

5-YEAR REVIEW

Short Form Summary

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

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, Hawai‘i

Name of Reviewer:

Daniel Adamski, 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 *Schiedea lydgatei* (USFWS 2018). The evaluation by Daniel Adamski, 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/7505>).

Review Analysis:

Please refer to the previous 5-year reviews for *Schiedea lydgatei* published in the Federal Register on September 20, 2011, (available at https://ecos.fws.gov/docs/tess/species_nonpublish/1810.pdf) and October 23, 2018 (available at https://ecos.fws.gov/docs/tess/species_nonpublish/1810.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 *S. lydgatei*.

This short-lived perennial subshrub in the Caryophyllaceae (pink) family is endangered and known from the island of Moloka‘i. The status and trends for *Schiedea lydgatei* are provided in the tables below.

New Status Information:

- At the time of previous 5-year review in 2018, *Schiedea lydgatei* was known from two populations with an estimated total of more than 1,000 individuals (USFWS 2018). Currently, there are four known populations, three with approximately 1,000 individuals each, and one with approximately 200 individuals, for a total of approximately 3,200 plants (Bakutis, pers. comm. 2023).
- Currently, there are approximately three founder lines represented in *ex situ* storage and propagation collections, including seeds in seed banks and plants in a nursery or living collection.

New Threats:

- None

New Management Actions:

- Monitoring and surveys—The Plant Extinction Prevention Program (PEPP) monitors four populations of *Schiedea lydgatei* on Moloka‘i (Bakutis, pers. comm. 2023).
- Collection and propagation for genetic storage and reintroduction—
 - The Lyon Seed Conservation Laboratory reports 195 seeds in storage from one founder East of Kawela on Moloka‘i (Lyon Arboretum 2022).
 - National Tropical Botanical Garden (NTBG) reports 1,365 seeds in storage representing one founder each from East of Kawela, Makakupa‘ia, and Mākolelau on Moloka‘i, and one plant in cultivation from a founder from East of Kawela (NTBG 2022).

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

Date	No. wild individuals	No. outplanted	Stability Criteria identified in Recovery Plan	Stability Criteria Completed?
1992 (listing)	>8000	0	5–7 populations with 300 individuals each	No
			Populations secure from threats	No
			Populations stable or increasing in numbers for five years	No
2011 (5-year review)	>200	0	5–7 populations with 300 individuals each	No
			Populations secure from threats	No

			Populations stable or increasing in numbers for five years	No
Date	No. wild individuals	No. outplanted	*Preventing Extinction Criteria identified by HPPRCC	*Preventing Extinction Criteria Completed?
2018 (5-year review)	>1,000	0	All threats managed in all 3 populations	No
			Reproduction (i.e., viable seeds, seedlings, saplings) at all X populations	No
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	Partially
2023 (5-year review)	3,200	0	All threats managed in all 3 populations	No
			Reproduction (i.e., viable seeds, seedlings, saplings) at all X populations	Unknown
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	Yes

* 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 lydgatei* and ongoing conservation efforts.

Threat	Listing factor	Current Status	Conservation/ Management Efforts
Degradation and destruction of habitat by feral ungulates	A	Ongoing	Partial, some individuals provided protection by fencing

Established ecosystem altering invasive plant species degradation of habitat	A	Ongoing	Partial, some individuals provided protection by fencing
Climate change degradation or loss of habitat, including hurricanes	A	Ongoing	None
Degradation and destruction by fire	A	Ongoing	None
Predation and herbivory by feral ungulates	C	Ongoing	Partial, some individuals provided protection by fencing
Predation and herbivory by rats	C	Ongoing	None
Predation and herbivory by invertebrates—Slugs, snails, black twig borer	C	Ongoing	None
Reduced viability	E	Ongoing	None

Synthesis:

Currently there are approximately 3,200 wild individuals of *Schiedea lydgatei* on Moloka‘i. Individuals are provided protection by fencing, and seed collections and propagation are ongoing.

Stabilizing (interim), downlisting, and delisting objectives are provided in the Recovery Plan for the Moloka‘i Plant Cluster (USFWS 1996) and have been updated according to 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.

Schiedea lydgatei 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, a minimum of a total of three populations should be documented on Moloka‘i where they now occur or occurred historically and each of these populations must be naturally reproducing (i.e., viable seeds and seedlings) with a minimum of 50 mature, reproducing individuals per population.

The preventing extinction goals for this species have not been met. There are few founders in genetic storage (Table 1), there are populations totaling at least 50 individuals but they are not known to be reproducing, and all threats are not being managed (Table 1, Table 2). Therefore, *Schiedea lydgatei* 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—Monitor all known populations and survey for additional populations of *Schiedea lydgatei* in areas of potentially suitable habitat.
- 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—Continue control of established ecosystem-altering nonnative invasive plant species, and those that compete with *Schiedea lydgatei* within and around all wild populations.
- Fire prevention and control—Develop and implement fire prevention management plans and monitor populations after fire occurrence.
- 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, including increasing temperatures, periods between rain events, and frequency and intensity of hurricanes. Additional management actions may be needed, such as locating microsites that overlap with current and future climate envelopes for translocation efforts.
- Predator and herbivore monitoring and control—Determine and implement effective methods for rodents and slugs around wild populations.
- Captive propagation for genetic storage and reintroduction—Continue 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. Continue reintroduction into suitable habitat that is being managed for known threats to this species to reduce impacts of erosion, treefall, flooding, and hurricanes.
- 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:

[HPPRCC] Hawai'i 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, Hawai‘i.

[NTBG] National Tropical Botanical Garden. 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, Hawai‘i.

[PEPP] 2022. Plant Extinction Prevention Program fiscal year 2022 interim performance report (October 1, 2021-September 30, 2022), Cooperative Agreement F19AC00532 (Interim report), U.S. Fish and Wildlife Service CFDA Program #15.657 Endangered Species Conservation—Recovery Implementation Funds, University of Hawai‘i at Mānoa, Pacific Cooperative Studies Unit, Plant Extinction Prevention Program. 50 pp.

[USFWS] U.S. Fish and Wildlife Service. 1996. Recovery plan for the Moloka‘i plant cluster (Hawai‘i). Portland. 143 pp.

[USFWS] 2011. *Schiedea lydgatei* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI.
https://ecos.fws.gov/docs/tess/species_nonpublish/1810.pdf.

[USFWS] 2018. *Schiedea lydgatei* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI.
https://ecos.fws.gov/docs/tess/species_nonpublish/2661.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.

Personal Communication:

Bakutis, A. 2023. Moloka‘i Coordinator, Plant Extinction Prevention Program, Moloka‘i, Hawai‘i. E-mail to Lauren Weisenberger, U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, dated June 27, 2023. Subject: 5-year review questions for *Schiedea lydgatei*.

U.S. FISH AND WILDLIFE SERVICE

SIGNATURE PAGE for 5-YEAR REVIEW of *Schiedea lydgatei* (no common name)

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

_____ Date _____