

5-YEAR REVIEW

Short Form Summary

Species Reviewed: *Cyrtandra waiolani* (ha'iwale)

Current Classification: Endangered

Federal Register Notice announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2022. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status reviews for 167 Species in Oregon, Washington, Idaho, Montana, California, Hawaii, Guam, and the Northern Mariana Islands. Federal Register 87(90): 28031–28034, May 10, 2022.

Lead Region/Field Office:

Region 1/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, Recovery Program 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 2023. The review was based on a review of current, available information since the last 5-year review for *Cyrtandra waiolani* (USFWS 2019). The evaluation by Cheryl Phillipson, Biologist, was reviewed by Lauren Weisenberger, Plant Recovery Coordinator, and Megan Laut, Recovery Program 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 (<http://ecos.fws.gov/ecp/species/4440>).

Review Analysis:

Please refer to the previous 5-year review for *Cyrtandra waiolani* published in the Federal Register on August 30, 2019 (available at https://ecos.fws.gov/docs/tess/species_nonpublish/2789.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 *C. waiolani*.

This short-lived perennial shrub in the Gesneriaceae (African violet) family is endangered and is known from the island of O'ahu. The status and trends for *Cyrtandra waiolani* are provided in the tables below.

New Status Information:

- In 2019, two discoveries were reported that were determined not to be *Cyrtandra waiolani* (USFWS 2019). There have been no survey reports for this species since that time and no known individuals.
- Currently, no founders are represented in collections or in propagation.

New Threats:

- None reported.

New Management Actions:

- None reported.

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

Date	No. wild individuals	No. Outplanted	*Preventing Extinction Targets identified by HPPRCC	*Preventing Extinction Targets Completed?
2012 (listing)	0	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No
2019 (5-year review)	0	4	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No
2024 (5-year review)	0	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No

Table 2. Threats to *Cyrtandra waiolani* and ongoing conservation efforts.

Threat	Listing factor	Current Status	Conservation/ Management Efforts
Degradation and destruction of habitat by feral ungulates	A	Ongoing	None
Degradation of habitat by established ecosystem-altering nonnative invasive plants	A	Ongoing	None
Climate change degradation or loss of habitat	A	Ongoing	None
Predation and herbivory by rodents	C	Ongoing	None
Predation and herbivory by invertebrates—Slugs and snails	C	Ongoing	None
Reduced viability due to low numbers	E	Ongoing	None

Synthesis:

Currently, there are no known individuals of *Cyrtandra waiolani* on O‘ahu. Botanists believe this species may be found with more thorough surveys. New genomic research on the Hawaiian *Cyrtandra* is ongoing and may provide more information on this species.

Stabilizing (interim) and preventing extinction targets, and downlisting and delisting criteria are recommended based on 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.

Cyrtandra waiolani is a short-lived perennial shrub. 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 O‘ahu where they now occur or occurred historically and each of these populations must be naturally reproducing (i.e., viable seeds, seedlings) with a minimum of 50 mature, reproducing individuals per population.

The preventing extinction goals for *Cyrtandra waiolani* have not been met. There are no known individuals; however, more surveys are needed in suitable habitat for this species to assess its current status. In addition, there is no genetic material in storage or propagation (Table 1). Threats are not being sufficiently managed throughout the range of the species. Therefore, *Cyrtandra waiolani* 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 2019. Thus, the following recommendations for future actions are updated or reiterated for the 5-year review for 2024.

- Surveys and inventories—Continue to survey for *Cyrtandra waiolani* in historical locations and potentially suitable habitat to assess current status.
- Ungulate monitoring and control—If individuals are discovered, construct and maintain exclosures to protect individuals and habitat from the negative impacts of feral ungulates.
- Invasive nonnative plant monitoring and control— If individuals are discovered, control established ecosystem-altering nonnative invasive plant species and those that compete with *C. waiolani*.
- Climate change adaptation strategy—Research suitability of habitat for viability of the species due to the impacts of climate change.
- Predator and herbivore monitoring and control— If individuals are discovered, determine and implement effective methods for rodents and slugs/snails within the vicinity of all known populations.
- Captive propagation for genetic storage and reintroduction— If individuals are discovered, begin collection and propagation efforts for maintenance of genetic stock and for reintroduction.
- Build resiliency, redundancy, and representation— If individuals are discovered, increase numbers of populations within suitable habitat within historic range that is managed for known threats.
- Alliance and partnership development—Initiate planning and contribute to 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. 2019. *Cyrtandra waiolani* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI. https://ecos.fws.gov/docs/five_year_review/doc/2789.pdf.

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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

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