

5-YEAR REVIEW

Short Form Summary

Species Reviewed: *Schiedea hawaiiensis* (no common name)

Current Classification: Endangered

Federal Register Notice announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2023. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status reviews for 133 Species in Oregon, Washington, Idaho, Montana, California, Hawaii, Guam, and the Northern Mariana Islands . Federal Register 88(56): 17611–17614, March 23, 2023.

Lead Region/Field Office:

Region 1/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, 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 *Schiedea hawaiiensis* (USFWS 2020). The evaluation by Daniel Adamski, 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/2509>).

Review Analysis:

Please refer to the previous 5-year review for *Schiedea hawaiiensis* published in the Federal Register on September 30, 2020 (available at https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3191.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 *Schiedea hawaiiensis*.

This short-lived perennial herb in the Caryophyllaceae (pink) family is endangered and found on the island of Hawai‘i. The status and trends for *Schiedea hawaiiensis* are provided in the tables below.

New Status Information:

- Currently, there are three wild individuals of *Schiedea hawaiiensis* in one location at the Pōhakuloa Training Area (PTA) on the island of Hawai‘i. (U.S. Army Garrison-Hawai‘i [USAG-HI] 2024).
- Currently, there are four founder lines represented in *ex situ* storage and propagation collections, including seeds in seed banks (Lyon Arboretum 2024; USAG-HI 2024).

New Threats:

- None

New Management Actions:

- Monitoring and surveys—Surveys, monitoring, and propagule collection is conducted by The Center for Environmental Management of Military Lands (CEMML) at PTA and by the Plant Extinction Prevention Program (PEPP) in areas outside of PTA (PEPP 2024; USAG-HI 2024).
- Feral ungulate control—CEMML monitors fenced exclosures to exclude ungulates and installed netting over small fences containing wild plants, in order to exclude gamebirds (USAG-HI 2024).
- Control of non-native plants—CEMML control non-native plants within fenced exclosures and reintroduction sites over 1.4 ha (3.5 ac) of habitat at PTA (USAG-HI 2024).
- Predation and herbivory by rats—CEMML control rodents within fenced exclosures and at some reintroduction sites at PTA (USAG-HI 2024).
- Collection and propagation for genetic storage and reintroduction—
 - PTA staff reported 315 seeds in storage representing four wild founders, and over 330,000 seeds in storage from propagated plants (USAG-HI 2024).
 - Lyon Arboretum Seed Conservation Laboratory reports 3,847 seeds in storage from four founder plants (Lyon Arboretum 2024).
- Translocation—Approximately 980 individuals were outplanted at 10 sites in and around PTA from 2002 through 2019. Currently, 105 individual plants remain (45 mature, 60 immature) across five sites. In addition, 25 seedlings were observed at one site in 2023. (USAG-HI 2024).

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

Date	No. wild individuals	No. outplanted	*Preventing Extinction Targets identified by HPPRCC	*Preventing Extinction Targets Completed?
2013 (Listing)	25–40	>150	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
2020 (5-year review)	6 mature, 6 immature	67 (>900 outplanted)	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
2025 (5-year review)	3 Mature	45 mature, 60 immature	All threats managed in all 3 populations	Partially
			Complete Genetic Storage	Partially
			Reproduction (i.e., viable seeds, seedlings, saplings) at all 3 populations	Partially
			3 populations with 50 mature individuals each	No

* 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 *Schiedea hawaiiensis* and ongoing conservation efforts.

