

## 5-YEAR REVIEW

Short Form Summary

**Species Reviewed:** *Pritchardia napaliensis* (Loulou)

**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:**

Daniel Adamski, 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 napaliensis* (USFWS 2017). The evaluation by Daniel Adamski, 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/7991>).

### **Review Analysis:**

Please refer to the previous 5-year reviews for *Pritchardia napaliensis* published in the Federal Register on August 27, 2010 (available at [https://ecos.fws.gov/docs/tess/species\\_nonpublish/1625.pdf](https://ecos.fws.gov/docs/tess/species_nonpublish/1625.pdf)) and September 18, 2017 (available at [https://ecos.fws.gov/docs/tess/species\\_nonpublish/2496.pdf](https://ecos.fws.gov/docs/tess/species_nonpublish/2496.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. napaliensis*.

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

#### New Status Information:

- At the time of the last 5-year review in 2017 there were four populations totaling approximately 110 individuals on Kaua‘i (USFWS 2017). Currently, there are 6 populations with an estimated 255 individuals, the largest population with 75 individuals (Walsh et. al. 2021). Recent monitoring conducted by the National Tropical Botanical Garden (NTBG) confirmed one healthy tree in each of two populations located in Hono a Na Pali Natural Area Reserve (NTBG 2020).

#### New Threats:

- This species is vulnerable to landslides, as well as direct competition from non-native species such as *Ageratina riparia*, *Ageratum conyzoides*, *Andropogon glomeratus*, *A. virginicus*, *Axonopus fissifolius*, *Buddleia asiatica*, *Clidemia hirta*, *Cyperus meyenianus*, *Ehrharta stipoides*, *Erechtites valerianifolia*, *Erigeron karvinskianus*, *Hedychium gardnerianum*, *Kalanchoe pinnata*, *Lantana camara*, *Melinis minutiflora*, *Paspalum conjugatum*, *Rubus argutus*, *R. rosifolius*, *Sacciolepis indica*, and *Sphaeropteris cooperi* (Walsh et. al. 2021).

#### New Management Actions:

- Monitoring and surveys—NTBG and the Plant Extinction Prevention Program (PEPP) survey and monitor wild and reintroduced populations of *Pritchardia napaliensis* on Kaua‘i (Perlman and Williams 2014; NTBG 2020).
- Collection and propagation for genetic storage and reintroduction—
  - Kaua‘i Nursery reports 1 individual plant in cultivation (Kaua‘i Nursery 2021).
  - Limahuli Garden reports seed collections from 2 individual plants in 2021 (Nagendra et. al. 2021).
  - National Tropical Botanical Garden (NTBG) reports 301 seeds in storage from 7 founders (NTBG 2020). In addition, NTBG reports 63 plants planted in 2019 at Limahuli Garden (NTBG 2020).
  - Waimea Valley Garden (WVG) reports 3 individual plants in cultivated in living collection (WVG 2021).
- Reintroduction—
  - NTBG reports one individual outplanted at Upper Limahuli Preserve (NTBG 2020).

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

<b>Date</b>	<b>No. wild individuals</b>	<b>No. outplanted</b>	<b>Stability Criteria identified in Recovery Plan</b>	<b>Stability Criteria Completed?</b>
1996 (listing)	<90	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 25 mature individuals each	No
1998 (recovery plan)	<90	0	All threats managed in all 3 populations	No
			Complete genetic storage	Partially
			3 populations with 25 mature individuals each	No
2003 (critical habitat)	155	0	All threats managed in all 3 populations	No
			Complete genetic storage	Partially
			3 populations with 25 mature individuals each	Partially
2010 (5-year review)	157	0	All threats managed in all 3 populations	No
			Complete genetic storage	Partially
			3 populations with 25 mature individuals each	Partially

<b>Date</b>	<b>No. wild individuals</b>	<b>No. outplanted</b>	<b>*Preventing Extinction Criteria identified by HPPRCC</b>	<b>*Preventing Extinction Criteria Completed?</b>
2017 (5-year review)	110	0	All threats managed in all 3 populations	No
			Reproduction (i.e., viable seeds, seedlings, saplings) at all three populations	Unknown
			Complete genetic storage	Partially
			3 populations with 25 mature individuals each	Partially
2022 (5-year review)	255	1	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			Natural reproduction at all 3 populations	Unknown
			3 populations with 25 mature individuals each	Complete

\* The Preventing Extinction Stage was established in 2011. Prior to 2011, the Interim Stabilization Stage was the first stage towards recovery (now it is the second stage after Preventing Extinction).

