# 5-YEAR REVIEW

Short Form Summary

**Species Reviewed**: *Mucuna persericea* (sea bean)

**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, Hawaii, Guam, and 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:**

Daniel Adamski, 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 *Mucuna sloanei* var. *persericea* (USFWS 2020). The evaluation by Daniel Adamski, 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/9244*).

**Review Analysis:**

Please refer to the previous 5-year review for *Mucuna persericea* published in the Federal Register on September 28, 2020 (available at *https://ecos.fws.gov/docs/tess/species_nonpublish/3116.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 *M. persericea*.

This short-lived perennial vine in the Fabaceae (pea) family, is endangered and is known from Maui. The status and trends for *Mucuna persericea* are provided in the tables below.

New Status Information:

- In 2023, the Service published a list of technical corrections to 50 CFR Part 17 based on published taxonomic revisions (USFWS 2023b). The listed entity *Mucuna sloanei* var. *persericea* was revised to *Mucuna persericea* under section 4 of the Act (16 U.S.C. 1531 *et seq.*) and based on a taxonomic revision focused on herbarium voucher analysis by Moura et al. (2012, entire).
- At the time of the previous 5-year review in 2020, there were an estimated 100–200 individuals across four population areas (Honomāʻele, Makapipi, Piʻinaʻau-Keʻanae Valley, and Honopou). Determining the exact number of individual plants is difficult to ascertain due to the growth habitat of the vines, which tangle together and are difficult to differentiate individual plants; and difficulty in accessing habitat, much of which spreads onto private property and cannot be monitored (Plant Extinction Prevention Program [PEPP] 2024). Between 2022 and 2024, monitoring was conducted at three of the four known population areas (Honomāʻele, Makapipi, Piʻinaʻau-Keʻanae Valley) and plants were observed at all locations. The current estimate remains the same as 2020, with an estimated 100–200 individuals (PEPP 2024).
- There are approximately 12 founder lines represented in *ex situ* storage and propagation collections, including seeds in seed banks and plants in a living collection (Lyon Arboretum 2024; Olinda Rare Plant Facility [ORPF] 2024; National Tropical Botanical Garden [NTBG] 2025).

New Threats:

- None

New Management Actions:

- Monitoring and surveys—PEPP conducts monitoring of individuals of *Mucuna persericea* on Maui (PEPP 2024).
- Ungulate monitoring and control and established ecosystem altering invasive plant species control—Mauna Kahālāwai Watershed Partnership (MKWP) has constructed fences that protect over 31,000 acres of land from feral ungulates and controls nonnative invasive plant species within the fenced area (MKWP 2025).
- Collection and propagation for genetic storage and reintroduction—
    - Lyon Seed Conservation Laboratory reported 4,374 seeds in storage representing 12 founders from Kūhiwa, Makapipi, Honomāʻele, Haneoʻo, Manawaikeae, and Kapiʻa (Lyon Arboretum 2024).
    - NTBG reports 152 seeds in storage representing fives founders, four from Honomāʻele, and one from Kūhiwa (NTBG 2025).
    - ORPF reports two individual plants in a living collection (ORPF 2024).
    - PEPP reported collection from one individual from Honomāʻele in 2024 (PEPP 2024).

**Table 1. Status and trends of *Mucuna persericea* from listing through current 5-year review. Table 1 shows progress according to Preventing Extinction Goals.**

| Date | No. wild individuals | No. Outplanted | Preventing Extinction Goals identified in Recovery Plan | Stability Goals Completed? |
|---|---|---|---|---|
| **2013 (Listing)** | ~ Few hundred | 0 | All threats managed in all 3 populations | None |
| | | | Complete genetic storage | Partially |
| | | | 3 populations with 50 mature individuals each | Partially |
| **2020 (5-year review)** | 100–200 | 0 | All threats managed in all 3 populations | None |
| | | | Complete genetic storage | Partially |
| | | | 3 populations with 50 mature individuals each | Partially |
| 2025 (5-year review) | 100–200 | 0 | All threats managed in all 3 populations | Partially |
| | | | Complete genetic storage | Partially |
| | | | Natural reproduction at all 3 populations | Unknown |
| | | | 3 populations with 50 mature individuals each | Partially |

