

Stenogyne kanehoana
(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: *Stenogyne kanehoana* (No common name)

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5-YEAR REVIEW
***Stenogyne kanehoana* (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 *Stenogyne kanehoana*. 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. 1992. Determination of endangered status for *Stenogyne kanehoana*, a Hawaiian plant; final rule. Federal Register 57(93):20592-20595.

Date listed: May 13, 1992

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 *Stenogyne kanehoana* in two units totaling 183 hectares (454 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, D, and E) affecting this species are discussed in detail in section 2.4. Factors B (overutilization for commercial, recreational, scientific, or educational purposes) and C (disease or predation) are not known to be threats 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. *Stenogyne kanehoana* 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* (at other than the plant's natural location, such as a nursery or arboretum) 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 *Stenogyne kanehoana* 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 *Stenogyne kanehoana* 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 *Stenogyne kanehoana* from listing through 5-year review.

Date	No. wild inds	No. outplanted	Stability Criteria	Stability Criteria Completed?
1992 – listing	2-4	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No
1998 – recovery plan	0	Unknown	All threats managed in all 3 populations	No
			Complete genetic storage	Yes
			3 populations with 50 mature individuals each	No
2003 – critical habitat	1-6	Unknown	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	No
2007 – 5-yr review	1	30	All threats managed in 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

Stenogyne kanehoana is known from the east ridge of Puu Kanehoa, Waianae Mountains, near the summit of the ridge connecting Puu Kanehoa with Puu Hapapa to the north and Puu Kaua to the south (USFWS 1995, 1998). In 1996, the last known individuals died (U.S. Army 2005). In 2000, six individuals were rediscovered in Central Kaluaa Gulch, only to die in 2005 (Hawaii Biodiversity and Mapping Program 2006; U.S. Army 2006a). In 2004, a very large plant covering an area of over four square meters was discovered in Haleauau Gulch on the Schofield Barracks Military Reservation (U.S. Army 2005 and 2006a). This plant may possibly be more than one individual growing intermingled. Cuttings of this plant were collected from several different locations within the patch (J. Rohrer, U.S. Army Garrison, Hawaii, pers. comm. 2007).

Stenogyne kanehoana has been found in mesic forests, growing on ridge tops and on gulch slopes. Associated native plant species include *Acacia koa* (koa), *Dicranopteris linearis* (uluhe), and *Metrosideros polymorpha* (ohia lehua) (U.S. Army 2005).

As with other species in the genus, *Stenogyne kanehoana* has long, rambling stems that can root when contacting the ground, leading to the formation of additional cloned plants (U.S. Army 2005). Since the species can reproduce vegetatively, a given patch of plants may represent one or more unique clones. The number of unique clones that occur or occurred within the recorded patches of plants has not been determined.

The primary threats to *Stenogyne kanehoana* included habitat degradation by feral pigs (Factors A and D), habitat degradation and competition from invasive introduced plants (Factor E), hikers (Factor E), stochastic extinction due to small population size (Factor E), military training activities (Factor E), and potentially fire (Factor E) and deforestation (Factor A) (U.S. Army 2005 and 2006a; Hawaii Biodiversity and Mapping Program 2006; USFWS 1992 and 1998).

In order to protect the Haleauau Gulch population from pigs a 20 by 30 meter (66 by 98 foot) pig-proof fence was constructed around the plant in July 2004. A 40-hectare (99-acre) pig-free enclosure constructed in 1999 which includes both the original *Stenogyne kanehoana* site in the south branch of Central Kaluaa Gulch and the site in the north branch of the gulch where the U.S. Army's third managed population will be established (U.S. Army 2006a).

Three populations of *Stenogyne kanehoana* are planned for management to interim stability by U.S. Army staff, as defined in the recovery criteria. One of the managed populations will be the extant population in Haleauau Gulch. The second managed population will be in the south branch of Central Kaluaa Gulch, where *S. kanehoana* occurred historically until 2005. After the death of the wild plants, U.S. Army staff outplanted 30 cultivated individuals of the species in the same branch of the gulch. These individuals are still immature (U.S. Army 2006a). The third managed population will be established through the outplanting of cultivated plants in the north branch of Central Kaluaa Gulch (U.S. Army 2006a).

The U.S. Army is addressing the threat from small number of populations and small population sizes through partnering with many organizations and agencies to propagate this species for re-introduction and genetic storage (U.S. Army 2006b; Makua Implementation Team 2003).

The stabilization and recovery goals for this species have not been met, as only one mature individual exists. Therefore, *Stenogyne kanehoana* 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:

- Clone existing material in cultivation to increase numbers.
- Search for additional plants of *Stenogyne kanehoana* in suitable habitat within historical range.
- Through genetic analysis, determine how many unique clones of *Stenogyne kanehoana* are represented in the last wild population in Haleauau Gulch. Likewise, determine how many Haleauau Gulch and Central Kaluaa Gulch clones have been conserved in *ex situ* collections. Develop a plan for conserving the extant genetic diversity within the species.
- Study *Stenogyne kanehoana* 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:

Hawaii Biodiversity and Mapping Program. 2006. Program Database, Unpublished.

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

[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. 2006a. 2006 Status reports for the Makua implementation plan, island of Oahu. Unpublished.

[U.S. Army] U.S. Army Garrison, Hawaii. 2006b. Rare Plant database. 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, Portland, Oregon. 130+ pages.

[USFWS] U.S. Fish and Wildlife Service. 1992. Determination of endangered status for *Stenogyne kanehoana*, a Hawaiian plant; final rule. Federal Register 57(93):20592-20595.

Personal Communications:

Rohrer, Joby. 2007. U.S. Army Garrison, Hawaii, personal communication, 2007.

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

Current Classification: _____ E _____

Recommendation resulting from the 5-Year Review:

- _____ Downlist to Threatened
- _____ Uplist to Endangered
- _____ Delist
- X 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 Brueggmann, 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