

## 5-YEAR REVIEW

Short Form Summary

**Species Reviewed:** *Canavalia napaliensis* (‘āwikiwiki)

**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) beginning in October 2021. The review was based on a review of current, available information since the last 5-year review for *Canavalia napaliensis* (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/1325>).

### **Review Analysis:**

Please refer to the previous 5-year review for *Canavalia napaliensis* published in the Federal Register on September 13, 2017 (available at [https://ecos.fws.gov/docs/tess/species\\_nonpublish/2414.pdf](https://ecos.fws.gov/docs/tess/species_nonpublish/2414.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. napaliensis*.

This short-lived perennial vine in the Fabaceae (pea) family is endangered and is known from the island of Kaua‘i. The status and trends for *Canavalia napaliensis* are provided in the tables below.

New Status Information:

- In 2017, *Canavalia napaliensis* was known from approximately 900 wild individuals along the Nāpali coast of Kaua‘i (USFWS 2017). In 2019, *C. napaliensis* was observed occasionally along the coast trail at Pōhakuao (National Tropical Botanical Garden [NTBG] Herbarium 2019).

New Threats:

- None reported.

New Management Actions:

- Surveys and monitoring—*Canavalia napaliensis* was noted as occurring occasionally along the Nāpali coast trail in 2019 (NTBG Herbarium 2019).

**Table 1. Status and trends of *Canavalia napaliensis* from listing through current 5-year review.**

Date	No. wild individuals	No. outplanted	Interim Stability Criteria identified by HPPRCC	Interim Stability Criteria Completed?
2010 (listing and critical habitat)	106–206	0	All threats managed in all 6 populations	No
			Complete genetic storage	Partially
			6 populations with 300 mature individuals each	No
2017 (5-year review)	ca 900	0	All threats managed in all 6 populations	No
			Complete genetic storage	Partially
			Replacement and regeneration (seedlings become mature plants)	Unknown
			6 populations with 300 mature individuals each	Partially
2022 (5-year review)	ca 900, no population estimates since 2017	0	All threats managed in all 6 populations	No
			Complete genetic storage	None reported.

			Replacement and regeneration (seedlings become mature plants)	Unknown
			6 populations with 300 mature individuals each	Unknown

**Table 2. Threats to *Canavalia napaliensis* 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
Landslide degradation and destruction	A	Ongoing	None
Fire degradation and destruction	A	Ongoing	None
Climate change degradation and destruction of habitat, including hurricanes	A	Ongoing	None
Predation and herbivory by rodents	C	Ongoing	None
Predation and herbivory by invertebrates	C	Ongoing	None
Inadequacy of existing regulatory mechanisms— Lack of adequate hunting and biosecurity legislation	D	Ongoing	None
Tsunami degradation and destruction	E	Potential	None
Reduced viability due to low numbers	E	Ongoing	None

**Synthesis:**

Currently there are approximately 900 wild individuals of *Canavalia napaliensis* on Kaua‘i, however no population estimates have been made since 2017. No new propagation, outplanting or other management actions are reported.

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.

*Canavalia napaliensis* is a short-lived perennial vine with vegetative reproduction. For interim stabilization, which is the second step in recovering the species, the taxon must be managed to control threats (e.g., fenced) and have 50 individuals from each of three populations *adequately* represented in *ex situ* (secured off-site, such as a nursery or seed bank) collections that are well managed. In addition, a minimum of six populations of 300 mature individuals each should be documented on Kaua‘i where the species now occurs or occurred historically and each of these populations must demonstrate regeneration of seedlings and growth to at least sapling stage for woody species and documented regeneration within each of the target populations.

The interim stabilization goals for this species have not been met. Currently, there are only an estimated 900 wild individuals with no single population totaling 300 individuals (Table 1). No propagation, reintroduction, or other management actions are reported (Table 1, Table 2). Therefore, *Canavalia napaliensis* 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—Continue to survey for populations of *Canavalia napaliensis* in areas of potentially suitable habitat. Continue to assess and identify protected sites for reintroduction.
- Ungulate monitoring and control—Construct and maintain exclosures around all populations to protect habitat from disturbance by ungulates.
- Nonnative invasive plant monitoring and control—Control established ecosystem-altering nonnative invasive plant species and those that compete with *C. napaliensis* at all populations.
- 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.
- Fire monitoring and control—Develop and implement a fire management plan for existing populations.
- Predator and herbivore monitoring and control—
  - Implement effective control measures for rats.

- Develop and implement effective control methods for the black twig borer (*Xylosandrus compactus*).
- Captive propagation for genetic storage and reintroduction—Continue to collect material for genetic storage and propagation for reintroduction.
- Reintroduction and augmentation—Reintroduce individuals into protected suitable habitat within historic range.
- Build resiliency and redundancy—Increase numbers of individuals and populations through historic range to reduce impacts of landslides, low numbers, and hurricanes.
- 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:**

[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 *Canavalia napaliensis*, PTBG 1000070690, 081580, 18 JUL 2019.

[USFWS] U.S Fish and Wildlife Service. 2017. *Canavalia napaliensis* 5-year review summary and evaluation. USFWS Pacific Islands Fish and Wildlife Office, Honolulu, HI. [https://ecos.fws.gov/docs/five\\_year\\_review/doc2414.pdf](https://ecos.fws.gov/docs/five_year_review/doc2414.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.

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SIGNATURE PAGE for 5-YEAR REVIEW of *Canavalia napaliensis* ('āwikiwiki)

**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 \_\_\_\_\_