

5-YEAR REVIEW

Short Form Summary

Species Reviewed: *Dubautia plantaginea* ssp. *magnifolia* (na‘ena‘e)

Current Classification: Endangered

Federal Register Notice announcing initiation of this review:

[USFWS] U.S. Fish and Wildlife Service. 2020. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status reviews for 129 Species in Oregon, Washington, Idaho, Hawaii, Montana, California, and Nevada. Federal Register 85(48): 14240–14243, March 11, 2020.

Lead Region/Field Office:

Interior Region 12/Pacific Islands Fish and Wildlife Office (PIFWO), Honolulu, Hawai‘i

Name of Reviewer:

Cheryl Phillipson, Biologist, PIFWO

Lauren Weisenberger, Plant Recovery Coordinator, PIFWO

Megan Laut, Conservation & Restoration 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 or USFWS) beginning in October 2021. The review was based on a review of current, available information since the last 5-year review for *Dubautia plantaginea* ssp. *magnifolia* (USFWS 2017). The evaluation by Cheryl Phillipson, Biologist, was reviewed by Lauren Weisenberger, Plant Recovery Coordinator, and Megan Laut, Conservation and Restoration 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 (<https://ecos.fws.gov/ecp/species/1912>).

Review Analysis:

Please refer to the previous 5-year review for *Dubautia plantaginea* ssp. *magnifolia* published in the Federal Register on September 13, 2017 (available at https://ecos.fws.gov/docs/tess/species_nonpublish/2437.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 *D. plantaginea* ssp. *magnifolia*.

This short-lived perennial shrub in the Asteraceae (sunflower) family is listed as endangered and is known from the island of Kaua‘i. The status and trends for *Dubautia plantaginea* ssp. *magnifolia* are provided in the tables below.

New Status Information:

- In 2016, there were estimated to be 260 mature individuals of *Dubautia plantaginea* ssp. *magnifolia* in four scattered subpopulations on Kaua'i, with the largest population (more than 100 individuals) at Blue Hole (Flynn 2016). Currently, the number of individuals is estimated to be the same (Wood 2022, in litt.). However, observations of only one individual have been reported since the 2016 estimate (NTBG 2019). There are currently five founders represented in seed storage at NTBG; three from Wailua collected in 2008 and two from Blue Hole collected in 2014 (NTBG 2021).

New Threats:

- None reported.

New Management Actions:

- Surveys and inventories—In 2019, the National Tropical Botanical Garden (NTBG) recorded an observation of one individual of *Dubautia plantaginea* ssp. *magnifolia* in the upper Limahuli Preserve (NTBG 2019).

Table 1. Status and trends of *Dubautia plantaginea* ssp. *magnifolia* from listing through current 5-year review.

Date	No. wild individuals	No. outplanted	*Preventing Extinction Criteria identified by HPPRCC	*Preventing Extinction Criteria Completed?
2010 (listing and critical habitat)	100	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 100 mature individuals each	No
2017 (5-year review)	260	13	All threats managed in all 3 populations	No
			Complete genetic storage	Partially
			Reproduction (i.e., viable seeds, seedlings) at all 3 populations	Unknown

			3 populations with 100 mature individuals each	Partially, 1 population >100 mature individuals at Blue Hole
2022 (5-year review)	ca 260	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			Natural reproduction at all 3 populations	Unknown
			3 populations with 100 mature individuals each	Partially, 1 population ca 100 mature individuals

* 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 *Dubautia plantaginea* ssp. *magnifolia* and ongoing conservation efforts.

Threat	Listing factor	Current Status	Conservation/ Management Efforts
Degradation and destruction of habitat by feral ungulates	A	Ongoing	None
Established ecosystem altering invasive plant species degradation of habitat and competition	A, E	Ongoing	None
Landslides and flooding destruction and degradation of habitat	A	Ongoing	None
Climate change degradation and destruction of habitat, including hurricanes	A	Ongoing	None
Predation and herbivory by rodents	C	Ongoing	None
Inadequacy of existing regulatory mechanisms—lack of adequate hunting and biosecurity legislation	D	Ongoing	None
Reduced viability due to low numbers	E	Ongoing	Partial, 2 living collections

Synthesis:

Currently there are approximately 260 wild individuals of *Dubautia plantaginea* ssp. *magnifolia* on Kaua‘i. NTBG monitors one wild population and has established two living collections.

