

5-YEAR REVIEW

Short Form Summary

Species Reviewed: *Achyranthes mutica* (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, 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 *Achyranthes mutica* (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/5667>).

Review Analysis:

Please refer to the previous 5-year reviews for *Achyranthes mutica* published in the Federal Register on July 4, 2009; June 25, 2015; and September 28, 2020 (available at https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/1361.pdf; https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2258.pdf; and https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3101.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 *A. mutica*.

This short-lived perennial shrub in the Amaranthaceae (amaranth) family is endangered and is known from the island of Hawai‘i. The status and trends for *Achyranthes mutica* are provided in the tables below.

New Status Information:

- One outplanting site contains numerous healthy plants estimated at 25 to 30 mature individuals, 15 to 20 immature individuals, and approximately 50 seedlings (Keir 2025, pers. comm.). The population appears to be recruiting. The current status of wild individuals at two sites on steep slopes is uncertain and will require access using ropes to reassess (Keir 2025, pers. comm.).

New Threats:

- None reported.

New Management Actions:

- Captive propagation for genetic storage and reintroduction—No new collections or translocations reported since 2019. The Volcano Rare Plant Facility maintains a living collection of 19 plants from three locations representing 8 wild plants (VRPF 2024). Lyon Arboretum Seed Conservation Laboratory maintains a collection of 1,628 seeds from one population (Lyon 2024).

Table 1. Status and trends of *Achyranthes mutica* 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? |
|-----------------------------|----------------------|----------------|--|-------------------------------|
| 1996 (listing) | 20–50 | 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) | 38 | 0 | All threats managed in all 3 populations | Partially |
| | | | Complete genetic storage | Partially |
| | | | 3 populations with 50 mature individuals each | No |

| | | | | |
|-----------------------------|----|----|---|-----------|
| 2015 (5-year review) | 40 | 11 | All threats managed in all 3 populations | Partially |
| | | | Complete genetic storage | Partially |
| | | | 3 populations with 50 mature individuals each | No |

Table 1b.

| Date | No. wild individuals | No. Outplanted | Preventing Extinction Criteria Identified by HPPRCC* | Preventing Extinction Criteria* Completed? |
|-----------------------------|-----------------------------|--|---|---|
| 2020 (5-year review) | ca 140 | 101 | All threats managed in all 3 populations | Partially, one population in enclosure |
| | | | Complete genetic storage | Partially, 8 founders from 2 populations |
| | | | Reproduction (i.e., viable seeds, seedlings) at all 3 populations | Partially, recruitment at 2 wild populations |
| | | | 3 populations with 50 mature individuals each | Partially, 1 wild and 1 reintroduced population >50, maturity unknown |
| 2025 (5-year review) | unknown | 25–30 mature, 15–20 immature remaining | All threats managed in all 3 populations | Partially |
| | | | Complete genetic storage | Partially, at least 8 founders secured |
| | | | Reproduction (i.e., viable seeds, seedlings) at all 3 populations | Reintroduced plants recruiting |

| | | | | |
|--|--|--|---|----------------------------|
| | | | 3 populations with 50 mature individuals each | Partially, ca 1 population |
|--|--|--|---|----------------------------|

*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 *Achyranthes mutica* 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 wild and reintroduced populations |
| Established ecosystem altering invasive plant species degradation of habitat | A | Ongoing | None |
| Degradation and destruction by drought | A | Ongoing | None |
| Degradation and destruction by fire | A | Potential | None |
| Climate change degradation or loss of habitat | A | Ongoing | None |
| Predation and herbivory by ungulates | A | Ongoing | Partial, fencing at wild and reintroduced populations |
| Reduced viability due to low numbers | E | Ongoing | None |
| Human disturbance | E | Ongoing | None |

Synthesis:

Currently the status of wild and reintroduced populations of *Achyranthes mutica* is unknown but numbers may be stable. In 2020, there were approximately 140 mature wild individuals in two populations with observed recruitment. The third population was not monitored. At least one reintroduced population was within an enclosure, and currently there are 25 to 30 mature individuals, 15 to 20 immature individuals, and approximately 50 seedlings observed as recruits. Current records indicate seed collections and propagation are secured.

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.

Achyranthes mutica is a short-lived perennial shrub. 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 the island of Hawai‘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. In 2019, there was one population totaling at least 50 individuals with observed recruitment. One reintroduced population is stable with some recruitment. All threats are not being managed (Tables 1a, 1b, Table 2). Therefore, *Achyranthes mutica* 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 suitable habitat and historical range for a thorough assessment of the species’ status.
- Ungulate monitoring and control—Continue to maintain exclosures to protect individuals from the negative impacts of feral ungulates.
- Invasive nonnative plant monitoring and control—Control of established ecosystem-altering nonnative invasive plant species and those that compete with *Achyranthes mutica* at all populations.
- Fire monitoring and control—Develop and implement a fire management plan for all wild and reintroduced populations.
- 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.
- Captive propagation for genetic storage and reintroduction—Continue collections and propagation efforts for maintenance of genetic stock and for reintroduction.
- Reintroduction and translocation—Continue to reintroduce individuals into suitable habitat within historic range that is being managed for known threats.
- Build resiliency, redundancy, and representation—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.
- Keir, M. Hawai'i Division of Forestry and Wildlife, 2025, pers. comm. 1 MAY 2025.
- 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.
- [USFWS] U.S. Fish and Wildlife Service. 2009. *Achyranthes mutica* (no common name) 5-year review summary and evaluation. Pacific Islands Fish and Wildlife Office, Honolulu. 6 pp. https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/1361.pdf.
- [USFWS] 2015. *Achyranthes mutica* (no common name) 5-year review summary and evaluation. Pacific Islands Fish and Wildlife Office, Honolulu. 7 pp. https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2258.pdf.
- [USFWS] 2020. *Achyranthes mutica* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI. 8 pp. https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3101.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.
- [VRPF] Volcano 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.

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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
- No Change in listing status

For Field Supervisor, Pacific Islands Fish and Wildlife Office

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