# 5-YEAR REVIEW

Short Form Summary

**Species Reviewed**: *Cyanea shipmanii* (hāhā)

**Current Classification**: Endangered

**Federal Register Notice announcing initiation of this review:**

[USFWS] U.S. Fish and Wildlife Service. 2023a. 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 2023. The review was based on a review of current, available information since the last 5-year review for *Cyanea shipmanii* (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 (*https://ecos.fws.gov/ecp/species/3678*).

**Review Analysis:**

Please refer to the previous 5-year reviews for *Cyanea shipmanii* published in the Federal Register on July 21, 2009, August 3, 2015, and September 25, 2020 (available at *https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/1398.pdf*, *https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2272.pdf*, and *https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3109.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 *C. shipmanii*.

This short-lived perennial shrub in the Campanulaceae (bellflower) family is Endangered and occurs on the island of Hawai‘i. The status and trends for *Cyanea shipmanii* are provided in the tables below.

New Status Information:

- Currently, there are three populations at ‘Āinahou/Waiakea Upper, Pi‘ihonua, and Makahanaloa totaling 11 wild individuals of *Cyanea shipmanii*. There are translocated plants in eight locations at Makahanaloa/Hakalau Forest NWR, Pi‘ihonua South, ‘Āinahou/Waiākea Upper, Kūlani/Keauhou (Kīlauea) upper, Kahuku East (including Nīnole and Makakakopumoaula), and Laupāhoehoe (Plant Extinction Prevention Program [PEPP] 2019–2024; USFWS 2023b, p. 63).
- There are 18 wild individuals represented in *ex situ* storage in seed banks and nurseries (Lyon 2025, NPS 2024.

New Threats:

- None reported.

New Management Actions:

- Surveys and monitoring—The Plant Extinction Prevention Program (PEPP) and staff of Hakalau Forest National Wildlife Refuge (Hakalau Forest NWR) and Hawai‘i Volcanoes National Park (HAVO) monitor wild and translocated populations (PEPP 2019–2024; PEPP 2020, pp. 4, 14; PEPP 2022, p. 18; PEPP 2023, pp. 10, 43; USFWS 2023b, pp. 13, 26, 76; National Park Service (NPS) 2023, p. 14).
- Ungulate monitoring and control—
  - In 2024, PEPP reported a 76 to 100 percent success rate of translocated plants at ‘Āinahou and recommended the area be fenced (PEPP 2020, p. 14). Construction was projected to be completed in early 2025 in Upper Waiākea-Kīpuka Unit (DLNR 2023–2024).
  - In 2010, a 20-acre fenced exclosure (Kahuku CCC) was constructed with funds provided by the National Park Service Regional Program Block Grant at the Kahuku Unit (HAVO 2013). This exclosure is currently used for translocations.
- Nonnative invasive plant and rodent control—The State reported threat control objectives of nonnative plant and general rodent control for Hakalau Forest NWR, Pu‘u Maka‘ala NAR-Kūlani, Kahuku CCC exclosure, Waiākea Upper-Kīpuka Unit (Department of Land and Natural Resources [DLNR] 2023–2024, p. 4; PEPP 2022, p. 7; PEPP 2023, p. 10).
- Captive propagation for genetic storage and reintroduction—
  - In 2022, the Hakalau Forest NWR reported propagation of 137 individuals of *Cyanea shipmanii* for the State’s Native Ecosystems Protection & Management program (NEPM) to outplant on adjacent state-protected lands (Ball 2022, p. 8).
  - By 2014, three founder lines of *C. shipmanii* at HAVO (Ka‘ū, Kīpuka Kipimana, and Pu‘u Kīpū) were represented in collections (NPS 2020, p. 12). In 2020, individuals were propagated at the HAVO nursery and seeds were in

