed by the Hawai'i and Pacific Plants Recovery Coordinating Committee (HPPRCC 2011). The HPPRCC identifies an additional initial objective, the Preventing Extinction Stage, in addition to the Interim Stabilization, Delisting, and Downlisting objectives. Furthermore, life history traits such as breeding system, population size fluctuation or decline, and reproduction type (sexual or vegetative), have been included in the calculation of goals for the number of populations and reproducing individuals for each stage. The goals for each stage remain grouped by life span defined as annual, short-lived perennial (fewer than 10 years), or long-lived perennial.

Pritchardia hardyi is a long-lived perennial tree. For interim stabilization, which is the second step in recovering the species, the taxon must be managed to control threats (e.g., fenced) and have 50 individuals (or the total number of individuals if fewer than 50 exist) from each of three populations *adequately* represented in *ex situ* (secured off-site, such as a nursery or seed bank) collections that are well managed. In addition, a minimum of a total of three populations of 100 mature individuals should be documented on Kaua'i where this species now occurs or occurred historically and each of these populations must demonstrate regeneration of seedlings and growth to at least sapling stage for woody species and documented regeneration within each of the target populations.

The interim stabilization goals for *Pritchardia hardyi* have not been met. There are 720 individuals, these occur in only one area of less than 38 mi² (100 km²) (Table 1). There are very few propagative materials in storage or individuals in living collections, and none have been reintroduced (Table 1, Table 2). No wild individuals are fenced and are susceptible to the effects of habitat destruction by feral ungulates. Additional threats are ongoing and impact all populations (Table 2). Therefore, *P. hardyi* meets the definition of Endangered as it remains in danger of extinction throughout its range.

Recommendations for Future Actions:

No new threats and no significant new information regarding the species' biological status have been reported since the last 5-year review in 2017. Thus, the following recommendations for future actions are reiterated or updated for the 5-year review for 2022.

- Surveys and inventories—Continue to survey for populations of *Pritchardia hardyi* in areas of potentially suitable habitat.
- Feral ungulate monitoring and control—Construct and maintain exclosures to protect occurrences against disturbance by feral ungulates.
- Human collection and interaction—Develop and implement effective measures to reduce the threat of theft and illegal seed collection and sales.
- Nonnative invasive plant monitoring and control—Control established ecosystem-altering and competitive nonnative invasive plant species at all populations.
- Climate change adaptation strategy—Research suitability of habitat for viability of species, including where to conduct translocations in the future due to impacts of climate change.

- Rodent predation and herbivory control—Implement effective control measures for rats at all populations.
- Invertebrate predation and herbivory control—Study infestation of *P. hardyi* by the banana moth (*Opogona sacchari*) to determine level of threat from this invertebrate and effective control measures.
- Captive propagation for genetic storage and reintroduction—Continue collection and propagation efforts for maintenance of genetic stock.
- Reintroduction and augmentation—Reintroduce individuals into protected suitable habitat that is being managed for known threats to this species.
- Build resiliency and redundancy—Increase numbers of individuals and populations through historic range to reduce impacts of stochastic events and climate change, for example.
- Population biology research—Study *P. hardyi* populations to determine viable population size and structure, geographical distribution, flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, limiting factors, and threats.
- Seed storage research—Continue research regarding the best seed storage methods for long-term seed viability.
- Alliance and partnership development—Continue to work with partners and other land managers in planning and implementation of ecosystem-level restoration and management to benefit this species.

References:

[HPPRCC] Hawai‘i and Pacific Plants Recovery Coordinating Committee. 2011. Revised recovery objective guidelines. 8 pp.

[USFWS] U.S. Fish and Wildlife Service. 2017. *Pritchardia hardyi* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI. https://ecos.fws.gov/docs/five_year_review/doc2495.pdf.

[USFWS] 2020. Endangered and threatened wildlife and plants; initiation of 5-year status reviews for 129 Species in Oregon, Washington, Idaho, Hawaii, Montana, California, and Nevada. Federal Register 85(48): 14240–14243, March 11, 2020.

[USFWS] 2021. Kaua‘i Islandwide Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR. 65 pp. + appendices.

Waimea Arboretum. 2018. Report on controlled propagation of listed species, as designated under the U.S. Endangered Species Act. Unpublished report submitted to the U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, Honolulu, Hawai‘i.

Walsh, S., B. Nyberg, and K. Wood. 2021. *Pritchardia hardyi*. The IUCN Red List of Threatened Species 2021: e.T38646A83787564. <https://dx.doi.org/10.2305/IUCN.UK.2021-1.RLTS.T38646A83787564.en>.

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SIGNATURE PAGE for 5-YEAR REVIEW of *Pritchardia hardyi*
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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
- X No Change in listing status

For Field Supervisor, Pacific Islands Fish and Wildlife Office

Date _____