

Phyllostegia kaalaensis
(No common name)

**5-Year Review
Summary and Evaluation**

**U.S. Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
Honolulu, Hawaii**

5-YEAR REVIEW

Species reviewed: *Phyllostegia kaalaensis* (No common name)

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5-YEAR REVIEW
***Phyllostegia kaalaensis* (No common name)**

1.0 GENERAL INFORMATION

1.1 Reviewers

Lead Regional Office:

Region 1, Jesse D'Elia, Chief, Division of Recovery, (503) 231-2071

Lead Field Office:

Pacific Islands Fish and Wildlife Office, Gina Shultz, Assistant Field Supervisor for Endangered Species, (808) 792-9400

Cooperating Field Office(s):

N/A

Cooperating Regional Office(s):

N/A

1.2 Methodology used to complete the review:

This review was conducted by staff of the Pacific Islands Fish and Wildlife Office (PIFWO) of the U.S. Fish and Wildlife Service (USFWS) between June 2006 and June 2007. The Hawaii Biodiversity and Mapping Program provided most of the updated information on the current status of *Phyllostegia kaalaensis*. They also provided recommendations for conservation actions that may be needed prior to the next five-year review. The evaluation of the lead PIFWO biologist was reviewed by the Plant Recovery Coordinator. These comments were incorporated into the draft five-year review. The document was then reviewed by the Recovery Program Leader and the Assistant Field Supervisor for Endangered Species before final approval.

1.3 Background:

1.3.1 FR Notice citation announcing initiation of this review:

USFWS. 2006. Endangered and threatened wildlife and plants; initiation of 5-year reviews of 70 species in Idaho, Oregon, Washington, Hawaii, and Guam. Federal Register 71(69):18345-18348.

1.3.2 Listing history

Original Listing

FR notice: USFWS. 1996. Determination of endangered status for twenty-five plants species from the island of Oahu, Hawaii; final rule. Federal Register 61(198):53089-53108.

Date listed: October 10, 1996

Entity listed: Species

Classification: Endangered

Revised Listing, if applicable

FR notice: N/A

Date listed: N/A

Entity listed: N/A

Classification: N/A

1.3.3 Associated rulemakings:

USFWS. 2003. Endangered and threatened wildlife and plants: final designation or nondesignation of critical habitat for 101 plant species from the island of Oahu, HI: final rule. Federal Register 68(116):35949-36406.

Critical habitat was designated for *Pyllostegia kaalaensis* in six units totaling 842 hectares (2,083 acres) on Oahu. This designation includes habitat on state and private lands (USFWS 2003).

1.3.4 Review History:

Species status review [FY 2006 Recovery Data Call (September 2006)]:

Declining

Recovery achieved:

1 (0-25%) (FY 2006 Recovery Data Call)

1.3.5 Species' Recovery Priority Number at start of this 5-year review:

5

1.3.6 Current Recovery Plan or Outline

Name of plan or outline: Recovery plan for the Oahu Plants. 1998. U.S. Fish and Wildlife Service, Portland, Oregon. 270+ pages.

Date issued: August 10, 1998

Dates of previous revisions, if applicable: N/A

2.0 REVIEW ANALYSIS

2.1 Application of the 1996 Distinct Population Segment (DPS) policy

2.1.1 Is the species under review a vertebrate?

Yes
 No

2.1.2 Is the species under review listed as a DPS?

Yes
 No

2.1.3 Was the DPS listed prior to 1996?

Yes
 No

2.1.3.1 Prior to this 5-year review, was the DPS classification reviewed to ensure it meets the 1996 policy standards?

Yes
 No

2.1.3.2 Does the DPS listing meet the discreteness and significance elements of the 1996 DPS policy?

Yes
 No

2.1.4 Is there relevant new information for this species regarding the application of the DPS policy?

Yes
 No

2.2 Recovery Criteria

2.2.1 Does the species have a final, approved recovery plan containing objective, measurable criteria?

Yes
 No

2.2.2 Adequacy of recovery criteria.

2.2.2.1 Do the recovery criteria reflect the best available and most up-to date information on the biology of the species and its habitat?

Yes
 No

2.2.2.2 Are all of the 5 listing factors that are relevant to the species addressed in the recovery?

Yes
 No

2.2.3 List the recovery criteria as they appear in the recovery plan, and discuss how each criterion has or has not been met, citing information:

A synthesis of the threats (Factors A, C, D, and E) affecting this species is presented in section 2.4. Factor B (overutilization for commercial, recreational, scientific, or educational purposes) is not known to be a threat to this species.

