

5-YEAR REVIEW

Short Form Summary

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

Current Classification: Endangered

Federal Register Notice announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2009. Endangered and threatened wildlife and plants; initiation of 5-year reviews of 103 species in Hawaii. Federal Register 74(49): 11130-11133.

Lead Region/Field Office:

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

Name of Reviewer(s):

Marie Bruegmann, Plant Recovery Coordinator, PIFWO

Jess Newton, Recovery Program Lead, PIFWO

Assistant Field Supervisor for Endangered Species, 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 16, 2009. The review was based on critical habitat non-designation for *Cyrtandra crenata* and other species from the island of Oahu, as well as a review of current, available information. The National Tropical Botanical Garden provided an initial draft of portions of the review and recommendations for conservation actions needed prior to the next five-year review. The evaluation of Tamara Sherrill, biological consultant, was reviewed by the Plant Recovery Coordinator. The document was then reviewed by the Recovery Program Lead and the Assistant Field Supervisor for Endangered Species 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).

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 non-designation for *Cyrtandra crenata* published in the Federal Register on June 17, 2003 (USFWS 2003) for a complete review of the species' status (including biology and habitat), threats, and management efforts.

Cyrtandra crenata was listed as endangered in 1994, although no populations of it were known at that time (USFWS 1994). In the 1998 recovery plan for Oahu species there were still no individuals known (USFWS 1998). In 2003, no critical habitat was

designated because it had not been seen recently in the wild, and no genetic material of the species was known to exist (USFWS 2003).

The type collection of this species, collected in 1941, is deposited in the Bernice P. Bishop Museum Herbarium (Wagner and Herbst 2009). No observations of this species have been made since 1947 (USFWS 1998, 2003). Collections were made from two locations: Waikane and Puu Kaua (C. Imada, Bernice P. Bishop Museum, pers. comm. 2010).

In the manual of flowering plants of Hawaii, Wagner *et al.* (1999) considered *Cyrtandra crenata* a potential hybrid between *C. hawaiiensis* and *C. subumbellata*, as the specimens presented characteristics intermediate between the two species. However, since *C. subumbellata* was not known to occur within the vicinity of the known specimens, the hybrid determination seemed untenable. Since that time, however, *C. subumbellata* has been found in the area, while no additional individuals of *C. crenata* have been found, therefore supporting the idea that *C. crenata* may indeed have been a hybrid (J. Lau, Botanical Consultant, pers. comm. 2010; W. Wagner, Smithsonian Institution, pers. comm. 2010). Wagner and Roalson are currently finalizing a monograph on Hawaiian *Cyrtandra* which should clarify this hybridization issue (W. Wagner, pers. comm. 2010).

Stabilizing, downlisting, and delisting objectives are provided in the recovery plan for plants from the island of Oahu (USFWS 1998), based on whether the species is an annual, a short-lived perennial (fewer than 10 years), or a long-lived perennial. *Cyrtandra crenata* 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* (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 island of Oahu. Each of these populations must be naturally reproducing and increasing in number, with a minimum of 50 mature individuals per population.

Climate change may pose a threat to this species. However, current climate change analyses in the Pacific Islands lack sufficient spatial resolution to make predictions on impacts to this species. The Pacific Islands Climate Change Cooperative has currently funded climate modeling that will help resolve these spatial limitations. We anticipate high spatial resolution climate outputs by 2013.

The interim stabilization goals for this species have not been met (Table 1), as no extant individuals of this species are currently known. Therefore, *Cyrtandra crenata* currently meets the definition of endangered as it remains in danger of extinction throughout its range. This may change once the new monograph is published, if it verifies that this is not a valid species.

Recommendations for Future Actions:

- Once new monograph of the genus is published, consider whether this species should be delisted.

- Survey historic locations to determine the current status of the species.

References:

- [USFWS] U.S. Fish and Wildlife Service. 1994. Endangered and threatened wildlife and plants; endangered status for 11 plant species from the Koolau Mountain Range, island of Oahu, Hawaii. Federal Register 59(59):14482-14493.
- [USFWS] U.S. Fish and Wildlife Service. 1998. Recovery plan for Oahu plants. U.S. Fish and Wildlife Service, Portland, Oregon. 207 pages, plus appendices.
- [USFWS] U.S. Fish and Wildlife Service. 2003. Endangered and threatened wildlife and plants; final designations or nondesignations of critical habitat for 101 plant species from the island of Oahu, Hawaii; final rule. Federal Register 68(116):35949-36406.
- [USFWS] U.S. Fish and Wildlife Service. 2010. Recovery program, rare plant tracking database, species list report. Pacific Islands Fish and Wildlife Office, Honolulu, Hawaii. Unpublished.
- Wagner, W.L., D. Herbst, and S.H. Sohmer. 1999. Manual of the flowering plants of Hawaii, revised edition. University of Hawaii Press, Bishop Museum Press, Honolulu, Hawaii. Special Publication 97. 1,918 pages.
- Wagner, W.L., and D.R. Herbst . 2009. Flora of the Hawaiian Islands. Available online at <<http://botany.si.edu/pacificislandbiodiversity/hawaiianflora/query2.cfm>>. Accessed 9 March 2009.

Personal Communications:

- Imada, Clyde. 2010. Research Botanist, Bernice P. Bishop Museum, Honolulu, Hawaii. E-mail to Marie Brueggemann, USFWS, dated May 19, 2010. Subject: *Cyrtandra crenata*.
- Lau, Joel. 2010. Botanist, Private Consultant, Honolulu, Hawaii. E-mail to Marie Brueggemann, USFWS, dated May 15, 2010. Subject: *Cyrtandra crenata*.
- Wagner, Warren. 2010. Research Botanist and Curator, Chair of Botany, Smithsonian Institution, Washington, DC. E-mail to Marie Brueggemann, USFWS, dated May 15, 2010. Subject: *Cyrtandra crenata*

Table 1. Status of *Cyrtandra crenata* from listing through 5-year review.

Date	No. wild indivs	No. outplanted	Stability Criteria identified in Recovery Plan	Stability Criteria Completed?
1994 (listing)	0	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No
1998 (recovery plan)	0	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No
2003 (critical habitat)	0	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No
2010 (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: no extant individuals are currently known

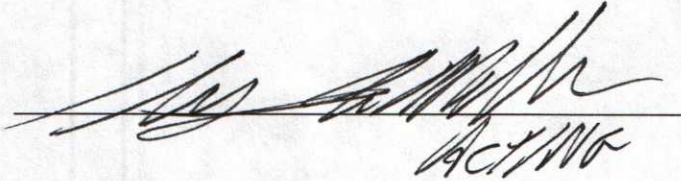
U.S. FISH AND WILDLIFE SERVICE
SIGNATURE PAGE for 5-YEAR REVIEW of *Cyrtandra crenata* (ha'iwale)

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

Field Supervisor, Pacific Islands Fish and Wildlife Office


ACT/MR

Date 8/3/11