5-YEAR REVIEW

Short Form Summary

Species Reviewed: *Schiedea laui* (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 laui* (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/9248*).

Review Analysis:

Please refer to the previous 5-year review for *Schiedea laui* published in the Federal Register on August 26, 2020 (available at *https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3057.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 laui*.

This short-lived perennial subshrub in the Caryophyllaceae (pink) family is endangered and found on Moloka‘i. The status and trends for *Schiedea laui* are provided in the tables below.

New Status Information:

- Currently, there are 12 wild individuals of *Schiedea laui* in one location at Kamakou Preserve from West Kawela to Hanalilolilo on Molokaʻi. In addition, seedlings were observed at the site during recent monitoring (PEPP 2024).
- Currently, there are 26 founder lines represented in *ex situ* storage and propagation collections, including seeds in seed banks, explants in micropropagation, and plants in a nursery or living collection (National Tropical Botanical Garden [NTGB] 2025; Olinda Rare Plant Facility [ORPF] 2024; Lyon Arboretum 2024).

New Threats:

- None

New Management Actions:

- Monitoring and surveys—PEPP staff monitor wild and reintroduced plants and fences on Molokaʻi (PEPP 2024).
- Control of non-native plants—PEPP staff controls non-native plants within fenced exclosures and reintroduction sites (PEPP 2024).
- Collection and propagation for genetic storage and reintroduction—
    - PEPP staff reported collecting 300 seeds from two founders between 2022 and 2024 (PEPP 2024).
    - Lyon Arboretum Seed Conservation Laboratory reports 12,535 seeds in storage from 20 founder lines (Lyon Arboretum 2024).
    - NTBG reports approximately 450 seeds collected from nine founders between 2001 and 2008; viability is unknown (NTBG 2025).
    - ORPF reports 197 potted plants in a living collection representing nine founders (ORPF 2024).
- Translocation—Approximately 70 individuals remain at seven reintroduction sites that were monitored between 2021 and 2023 (PEPP 2024). ORPF sent out approximately 60 individuals for reintroduction at Hanalilolilo Pipeline Trail in 2023 (ORPF 2024).

Table 1. Status and trends of *Schiedea laui* 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)	24–34	~16	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
2020 (5-year review)	24	~35	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
2025 (5-year review)	12 Mature	~130	All threats managed in all 3 populations	Partially
			Complete Genetic Storage	Yes
			Reproduction (i.e., viable seeds, seedlings, saplings) at all 3 populations	Yes, 14 seedlings at the 1 wild population
			All known populations with 100 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 laui* 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
Degradation and destruction of habitat by landslides, erosion, and flooding	A	Ongoing	None
Climate change loss or degradation of habitat, including hurricanes	A	Ongoing	None
Ungulate predation or herbivory	C	Ongoing	Partial, fencing
Predation or herbivory by rats	C	Ongoing	None
Herbivory by slugs	C	Ongoing	None
Inadequacy of existing regulatory mechanisms	D	Ongoing	None
Established invasive plant species competition	E	Ongoing	Partial, non-native plant control within exclosures
Reduced viability due to low numbers	E	Ongoing	Partial, seed collection, propagation, and translocation ongoing

Synthesis:
Currently there are 12 wild individuals of *Schiedea laui* on Molokaʻi in a single population. Individuals are provided protection from ungulates by fencing, and nonnative plant control. Recruitment is present at the wild population. Seed collections, seed storage, propagation, and translocations are ongoing.

Stabilizing (interim) and preventing extinction targets, and downlisting, and delisting criteria are provided in the Recovery Plan for 44 Species from Maui Nui (Islands of Maui, Molokaʻi, and Lānaʻi) (USFWS 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 laui is a short-lived perennial subshrub. 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, all known populations on Moloka‘i must be naturally reproducing (i.e., viable seeds, seedlings), with a minimum of 100 mature, reproducing individuals per population.

The preventing extinction goals for this species have not been met (Table 1). There are only 12 known wild individuals, all threats are not being managed (Table 2). Therefore, *Schiedea laui* 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 laui* to assess resiliency and make collections.
  - Continue surveys for populations of *Schiedea laui* in areas of potentially suitable habitat.
  - Determine suitable locations for reintroductions.
- Ungulate monitoring and control—Maintain fenced exclosures 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 laui.*
- Site and habitat protection—Develop and implement effective control measures to reduce the impacts of destruction by hurricanes, landslides, erosion, and flooding.
- 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 laui.*
- Invertebrate control—Develop and implement effective strategies to control and reduce slug predation of *Schiedea laui.*
- 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.
- 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 between populations) 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:

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.

[NTBG] National Tropical Botanical Garden. 2025. 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.

[ORPF] Olinda Rare Plant Facility. 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.

[USFWS] U.S. Fish and Wildlife Service. 2020. *Schiedea laui* 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/3057.pdf*.

[USFWS] 2023. Recovery plan for 44 Species from Maui Nui (Islands of Maui, Moloka‘i, and Lāna‘i). Portland, OR. 94 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 Reclassify from Endangered to Threatened status
_____ No Change in listing status

For **Field Supervisor, Pacific Islands Fish and Wildlife Office**

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