storage (NPS 2020, p. 12). In 2021, a total of 513 seeds were in storage (NPS 2021, p. 4). In 2022, fruit were collected and stored from three founders at CCC (NPS 2022, p. 4). In 2025, HAVO reported collection and storage of more than 804,000 seeds representing at least one wild individual each from Kahuku, Waiākea Upper, ʻĀinahou, and Piʻihonua South (HAVO 2025).
    - The State received funding for recovery actions from 2023 through 2024 for five plants endemic to the island of Hawaiʻi and currently have more than 189,000 seeds stored at the Lyon Arboretum Seed Conservation Laboratory representing 15 wild individuals, including extirpated founders (DLNR 2023–2024, p. 1). The State also reported a first-time collection of fruit from a wild individual at Waiākea Upper. A shade house for propagation was completed with plumbing and electricity restored in 2024 (DLNR 2023–2024, p. 12).
    - In 2024, the Volcano Rare Plant Facility (VRPF) reported eight plants in refugia representing five wild individuals at Piʻihonua South and six plants in refugia representing two individuals at Kahuku (Kaʻū) (VRPF 2024).
    - In 2024, Lyon Arboretum reported propagation and storage of 362 explants representing two wild individuals at Kūlani and one individual at Makahanaloa-Hakalau Forest NWR (Lyon Arboretum 2024). The Lyon Seed Conservation Laboratory reported collection and storage of more than 180,000 seeds representing three wild individuals at ʻĀinahou; more than 8,000 seeds representing four reintroduced plants at Keauhou (Kīlauea) upper; more than 3,000 seeds representing one wild individual at Kūlani; more than 7,000 seeds representing two wild individuals at Makahanaloa; more than 500 seeds representing one extirpated wild founder at Makakakopumoaula; more than 208,000 seeds representing seven wild individuals at Piʻihonua South; and more than 110,000 seeds representing four wild individuals at Waiākea Upper (Lyon Arboretum 2024).
- Reintroduction and translocation—
    - In 2021, HAVO reported that five seedlings were planted as a test trial: two sourced from Puʻu Makaʻala and planted at the Kahuku Pasture exclosures; one sourced from Piʻihonua South and planted at the Kahuku Pasture, and two sourced from Piʻihonua South and planted at the CCC exclosure (NPS 2021, pp. 8, 16). In 2022, 75 individuals were translocated to the Kahuku CCC exclosure representing two founders from Piʻihonua South and one founder each at Puʻu Makaʻala, Waiākea Upper, and ʻĀinahou. In addition, another 153 individuals were translocated to the Kahuku Pasture representing the same founders (NPS 2022, p. 8). HAVO reported the outplant survival at the Kahuku CCC exclosure was 64 percent, with 215 surviving from all translocations (NPS 2022, pp. 16–18). By 2024, the survival rate dropped to 46 percent with 70 surviving (NPS 2024, p. 14). No fruits or recruitment is observed at this location (NPS 2023, p. 14).
    - In 2022, the State received funding for plant restoration and enhancement on Hawaii Island and reported translocation of 620 individuals of *C. shipmanii* (DLNR 2022, p. 3). The State received funding for recovery actions from 2023 through 2024 for five plants endemic to the island of Hawaiʻi and currently have translocated 741 individuals of *C. shipmanii* to Laupāhoehoe-

Haʻakoa Unit, Hakalau Forest NWR, Puʻu Makaʻala-Kūlani, Hoʻili Wai-Kaʻu Forest Reserve, and also includes proposed plantings at Nukupahu Unit and Waiākea Upper-Kīpuka (DLNR 2023–2024, p. 5).

- In 2020, the Plant Extinction Prevention Program (PEPP) reported good survival at the largest outplanting sites at Kūlani and ʻĀinahou (PEPP 2020, pp. 4, 14). In 2022, the largest translocated populations at Waiākea Upper and Laupāhoehoe-Haʻakoa reported a success rate of 76 to 100 percent with 361 individuals translocated to those areas (PEPP 2022, pp. 9-10).

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

**Table 1a.**

| Date | No. wild individuals | No. outplanted | Stabilization Criteria Identified in Recovery Plan | Stabilization Criteria Completed? |
|---|---|---|---|---|
| **1994 (listing)** | 1 mature<br>>50 total | 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)** | 4 | 434 | All threats managed in all 3 populations | Partially |
| | | | Complete genetic storage | Partially |
| | | | 3 populations with 50 mature individuals each | No |
| **2015 (5-year review)** | 8, only 1 mature | 763 | All threats managed in all 3 populations | Partially |
| | | | Complete genetic storage | Partially |
| | | | 3 populations with 50 mature individuals each | Partially |