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

<b>Threat</b>	<b>Listing factor</b>	<b>Current Status</b>	<b>Conservation/ Management Efforts</b>
Degradation and destruction of habitat by feral ungulates	A	Ongoing	Some individuals provided protection by fencing
Established ecosystem altering invasive plant species degradation of habitat	A	Ongoing	None
Climate change degradation or loss of habitat, including hurricanes	A	Ongoing	None
Degradation and destruction by landslide	A	Ongoing	None
Collecting impacts	B	Ongoing	None
Predation and herbivory by ungulates	C	Ongoing	None
Predation and herbivory by rodents	C	Ongoing	None
Predation and herbivory by invertebrates	C	Ongoing	None
Human disturbance— Illegal collecting, hiking, and trail maintenance impacts	E	Ongoing	None
Reduced viability due to low numbers	E	Ongoing	Partial, propagation and seed storage efforts are ongoing

**Synthesis:**

Currently there are approximately 255 wild individuals of *Pritchardia napaliensis* on Kaua‘i.

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 napaliensis* is a long-lived perennial palm tree. To prevent extinction, which is the first milestone 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 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 should be documented on Kaua‘i where they now occur or occurred historically and each of these populations must be naturally reproducing (i.e., viable seeds and seedlings), with a minimum of 25 mature, reproducing individuals per population.

The preventing extinction goals for this species have not been met. Genetic storage is not complete (Table 1), it is unknown if populations contain reproducing individuals, and all threats are not being managed (Table 1, Table 2). Therefore, *Pritchardia napaliensis* meets the definition of Endangered as it remains in danger of extinction throughout its range.

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

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

- Surveys and inventories—
  - Survey for populations of *Pritchardia napaliensis* in areas of potentially suitable habitat.
  - Determine if historical population is extirpated.
  - Determine sites that have the highest likelihood of maintaining reintroductions.
- Ungulate monitoring and control—Protect all occurrences against browsing and disturbances from feral ungulates. Construct and maintain fenced exclosures around existing populations to prevent imminent extinction.
- Invasive nonnative plant monitoring and control—Control established ecosystem-altering nonnative invasive plant species, and those that compete with *P. napaliensis*.
- Human interaction monitoring and management—Develop and implement effective measures to reduce the threat of collecting.
- Site and habitat protection—Develop and implement effective control measures to reduce the impact of ungulates.
- Predator and herbivore monitoring and control—Determine and implement effective control methods for rodents.
- Fire prevention and control—Continue to develop and implement fire prevention management plans.
- Climate change adaptation strategy—Research suitability of habitat for reintroduction of this species in the future due to the impacts of climate change, including landslides.

- Captive propagation for genetic storage and reintroduction—Establish collection and propagation efforts for maintenance of genetic stock and for reintroduction.
- Reintroduction and translocation—Reintroduce individuals into suitable habitat within historic range that is being managed for known threats to this species to build resiliency and redundancy to reduce impacts of stochastic events.
- Population biology research—
  - Determine which species may act as pollinators and which may assist with fruit dispersal.
  - Conduct genetic studies to determine genetic variation within the population and plan an effective breeding program.
- 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.

Kaua‘i Nursery. 2021. 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.

Nagendra, U., M. Kahokuloa, Jr., and S. Umetsu. 2021. Limahuli Preserve rare plant conservation collections and habitat restoration project, National Tropical Botanical Garden, FWS Agreement #F18AC00508, October 1, 2020-September 30, 2021. 21 pp.

[NTBG] National Tropical Botanical Garden. 2020. NTBG database herbarium specimen detail for *Pritchardia napaliensis*. Voucher number 084853, 2 JUNE 2020.

[NTBG] 2020. 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.

Perlman, S., and A. Williams. 2014. Hawai‘i Rare Plant Restoration Group (HRPRG) Field Data Form in PEPP 2019: Plant Extinction Prevention Program, FY 2019 Annual Report (Oct 1, 2018-Sep 30, 2019), USFWS CFDA Program #15.657, Endangered Species Conservation-Recovery Implementation Funds, Coop Agreement F18AC00502, December 26, 2019, UH Mānoa, PCSU, PEPP. 192 pp. + appendices. BioPacifica database record for *Pritchardia napaliensis*, Pacific Islands Fish and Wildlife Office.

- [USFWS] U.S. Fish and Wildlife Service. 2010. *Pritchardia napaliensis* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI. [https://ecos.fws.gov/docs/five\\_year\\_review/doc1625.pdf](https://ecos.fws.gov/docs/five_year_review/doc1625.pdf).
- [USFWS] 2017. *Pritchardia napaliensis* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI. [https://ecos.fws.gov/docs/five\\_year\\_review/doc2496.pdf](https://ecos.fws.gov/docs/five_year_review/doc2496.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.
- Walsh, S., B. Nyberg, M. Opgenorth, and K. Wood. 2021. *Pritchardia napaliensis*. The IUCN Red List of Threatened Species 2021:e.T38651A83787908. <https://dx.doi.org/10.2305/IUCN.UK.2021-1.RLTS.T38651A83787908.en>. Accessed May 5, 2022.
- [WVG] Waimea Valley Garden. 2021. 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.

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SIGNATURE PAGE for 5-YEAR REVIEW of *Pritchardia napaliensis* (Loulou)

**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\_\_\_\_\_