Stabilizing, downlisting, and delisting objectives are provided in the recovery plan for Oahu Plants (USFWS 1998), based on whether the species is an annual, a short-lived perennial (fewer than 10 years), or a long-lived perennial. *Pyllostegia kaalaensis* is a short-lived perennial, and to be considered stable, the taxon must be managed to control threats (*e.g.*, fenced) and be represented in an *ex situ* (off-site) collection. In addition, a minimum of three populations should be documented on Oahu. Each of these populations must be naturally reproducing and increasing in number, with a minimum of 50 mature individuals per population.

This recovery objective has not been met.

For downlisting, a total of five to seven populations of *Pyllostegia kaalaensis* should be documented on Oahu. Each of these populations must be naturally reproducing, stable or increasing in number, and secure from threats, with a minimum of 300 mature individuals per population. Each population should persist at this level for a minimum of five consecutive years before downlisting is considered.

This recovery objective has not been met.

For delisting, a total of eight to ten populations of *Pyllostegia kaalaensis* should be documented on Oahu. Each of these populations must be naturally reproducing, stable or increasing in number, and secure from threats, with 300 mature individuals per population for short-lived perennials. Each population should persist at this level for a minimum of five consecutive years before delisting is considered.

This recovery objective has not been met.

2.3 Updated Information and Current Species Status

In addition to the status summary table below, information on the species' status and threats was included in the final critical habitat rule referenced above in section 1.3.3 ("Associated Rulemakings") and in section 2.4 ("Synthesis") below, which also includes any new information about the status and threats of the species.

Status of *Phyllostegia kaalaensis* from listing through 5-year review.

| Date | No. wild inds | No. outplanted | Stability Criteria | Stability Criteria Completed? |
|-------------------------|----------------------|-----------------------|---|--------------------------------------|
| 1996 – listing | Fewer than 50 | 0 | All threats managed in all 3 populations | No |
| | | | Complete genetic storage | No |
| | | | 3 populations with 50 mature individuals each | No |
| 1998 – recovery plan | Fewer than 40 | 3 | All threats managed in all 3 populations | Partially |
| | | | Complete genetic storage | Partially |
| | | | 3 populations with 50 mature individuals each | No |
| 2003 – critical habitat | Fewer than 70 | 3 | All threats managed in all 3 populations | Partially |
| | | | Complete genetic storage | Partially |
| | | | 3 populations with 50 mature individuals each | No |
| 2007 – 5-yr review | 0 | 2 | All threats managed all 3 populations | Partially |
| | | | Complete genetic storage | Yes |
| | | | 3 populations with 50 mature individuals each | No |

2.3.1 Biology and Habitat

2.3.1.1 New information on the species’ biology and life history:

2.3.1.2 Abundance, population trends (e.g. increasing, decreasing, stable), demographic features (e.g., age structure, sex ratio, family size, birth rate, age at mortality, mortality rate, etc.), or demographic trends:

2.3.1.3 Genetics, genetic variation, or trends in genetic variation (e.g., loss of genetic variation, genetic drift, inbreeding, etc.):

2.3.1.4 Taxonomic classification or changes in nomenclature:

2.3.1.5 Spatial distribution, trends in spatial distribution (e.g. increasingly fragmented, increased numbers of corridors, etc.), or historic range (e.g. corrections to the historical range, change in distribution of the species' within its historic range, etc.):

2.3.1.6 Habitat or ecosystem conditions (e.g., amount, distribution, and suitability of the habitat or ecosystem):

2.3.1.7 Other:

2.3.2 Five-Factor Analysis (threats, conservation measures, and regulatory mechanisms)

2.3.2.1 Present or threatened destruction, modification or curtailment of its habitat or range:

2.3.2.2 Overutilization for commercial, recreational, scientific, or educational purposes:

2.3.2.3 Disease or predation:

2.3.2.4 Inadequacy of existing regulatory mechanisms:

2.3.2.5 Other natural or manmade factors affecting its continued existence:

2.4 Synthesis

Phyllostegia kaalaensis is endemic to the Waianae Mountains of Oahu. *P. kaalaensis* was found in gulch bottoms and on gulch slopes in mesic to dry-mesic areas. It occurred most commonly in forests dominated by *Diospyros sandwicensis* (lama) and/or *Sapindus oahuensis* (lonomea), or in forests containing a mix of several tree species. The species grows either under the forest canopy or in sunny openings (Makua Implementation Team 2003).

All of the known wild populations of the species were extirpated within the last decade. Although no wild plants of *Phyllostegia kaalaensis* are now, plant material has been conserved in controlled propagation. The species is represented by a total of 14 plants from four locations in Pahole Gulch, Keawapilau Gulch, Palikea Gulch, and Waianae Kai Valley (U.S. Army 2006).