**Table 1b.**

| Date | No. wild individuals | No. outplanted | Preventing Extinction Criteria Identified by HPPRCC* | Preventing Extinction Criteria* Completed? |
|---|---|---|---|---|
| **2020 (5-year review)** | 7 mature<br>6 immature | >520 | All threats managed in all 3 populations | Partially |
| | | | Complete genetic storage | Yes |
| | | | Reproduction (i.e., viable seeds, seedlings) at all 3 populations | Yes |
| | | | 3 populations with 50 mature individuals each | No |
| **2025 (5-year review)** | 11 | <1,335 | All threats managed in all 3 populations | Partially, 7:8 populations fenced, invasive plant & rodent control |
| | | | Complete genetic storage | Yes |
| | | | Natural reproduction at all 3 populations | None reported |
| | | | 3 populations with 50 mature individuals each | No, possibly |

* 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 *Cyanea shipmanii* and ongoing conservation efforts**.

| Threat | Listing factor | Current Status | Conservation/ Management Efforts |
|---|---|---|---|
| Degradation and destruction of habitat and herbivory by feral ungulates | A, C | Ongoing | Partial, populations are fenced |
| Established ecosystem altering invasive plant species degradation of habitat | A | Ongoing | Partial, nonnative invasive plant control at most populations |
| Climate change degradation or loss of habitat | A | Ongoing | None |
| Predation and herbivory by rodents and invertebrates | C | Ongoing | Partial, rodent control for at least 1 population |
| Inadequacy of existing regulatory mechanisms—hunting | D | Ongoing | Partial, 7 out of 8 populations are fenced |
| Reduced viability due to low numbers | E | Ongoing | Partial, collection, propagation, and translocations ongoing |

**Synthesis:**
Currently there are 11 wild individuals of *Cyanea shipmanii* in three populations. Two out of three wild populations are protected from feral ungulates by selective and landscape-scale fencing, and all translocated populations are fenced. All wild founders and at least 50 translocated individuals in eight populations are represented in collections and in propagation. Invasive nonnative plants are controlled within some areas and rodent control is conducted at one area. Overall, translocations are at least 64 percent successful in the first few years.

Interim stabilization targets, and Downlisting and Delisting objectives are provided in the Big Island Plant Cluster Recovery Plan, 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, USFWS 1996). The HPPRCC identifies an additional initial objective, the Preventing Extinction Stage, in addition to the Interim Stabilization, Downlisting, and Delisting 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.

*Cyanea shipmanii* 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 occurs or 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 *Cyanea shipmanii* have not been met. There are 11 known wild individuals remaining that are all represented in collections and translocations. One population of wild plants is not yet protected from feral ungulates by fencing; however, all translocated populations are protected by selective or landscape-scale fencing. At least 50 translocated individuals are represented in collections. The effects of invasive nonnative plants and seed predation and herbivory by rats are only partially addressed (Table 1, Table 2). Fencing must be continuously monitored and maintained. The effects of climate change are not addressed. Although plants produce viable seeds and there have been 1,335 individuals translocated, natural recruitment is not reported. Therefore, *C. shipmanii* 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 assess the status of wild and translocated individuals of *Cyanea shipmanii*.
  - Monitor translocated populations for natural recruitment and determine if any populations greater than 50 individuals are reproducing.
- Ungulate monitoring and control—Continue to maintain exclosures and construct fencing at populations not yet fenced to protect individuals from the negative impacts of feral ungulates.
- Invasive nonnative plant monitoring and control—Control established ecosystem-altering nonnative invasive plant species and those that compete with *C. shipmanii* at all populations.
- Control of predation and herbivory by rats and invertebrates—Implement effective control measures for rats and invertebrates at all populations.
- Captive propagation for genetic storage and reintroduction—
  - Continue collection and propagation efforts and for maintenance of genetic stock and for translocations.
  - Evaluate genetic resources currently in storage to determine the need for additional materials due to this species' high vulnerability to the effects of climate change.

- Translocation and augmentation—Continue to propagate and reintroduce individuals into suitable habitat and augment populations in areas that are being managed for known threats to build resiliency and redundancy.
- Climate change adaptation strategy—Research suitability of habitat in the future due to the impacts of climate change and ensure adequate viable genetic material is stored.
- Alliance and partnership development—Continue to collaborate with partners in planning and implementation of ecosystem-level restoration and management to benefit this species.

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**U.S. FISH AND WILDLIFE SERVICE**
SIGNATURE PAGE for 5-YEAR REVIEW of *Cyanea shipmanii* (hāhā)

**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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