5-YEAR REVIEW

Short Form Summary

Species Reviewed: *Clermontia oblongifolia* ssp. *brevipes* (ʻōhā wai)

Current Classification: Endangered

Federal Register Notice announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2021. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status reviews for 77 Species in Oregon, Washington, Idaho, and Hawaii. Federal Register 86(120): 33726–33728, June 25, 2021.

Lead Region/Field Office:

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

Name of Reviewer:

Cheryl Phillipson, Biologist, PIFWO

Lauren Weisenberger, Plant Recovery Coordinator, Acting Recovery 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 2022. The review was based on a review of current, available information since the last 5-year review for *Clermontia oblongifolia* ssp. *brevipes* (USFWS 2018). The evaluation by Cheryl Phillipson, Biologist, was reviewed by Lauren Weisenberger, Plant Recovery Coordinator, and Acting Recovery 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 (*http://ecos.fws.gov/ecp/species/3205*).

Review Analysis:

Please refer to the previous 5-year reviews for *Clermontia oblongifolia* ssp. *brevipes* published in the Federal Register on August 24, 2011, and October 22, 2018 (available at *https://ecos.fws.gov/docs/tess/species_nonpublish/1778.pdf*, and *https://ecos.fws.gov/docs/tess/species_nonpublish/2616.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. oblongifolia* ssp. *brevipes*.

This short-lived perennial shrub in the Campanulaceae (bellflower) family is endangered and is endemic to Molokaʻi. The status and trends for *Clermontia oblongifolia* ssp. *brevipes* are provided in the tables below.

New Status Information:

- In 2018, approximately 90 individuals were known at three locations on Moloka‘i. Later, there were estimated to be 52 mature and 10 immature plants at these three locations. Currently, after helicopter surveys were conducted, more plants were discovered ranging from Kaunuohua to Kalua‘aha (including individuals from Uapa to Kapulei), totaling an estimated 350 wild individuals (Bakutis 2023, pers. comm.). In 2018, there were estimated to be 50 wild individuals at Oloku‘i, but this site has not been revisited. The Moloka‘i Plant Extinction Prevention Program (MoPEPP) monitored a translocated population at Pu‘u Ali‘i Natural Area Reserve (NAR) in 2019, counting seven individuals, and in 2021, an addition of 39 more plants (Coelho 2022).
- At least six founders (maternal lines) from two populations are represented in *ex situ* storage and propagation.

New Threats:

- None reported.

New Management Actions:

- Monitoring and surveys—MoPEPP monitored a translocated population of *Clermontia oblongifolia* ssp. *brevipes* at Pu‘u Ali‘i NAR in 2019; at least 7 of the 25 plants survive (Coelho 2022). MoPEPP also conducted helicopter surveys that aided in the discovery of more individuals ranging from Kaunuohua to Kalua‘aha (including individuals from Uapa to Kapulei), bringing the total to approximately 350 (Bakutis 2023, pers. comm.).
- Collection and propagation for genetic storage and translocation—
  - In 2021, the Lyon Arboretum Micropropagation Laboratory reported storage of 55 explants representing two founders at Kaholoapele and storage of 21 explants representing one founder at Kapulei (Uapa) (Lyon Arboretum 2022).
  - In 2019, the Olinda Rare Plant Facility (ORPF) reported storage of 7 plants representing 4 founders at Uapa and 19 plants representing 2 of those founders were indicated for translocation, location information not provided (ORPF 2019). In 2020, ORPF reported an additional founder at Uapa represented by 12 plants sent out for translocation (location information not provided) with one individual remaining in the nursery (ORPF 2020).
- Translocation and augmentation—In 2021, MoPEPP added 39 more individuals to the translocation site at Puu Aalii Natural Area Reserve (Coelho 2022). Individuals were also translocated to Pelekunu Rim (Bakutis 2023, pers. comm.).

Table 1. Status and trends of *Clermontia oblongifolia* ssp. *brevipes* from listing through current 5-year review.

Date	No. wild individuals	No. outplanted	Stability Criteria identified in Recovery Plan	Stability Criteria Completed?
1992 (listing)	unknown	0	All threats managed in all 3 populations	No

			Complete genetic storage	No
			3 populations with 50 mature individuals each	No
2011 (5-year review)	10	0	All threats managed in all 3 populations	No
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
Date	**No. wild individuals**	**No. outplanted**	***Preventing Extinction Criteria identified by HPPRCC**	***Preventing Extinction Criteria Completed?**
2018 (5-year review)	90	50	All threats managed in all 3 populations	No
			Reproduction (i.e., viable seeds, seedlings, saplings) at all 3 populations	No
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	Partially, 2 populations <100
2023 (5-year review)	ca 400	39 translocated; 46 total remain	All threats managed in all 3 populations	Partially, area fenced
			Complete genetic storage	Partially
			Natural reproduction at all 3 populations	No
			3 populations with 50 mature individuals each	Partially, 1 population >50

* 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 *Clermontia oblongifolia* ssp. *brevipes* and ongoing conservation efforts.