Threat	Listing factor	Current Status	Conservation/ Management Efforts
Ungulate destruction and degradation of habitat	A	Ongoing	Partial, fencing at some populations
Established ecosystem altering invasive plant species degradation of habitat	A	Ongoing	Partial, some nonnative plant control within exclosures
Fire degradation and destruction of habitat	A	Ongoing	Partial, fire breaks and non-native plant control
Drought degradation and destruction of habitat	A	Ongoing	None
Climate change loss or degradation of habitat, including hurricanes	A	Ongoing	Partial, reintroduction ongoing
Ungulate predation or herbivory	C	Ongoing	Partial, fencing
Predation or herbivory by rats	C	Ongoing	Partial, rodent control at some populations
Herbivory by nonnative game birds	C	Ongoing	Partial, netting installed at some fenced exclosures
Inadequacy of existing regulatory mechanisms	D	Ongoing	Partial, exclosures at wild and reintroduced populations
Low numbers of individuals and populations	E	Ongoing	Partial, seed collection, propagation, and reintroduction ongoing

Synthesis:

Currently there are three wild individuals of *Schiedea hawaiiensis* on the island of Hawai’i. Individuals are provided protection from ungulates by fencing, from gamebird predation by netting, and nonnative plant control. Seed collections, seed storage, propagation, and tranlocations are ongoing.

Stabilizing (interim) and preventing extinction targets, and downlisting, and delisting criteria are provided in the Recovery Plan for 15 Species from the island of Hawai’i (2023). 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.

Schiedea hawaiiensis is a short-lived perennial herb. 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 three populations should be documented on the island of Hawai'i 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 this species have not been met (Table 1). There are only three known wild individuals, all threats are not being managed, and genetic storage is not complete (Table 2). Therefore, *Schiedea hawaiiensis* 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 2020. Thus, the following recommendations for future actions are updated or reiterated for the 5-year review for 2025.

- Surveys and monitoring—
 - Continue to monitor known populations of *Schiedea hawaiiensis* to assess resiliency and make collections.
 - Continue surveys for populations of *Schiedea hawaiiensis* in areas of potentially suitable habitat.
 - Determine suitable locations for reintroductions.
- Ungulate monitoring and control—Maintain fenced enclosures and construct new fences to protect individuals from the negative impacts of browsing by ungulates.
- Invasive nonnative plant monitoring and control—Control established ecosystem-altering nonnative invasive plant species, and those that compete with *Schiedea hawaiiensis*.
- Site and habitat protection—Develop and implement effective control measures to reduce the impacts of destruction by hurricanes, drought, and fire.
- Fire prevention and control—Develop and implement fire prevention management plans.
- Climate change adaptation strategy—Research suitability of habitat for viability of species, including where to conduct translocations in the future due to the impacts of climate change.
- Rodent control—Develop and implement effective strategies to control and reduce rodent predation of *Schiedea hawaiiensis*.
- Game bird control—Determine and implement effective methods control game birds and predation of *Schiedea hawaiiensis*.
- Captive propagation for genetic storage and reintroduction—Continue to maintain collection and propagation efforts for maintenance of genetic stock and for reintroduction.
- Build resiliency, redundancy, and representation—Increase species' viability through habitat restoration, threat control, and reintroduction and translocation into suitable habitat that is being managed for known threats to this species to reduce impacts of reduced viability due to 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 species.

References:

Lyon Arboretum. 2024. 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.

[PEPP] 2024. Plant Extinction Prevention Program FY 2023 annual report Oct 1, 2023-Sep 30, 2024), USFWS CFDA Program #15.657, Endangered Species Conservation-Recovery Implementation Funds, Coop Agreement F14AC00174, December 24, 2016, UH Mānoa, PCSU, PEPP. 56 pp.

[USAG-HI] United States Army Garrison-Hawai‘i. 2024. U.S. Army Garrison Pōhakuloa Training Area Natural Resources Program FY 2022 to FY 2023 Biennial Report. Prepared by Center for Environmental Management of Military Lands, Colorado State University. June 2024. 558pp.

[USFWS] U.S. Fish and Wildlife Service. 2020. *Schiedea hawaiiensis* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI. https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3191.pdf.

[USFWS] 2023. Recovery plan for 15 Species from the island of Hawai‘i. Portland, OR. 85 pp. + appendices.

[USFWS] 2023. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status reviews for 133 Species in Oregon, Washington, Idaho, Montana, California, Hawaii, Guam, and the Northern Mariana Islands. Federal Register 88(56): 17611–17614, March 23, 2023.

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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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