

5-YEAR REVIEW

Short Form Summary

Species Reviewed: *Acaena exigua* (liliwai)

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, Nevada, Hawaii, Guam, and the Commonwealth of 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:

Cheryl Phillipson, 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 2024. The review was based on a review of current, available information since the last 5-year review for *Acaena exigua* (USFWS 2020). The evaluation by Cheryl Phillipson, 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/7600>).

Review Analysis:

Please refer to the previous 5-year reviews for *Acaena exigua* published in the Federal Register on July 29, 2009; March 11, 2014; and March 2, 2020 (available at https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/1426.pdf; https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2177.pdf; and https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2947.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 *Acaena exigua*.

This short-lived small perennial tufted herb in the Rosaceae (rose) family is endangered and is known from Maui and Kaua‘i. The status and trends for *Acaena exigua* are provided in the tables below.

New Status Information:

- Currently, there are no known wild and no reintroduced individuals of *Acaena exigua* on Maui or Kaua‘i.

New Threats:

- None reported.

New Management Actions:

- Monitoring and surveys—The O‘ahu Plant Extinction Protection Program (PEPP) may survey for occurrences of *Acaena exigua* within historic habitat opportunistically as this species is on their species list for monitoring (PEPP 2024).
- Ungulate monitoring and management—The area in which plants occurred on Kaua‘i, last observed in 1860, is protected by strategic fencing at the Alaka‘i Summit Plateau (Wainiha Preserve) (The Nature Conservancy [TNC] 2010). The most recent population at Pu‘u Kukui Watershed Preserve on Maui, where the species was last observed in 2000, is protected from ungulates through strategic fencing, which in addition partial fenced perimeters are stretches of natural barriers, such as cliffs, to exclude ungulates (Maui Land and Pineapple Company, Inc. 2010).
- Invasive nonnative plant management—Some nonnative plant control is conducted within the fenced areas (TNC 2010; Maui Land and Pineapple Company, Inc. 2010).

Table 1. Status and trends of *Acaena exigua* from listing through current 5-year review. Table 1a shows progress according to Interim Stabilization Goals; Table 1b show progress according to Preventing Extinction Goals.

Table 1a.

Date	No. wild individuals	No. Outplanted	Stability Criteria Identified in Recovery Plan	Stability Criteria Completed?
1992 (listing)	0	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No

2009 (5-year review)	1 diminutive plant observed on Maui in 1997–1999 ¹	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No
2014 (5-year review)	0	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No

¹ Wood 2005

Table 1b.

Date	No. wild individuals	No. Outplanted	Preventing Extinction Criteria Identified by HPPRCC*	Preventing Extinction Criteria* Completed?
2020 (5-year review)	0	0	All threats managed in all 6 populations	Partially, areas on Kaua‘i and Maui strategically fenced and managed
			Complete genetic storage	No
			Reproduction (i.e., viable seeds, seedlings) at all 6 populations	No
			6 populations with 50 mature individuals each	No
2025 (5-year review)	0	0	All threats managed in all 6 populations	Partially, areas on Kaua‘i and Maui strategically

				fenced and managed
			Complete genetic storage	No
			Reproduction (i.e., viable seeds, seedlings) at all 6 populations	No
			6 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 *Acaena exigua* and ongoing conservation efforts.

Threat	Listing factor	Current Status	Conservation/ Management Efforts
Degradation and destruction of habitat by feral ungulates	A	Ongoing	Partial, fencing at last known location on Kaua‘i and strategic fencing at last known location on Maui
Established ecosystem altering invasive plant species degradation of habitat	A	Ongoing	Partial, nonnative plant control within fenced areas
Climate change degradation or loss of habitat	A	Ongoing	None
Predation and herbivory by ungulates	A	Ongoing	Partial, fencing at last known location on Kaua‘i and strategic fencing at last known location on Maui
Predation and herbivory by rodents and invertebrates	A	Ongoing	None
Low numbers and loss of mutualists	D	Ongoing	None
Hiking and trail maintenance	E	Ongoing	Partial, limited access

Synthesis:

Currently there are no known wild individuals of *Acaena exigua* on Maui or Kaua‘i. The last known locations of this species are provided protection by exclosures and strategic fencing with some nonnative invasive plant management. Surveys are conducted opportunistically because of concerns regarding disturbance of the sensitive bog habitat and the difficulty of accessing the terrain and remote location. There is no genetic material in storage. However, this species has been rediscovered more than once after

intervals of many decades and suitable habitat still exists within its historical range, indicating that *A. exigua* may still exist.

