

*Dubautia herbstobatae*  
(Na`ena`e)

**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: *Dubautia herbstobatae* (Na`ena`e)

## TABLE OF CONTENTS

<b>1.0</b>	<b>GENERAL INFORMATION</b> .....	<b>1</b>
1.1	Reviewers .....	1
1.2	Methodology used to complete the review .....	1
1.3	Background .....	1
<b>2.0</b>	<b>REVIEW ANALYSIS</b> .....	<b>3</b>
2.1	Application of the 1996 Distinct Population Segment (DPS) policy .....	3
2.2	Recovery Criteria .....	3
2.3	Updated Information and Current Species Status .....	4
2.4	Synthesis.....	6
<b>3.0</b>	<b>RESULTS</b> .....	<b>7</b>
3.1	Recommended Classification .....	7
3.2	New Recovery Priority Number .....	7
3.3	Listing and Reclassification Priority Number.....	7
<b>4.0</b>	<b>RECOMMENDATIONS FOR FUTURE ACTIONS</b> .....	<b>8</b>
<b>5.0</b>	<b>REFERENCES</b> .....	<b>8</b>
	Signature Page.....	9

**5-YEAR REVIEW**  
***Dubautia herbstobatae* (Na`ena`e)**

**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 *Dubautia herbstobatae*. 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. 1991. Determination of endangered for 26 plants from the Wainae Mountains, island of Oahu, Hawaii; final rule. Federal Register 56(209): 55770-55786.

**Date listed:** October 29, 1991

**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 *Dubautia herbstobatae* in two units totaling 79 hectares (198 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:

8

### 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?**

  X   *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. *Dubautia herbstobatae* 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 *Dubautia herbstobatae* 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 *Dubautia herbstobatae* 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 I.C.5 ("Associated Rulemakings") and in section II.D ("Synthesis") below, which also includes any new information about the status and threats of the species.

**Status of *Dubautia herbstobatae* from listing through 5-year review.**

<b>Date</b>	<b>No. wild inds</b>	<b>No. outplanted</b>	<b>Stability Criteria</b>	<b>Stability Criteria Completed?</b>
1991 – listing	Fewer than 100	0	All threats managed in all 3 populations	No
			Complete genetic storage	No
			3 populations with 50 mature individuals each	No
1998 – recovery plan	525	0	All threats managed in all 3 populations	No
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	Partially
2003 – critical habitat	Fewer than 100	Unknown	All threats managed in all 3 populations	No
			Complete genetic storage	Unknown
			3 populations with 50 mature individuals each	Unknown
2007 – 5-yr review	1,217	0	All threats managed in all 3 populations	Partially
			Complete genetic storage	Partially
			3 populations with 50 mature individuals each	Partially

**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**

*Dubautia herbstobatae* is known to be extant from two populations in the northern Waianae Mountains of Oahu (1,206 mature and 11 immature individuals) on Federal, State, and City/County land (U.S. Army 2006). The number of plants may currently be on the increase since the goats on the Makua side of the ridge have been almost totally eradicated (Makua Implementation Team 2003).

*Dubautia herbstobatae* occurs dry-mesic to mesic areas, and is often found on open rocky slopes and cliff faces. These slopes and cliffs are usually north facing. The vegetation of these habitats is usually rather sparse shrubland and scrubby forest (Makua Implementation Team 2003).

Habitat degradation and trampling by feral goats (Factors A, C, and D) continues to be a problem within the extant range of *Dubautia herbstobatae* due to herds populating inaccessible areas where hunting has little effect on their numbers (U.S. Army 2006). Two areas, Makua Valley and the Makaha side of Kamaileunu Ridge are scheduled to be managed by the U.S. Army, whose goal is 100 percent exclusion of feral goats (Makua Implementation Team 2003; U.S. Army 2005 and 2006). It is

currently believed that feral goats have already been eradicated from *D. herbstobatae*'s habitat on the south side of Makua Valley. The U.S. Army has also completed a fence that runs along the southern perimeter of Makua Valley to prevent goats from entering the valley from the adjacent valleys of Makaha and Keaau.

Competition from invasive introduced plant species (Factor E) pose a threat to *Dubautia herbstobatae*. Currently invasive introduced plants are not a major threat in most of the steep, exposed habitat this species prefers, but they are more abundantly present in nearby areas and the severity of the threat may increase with time (U.S. Army 2006; USFWS 2003). *Dubautia herbstobatae* is potentially threatened by fire, military training activities, human visitation and trampling (Factor E) (USFWS 1998 and 2003).

The U.S. Army is propagating collected material for genetic storage and reintroduction. Many organizations and agencies are assisting in this effort (Makua Implementation Team 2003; U.S. Army 2006).

The stabilization and recovery goals for this species have not been met, as it occurs in only two populations, only one population has stable numbers, and not all threats are being managed. All but approximately 50 individuals occur within a military training area and are threatened by fire from this training. Therefore, *Dubautia herbstobatae* 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:

- Continue seed collection for genetic storage.
- Fence select patches of plants within populations for short-term protection from ungulates.
- Survey for populations in known historical sites and suitable habitat.
- Study *Dubautia herbstobatae* 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.
- Reintroduce individuals into suitable habitat within historical range that is being managed for the known threats to this species.

#### 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 O`ahu. Unpublished.

[U.S. Army] U.S. Army Garrison, Hawaii. 2006. 2006 Status reports for the Makua implementation plan, island of O`ahu. 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, Oregon. 130+ pages.

[USFWS] U.S. Fish and Wildlife Service. 1991. 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 *Dubautia herbstobatae* (Naenae)

**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, June 24, 2007

Marie Bruegmann, Plant Recovery Coordinator, April 10, May 24, and June 29, 2007

Joy Hiromasa, Fish and Wildlife Biologist, April 2, 2007

Approve \_\_\_\_\_



Date \_\_\_\_\_

1/25/08

**Lead Field Supervisor, Fish and Wildlife Service**