The Hawaii Division of Forestry and Wildlife fenced the Pahole Gulch portion of the Pahole Natural Area Reserve in 1996, including areas with habitat suitable for the reintroduction of *P. kaalaensis*. This site has been ungulate free since 1998. Adjoining fences are planned in 2008 to include habitat in neighboring Kapuna and

Keawapilau Gulches suitable for reintroducing *P. kaalaensis* (U.S. Army 2005). In Makaha Valley, the construction of a fence is expected to start in 2007. This area includes sites where *P. kaalaensis* will be planted. A fence in Manawai Gulch is scheduled for construction in 2013 (U.S. Army 2006).

Two trial outplantings of *Phyllostegia kaalaensis* have been conducted by U.S. Army staff in Pahole Natural Area Reserve. Thirty-five plants were outplanted in Keawapilau Gulch in February 2004. By July 2004, 15 plants had died, and in June 2006 none of the plants were alive. The second outplanting was conducted in November 2004 in Pahole Gulch at the site where the species occurred naturally until 2000. Forty-seven plants were planted at the site. Only two of the plants were still alive as of October 2006 (U.S. Army 2006).

Four reintroduced populations of *Phyllostegia kaalaensis* are scheduled to be managed for interim stability, as defined in the recovery plan, by the U.S. Army. One of the reintroduced populations will be in the State's Pahole Natural Area Reserve, distributed through the gulches of Pahole, Kapuna, and Keawapilau. The second reintroduced population will be established in the State's Mt. Kaala Natural Area Reserve in Manawai Gulch, and the third will be established in Makaha Valley, which is owned by the City and County of Honolulu (U.S. Army 2006). The location of the fourth managed population will be designated at a future date. Management will include control of the threats to the species and its habitat.

The stabilization and recovery goals for this species have not been met, as no individuals are currently known in the wild. Therefore, *Phyllostegia kaalaensis* meets the definition of endangered as it remains in danger of extinction throughout its range.

3.0 RESULTS

3.1 Recommended Classification:

Downlist to Threatened

Uplist to Endangered

Delist

Extinction

Recovery

Original data for classification in error

No change is needed

3.2 New Recovery Priority Number:

Brief Rationale:

3.3 Listing and Reclassification Priority Number:

Reclassification (from Threatened to Endangered) Priority Number: _____

Reclassification (from Endangered to Threatened) Priority Number: _____

Delisting (regardless of current classification) Priority Number: ____

Brief Rationale:

4.0 RECOMMENDATIONS FOR FUTURE ACTIONS:

- Search for wild plants of *Phyllostegia kaalaensis* in suitable habitat within historical range.
- Through genetic analysis, determine how many unique clones of *Phyllostegia kaalaensis* are represented in *ex situ* collections. Develop a plan for conserving the extant genetic diversity within the species.
- Complete interim stability measures identified in the U.S. Army's Draft Oahu Implementation Plan.
- Study *Phyllostegia kaalaensis* populations with regard to population size and structure, geographical distribution, flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, limiting factors and threats.

5.0 REFERENCES:

Makua Implementation Team. 2003. Implementation plan for the Makua Military Reservation, island of Oahu. Unpublished.

[U.S. Army] U.S. Army Garrison, Hawaii. 2005. 2005 Status report, Makua Implementation Plan, island of Oahu. Unpublished.

[U.S. Army] U.S. Army Garrison, Hawaii. 2006. 2006 Status reports for the Makua implementation plan, island of Oahu. Unpublished.

[USFWS] U.S. Fish and Wildlife Service. 2003. Endangered and threatened wildlife and plants: final designation or nondesignation of critical habitat for 101 plant species from the island of Oahu, HI: final rule. Federal Register 68(116):35949-35998.

[USFWS] U.S. Fish and Wildlife Service. 1998. Recovery plan for the Oahu plants. U.S. Fish and Wildlife Service, Portland, OR. 130+ pages.

[USFWS] U.S. Fish and Wildlife Service. 1996. Determination of endangered for 26 plants from the Waianae Mountains, island of Oahu, Hawaii, final rule. Federal Register 56(209):55770-55786.

Signature Page
U.S. FISH AND WILDLIFE SERVICE
5-YEAR REVIEW of *Phyllostegia kaalaensis* (No common name)

Current Classification: _____ E _____

Recommendation resulting from the 5-Year Review:

- Downlist to Threatened
- Uplist to Endangered
- Delist
- No change needed

Appropriate Listing/Reclassification Priority Number, if applicable: _____

Review Conducted By:

Marilet A. Zablan, Recovery Program Leader and Acting Assistant Field Supervisor for Endangered Species, July 2, 2007
Marie Bruegmann, Plant Recovery Coordinator, January 17 and July 2, 2007
Joy Hiromasa, Fish and Wildlife Biologist, June 12, 2007

Approve  Date 1/18/08
Lead Field Supervisor, Fish and Wildlife Service