Preventing extinction, interim stabilization, downlisting, and delisting objectives are provided in the Hawai‘i and Pacific Plants Recovery Coordinating Committee’s Revised Recovery Objective Guidelines (HPPRCC 2011). 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.

Acaena exigua is a short-lived small perennial tufted 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 a total of six populations should be documented on Maui and Kaua‘i where the species 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. *Acaena exigua* has not been observed since 1999–2000, there are no populations totaling 50 reproducing individuals, no materials are in storage or propagation, and all threats are not being managed (Tables 1a, 1b, Table 2). Therefore, *Acaena exigua* 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 survey in previous known locations and areas of suitable habitat on Maui and Kaua‘i.
- Ungulate monitoring and control—Continue to maintain fenced exclosures and strategic fencing to protect suitable habitat from the negative impacts of feral ungulates.
- Invasive nonnative plant monitoring and control—Continue control of established ecosystem-altering nonnative invasive plant species to maintain suitable habitat.
- Climate change adaptation strategy—Assess the modeled effects of climate change on this species and use to determine future landscape needed for the recovery of the species if rediscovered.
- Predator and herbivore monitoring and control—If the species is rediscovered, implement effective controls against predation and herbivory by feral ungulates, rodents, and invertebrates.

- Captive propagation for genetic storage and reintroduction—If the species is rediscovered, collect genetic material for storage and propagation.
- Loss of mutualists—If the species is rediscovered, determine if pollinators are lacking or if other factors are limiting its survival and reproduction.
- Reintroduction and translocation—If the species is rediscovered, propagate and reintroduce individuals into suitable habitat within historic range that is being managed for known threats.
- Build resiliency, redundancy, and representation—If the species is rediscovered, increase species' viability through habitat restoration, threat control, and translocations into suitable habitat that is being managed for known threats.
- Alliance and partnership development—Continue to work with partners 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.

Maui Land and Pineapple Company, Inc. 2010. Pu'u Kukui Watershed Preserve Fiscal Years 2012-2019 Management Plan, Natural Area Partnership Program. Prepared for Division of Forestry and Wildlife, Department of Land and Natural Resources, State of Hawaii. 49 pp.

[PEPP] Plant Extinction Prevention Program. 2024. U.S. Fish and Wildlife Service CFDA Program #15.657, Endangered Species Conservation—Recovery Implementation Funds, Plant Extinction Prevention Program Fiscal Year 2024 Interim Performance Report (October 1, 2023—September 30, 2024). Cooperative Agreements F10AC00532, F22AC02205, F23AC01766. 56 pp.

[TNC] The Nature Conservancy. 2010. Draft environmental assessment for the Wainiha Conservation Project. 98 pp.

[USFWS] U.S. Fish and Wildlife Service. 2009. *Acaena exigua* (liliwai) 5-year review summary and evaluation. Pacific Islands Fish and Wildlife Office, Honolulu. 13 pp. https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/1426.pdf.

[USFWS] 2014. *Acaena exigua* (liliwai) 5-year review summary and evaluation. Pacific Islands Fish and Wildlife Office, Honolulu. 13 pp. https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2177.pdf.

[USFWS] 2020. *Acaena exigua* 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/2947.pdf](https://production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2947.pdf)

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

U.S. FISH AND WILDLIFE SERVICE
SIGNATURE PAGE for 5-YEAR REVIEW of *Acaena exigua* (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
- No Change in listing status

For Field Supervisor, Pacific Islands Fish and Wildlife Office

_____ Date _____