Threat	Listing factor	Current Status	Conservation/ Management Efforts
Degradation and destruction of habitat by feral ungulates	A	Ongoing	Partial, 1 translocated and wild population fenced
Established ecosystem altering invasive plant species degradation of habitat	A	Ongoing	Partial, 2 areas managed
Climate change degradation or loss of habitat	A	Ongoing	None
Predation and herbivory by feral ungulates	C	Ongoing	Partial, 1 translocated and 1 wild population fenced
Predation and herbivory by rats and invertebrates	C	Ongoing	None
Reduced viability due to low numbers	E	Ongoing	Partial, propagation, seed storage, and translocation efforts are ongoing

Synthesis:
When last observed, there were 52 mature and 10 immature wild individuals of *Clermontia oblongifolia* ssp. *brevipes* on Molokaʻi; however, helicopter surveys revealed approximately 350 individuals ranging along the ridge from Kaunuohua to Kaluaʻaha. The population at Olokuʻi has not been recently surveyed. Very few collections, propagation, or translocations are ongoing. Currently, six founders from two locations are reported as represented in collections. There are two translocation sites.

Stabilizing (interim), downlisting, and delisting objectives are provided in the Recovery Plan for the Molokaʻi Plant Cluster (USFWS 1996) and have been updated according to the draft revised recovery objective guidelines developed by the Hawaiʻi 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.

Clermontia oblongifolia ssp. *brevipes* 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 Moloka‘i where they now occur or occurred historically. 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 this species have not been met as; although approximately 350 more individuals were observed, the current status of another population is uncertain (Table 1). Six founders from two locations are in collections or propagated for translocation to two sites. Genetic representation is incomplete and not all threats are being managed (Table 2). Therefore, *Clermontia oblongifolia* ssp. *brevipes* 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 2018. Thus, the following recommendations for future actions are updated or reiterated for the 5-year review for 2023.

- Surveys and monitoring—Continue to survey for additional populations and to assess the current status of known populations of *Clermontia oblongifolia ssp. brevipes* in areas of potentially suitable habitat.
- Ungulate monitoring and control—Construct and maintain exclosures to protect individuals from the negative impacts of habitat destruction and degradation, and herbivory, by feral ungulates.
- Invasive nonnative plant monitoring and control—Control established ecosystem-altering nonnative invasive plant species within and around all wild and translocated populations of *C. oblongifolia* ssp. *brevipes*.
- Climate change adaptation strategy—Assess the modeled effects of climate change on this species to determine future landscape needed for its recovery.
- Predator and herbivore monitoring and control—Implement effective control methods for rodents and invertebrates in the vicinity of all populations.
- Captive propagation for genetic storage and reintroduction—Continue collection and propagation efforts for maintenance of genetic stock and for translocation.
- Reintroduction and translocation—Continue to reintroduce individuals into suitable habitat within historic range that is being managed for known threats to this subspecies.
- Build resiliency, redundancy, and representation—Increase numbers of populations and individuals throughout historic range to reduce impacts of low numbers.
- 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 taxon.

References:

Bakutis, A. 2023, pers. comm. Molokaʻi Plant Extinction Prevention Program updates for plant species endemic to Molokaʻi. 31 MAY 2023.

Coelho, K. 2022. Hawaiʻi Rare Plant Restoration Group (HRPRG) Field Data Form *in* PEPP 2022: Plant Extinction Prevention Program, FY 2022 Annual Report (Oct 1, 2021-Sep 30, 2022), USFWS CFDA Program #15.657, Endangered Species Conservation-Recovery Implementation Funds, Coop Agreement F19AC00532 (Interim Report), December 29, 2022, UH Mānoa, PCSU, PEPP. 50 pp. BioPacifica database record for *Clermontia oblongifolia* ssp*. brevipes*, Pacific Islands Fish and Wildlife Office.

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

Lyon Arboretum. 2022. 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, Hawaiʻi.

[ORPF] Olinda Rare Plant Facility. 2019. 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, Hawaiʻi.

[ORPF] 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, Hawaiʻi.

[USFWS] U.S. Fish and Wildlife Service. 1996. Recovery plan for the Molokaʻi plant cluster (Hawaiʻi). Portland. 143 pp.

[USFWS] 2011. *Clermontia oblongifolia* ssp. *brevipes* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI. *https://ecos.fws.gov/docs/tess/species_nonpublish/1778.pdf.*

[USFWS] 2018. *Clermontia oblongifolia* ssp. *brevipes* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI. *https://ecos.fws.gov/docs/tess/species_nonpublish/2616.pdf*.

[USFWS] 2021. Endangered and Threatened wildlife and plants; initiation of 5-year status reviews for 77 Species in Oregon, Washington, Idaho, and Hawaii. Federal Register 86(120): 33726–33728, June 25, 2021.

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SIGNATURE PAGE for 5-YEAR REVIEW of *Clermontia oblongifolia* ssp. *brevipes*
(ʻōhā wai)

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**

LAUREN WEISENBERGER

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