**Table 2. Threats to *Mucuna persericea* and ongoing conservation efforts**.

| Threat | Listing factor | Current Status | Conservation/ Management Efforts |
|---|---|---|---|
| Agriculture and urban development | A | Ongoing | None |
| Degradation and destruction of habitat by feral ungulates | A | Ongoing | Partial, some individuals within fenced area |
| Established ecosystem altering invasive plant species degradation of habitat | A | Ongoing | None |
| Fire | A | Ongoing | None |
| Stochastic events; hurricanes, Landslides, Treefall | A | Ongoing | None |
| Predation and herbivory by ungulates | C | Ongoing | Partial, Populations within fenced area |
| Disease | C | Potential | None |
| Predation and herbivory by invertebrates—Slugs and Seed borers or weevils | C | Ongoing | None |
| Predation and herbivory by vertebrates—Rats | C | Ongoing | None |
| Inadequate regulatory mechanisms | E | Ongoing | None |
| Human disturbance | E | Ongoing | None |
| Climate change | E | Ongoing | None |

**Synthesis:**
Currently there are approximately 100–200 wild individuals of *Mucuna persericea* on Maui. Some individuals are provided protection by fencing. Plant collections and storage are ongoing.

Stabilizing (interim) and preventing extinction targets, and Downlisting and Delisting criteria are provided in the Recovery Plan for Maui Nui (islands of Maui, Molokaʻi, and Lānaʻi) (USFWS 2023c). 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.

*Mucuna persericea* is a short-lived perennial vine. 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 Maui where they now occur or occurred historically and each of these populations must be naturally reproducing (i.e., viable seeds, seedlings, saplings) with a minimum of 50 mature, reproducing individuals per population.

The preventing extinction goals for this species have not been met. Genetic storage is not complete (Table 1), and all threats are not being managed (Table 1, Table 2), and there are not three reproducing populations. Therefore, *Mucuna persericea* 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 monitor known populations of *Mucuna persericea* to assess resiliency and make collections.
  - Continue surveys for populations of *M. persericea* in areas of potentially suitable habitat.
  - Determine suitable locations for reintroductions.
- Ungulate monitoring and control—Continue to 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 *M. persericea*.
- Site and habitat protection—Develop and implement effective control measures to reduce the impacts of climate change, landslides, treefall, agriculture and urban development, and human disturbance that causes destruction of habitat.
- 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.
- Predator and herbivore monitoring and control—Determine and implement effective methods to control rats, slugs, borers, and weevils.
- Captive propagation for genetic storage and reintroduction—Continue collection and propagation efforts for maintenance of genetic stock and for potential reintroductions in the future.
- Build resiliency, redundancy, and representation—Increase species' viability through habitat restoration, threat control, and reintroduction and translocation into suitable habitat that is being managed for known threats to this species to reduce impacts of reduced viability and hybridization.
- Research—

    - Conduct genetic studies to determine genetic variation within the population (and between populations) and plan an effective breeding program.
    - Determine diseases that may impact population regeneration.
- Alliance and partnership development—Continue to work with partners and other land managers in planning and implementation of ecosystem-level restoration, minimizing the impacts of human disturbance, allowing access for population surveys, and ecosystem management to benefit this species.

**References:**


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.

[MKWP] Mauna Kahālāwai Watershed Partnership. 2025. https://www.maunakahalawai.org/. Accessed 10 JUL 2025.

Moura, M.T., B.M. Torke, V. F. Mansano, A.M.G.A. Tozzi. 2012. A new combination for an endemic Hawaiian species of *Mucuna* (Leguminosae: Papilionoideae), with a key to the Hawaiian taxa of the genus. Kew Bulletin 67, pgs. 837-841.

[NTBG] National Tropical Botanical Garden. 2025. 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.

[ORPF] Olinda Rare Plant Facility. 2025. 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] 2024. Plant Extinction Prevention Program FY 2023 annual report Oct 1, 2023-Sep 30, 2024), USFWS CFDA Program #15.657, Endangered Species Conservation-Recovery Implementation Funds, Coop Agreement F14AC00174, December 24, 2016, UH Mānoa, PCSU, PEPP. 56 pp.

[USFWS] U.S. Fish and Wildlife Service. 2020. *Mucuna sloanei var. persericea* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI. *https://ecos.fws.gov/docs/five_year_review/doc3116.pdf.*

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

[USFWS] 2023b. Endangered and Threatened Wildlife and Plants; Technical Corrections for the 62 Wildlife and Plant Species on the Lists of Endangered and Threatened Wildlife and Plants. Federal Register 88(22): 7134-7177, February 2, 2023.

[USFWS] 2023c. Recovery plan for 44 species from Maui Nui (islands of Maui, Moloka‘i, and Lāna‘i). Portland, Oregon. xv + 90 pages + Appendices.

**U.S. FISH AND WILDLIFE SERVICE**
SIGNATURE PAGE for 5-YEAR REVIEW of *Mucuna persericea* (kōlea)

**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 Reclassify from Endangered to Threatened status
_____ No Change in listing status

For **Field Supervisor, Pacific Islands Fish and Wildlife Office**

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