Stabilizing (interim), downlisting, and delisting objectives are provided in the Kaua‘i Islandwide Recovery Plan (USFWS 2021) 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.

Dubautia plantaginea ssp. *magnifolia* is a short-lived perennial shrub and an obligate outcrosser. 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 Kaua‘i where this species now occurs or occurred historically and each of these populations must be naturally reproducing (i.e., viable seeds, seedlings) with a minimum of 100 mature, reproducing individuals per population.

The preventing extinction goals for *Dubautia plantaginea* ssp. *magnifolia* have not been met. There were only 260 individuals in 2016 with an opportunistic observation of one individual in 2019 (Table 1). There are only five founders represented in genetic storage and propagation (Table 1, Table 2). Not all threats are being addressed. Therefore, *D. plantaginea* ssp. *magnifolia* meets the definition of Endangered as it remains in danger of extinction throughout its range.

Recommendations for Future Actions:

No new threats and no significant new information regarding the species’ biological status have been reported since the last 5-year review in 2017. Thus, the following recommendations for future actions are reiterated or updated for the 5-year review for 2022.

- Surveys and inventories—Survey suitable habitat in current and historical range for individuals of *Dubautia plantaginea* ssp. *magnifolia* and continue to monitor known occurrences.
- Ungulate monitoring and control—Construct and maintain exclosures or strategic fencing to protect all occurrences from habitat disturbance by feral ungulates.

- Nonnative invasive plant monitoring and control—Control established ecosystem-altering nonnative invasive plant species at all populations of *D. plantaginea* ssp. *Magnifolia*.
- Climate change adaptation strategy—Research suitability of habitat for viability of species, including where to conduct translocations in the future due to impacts of climate change.
- Rodent control—Implement effective control methods for rats.
- Captive propagation for genetic storage and reintroduction—Collect seeds and propagative materials for storage and for maintenance of genetic stock.
- Reintroduction and augmentation—Augment wild populations and establish new populations within protected and managed suitable habitat.
- Build resiliency and redundancy—Increase numbers of individuals and populations through historical range to reduce impacts of landslides, hurricanes, and low numbers.
- Population biology research—Study *Dubautia plantaginea* ssp. *magnifolia* populations to determine viable population size and structure, geographical distribution, flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, limiting factors, and threats.
- 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:

- Flynn, T. 2016. *Dubautia plantaginea* subsp. *magnifolia*. The IUCN Red List of Threatened Species 2016: e.T80087527A115499731.
<http://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T80087527A80087606.en>.
- [HPPRCC] Hawai‘i and Pacific Plants Recovery Coordinating Committee. 2011. Revised recovery objective guidelines. 8 pp.
- [NTBG] National Tropical Botanical Garden. 2019. NTBG database herbarium record detail for *Dubautia plantaginea* ssp. *magnifolia*, PTBG1000068915, 080518, upper Limahuli Preserve, Wainiha side, one individual, 20 SEP 2019.
- [NTBG] 2021. 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
- [USFWS] 2017. *Dubautia plantaginea* ssp. *magnifolia* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI.
https://ecos.fws.gov/docs/tess/species_nonpublish/2437.pdf.
- [USFWS] 2020. Endangered and threatened wildlife and plants; initiation of 5-year status reviews for 129 Species in Oregon, Washington, Idaho, Hawaii, Montana, California, and Nevada. Federal Register 85(48): 14240–14243, March 11, 2020.

[USFWS] 2021. Kaua'i Islandwide Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR. 65 pp. + appendices.

Wood, K. 2022, in litt., Email regarding estimates for listed species, non-PEP, on Kaua'i, 11 MAR 2022.

U.S. FISH AND WILDLIFE SERVICE
SIGNATURE PAGE for 5-YEAR REVIEW of *Dubautia plantaginea* ssp. *magnifolia*
(na'ena'e)

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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