# 5-YEAR REVIEW

Short Form Summary

**Species Reviewed**: *Lobelia monostachya* (No common name)

**Current Classification**: Endangered

**FR Notice announcing initiation of this review**:

U.S. Fish and Wildlife Service (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.

**Lead Region/Field Office**:

Region 1

Pacific Islands Fish and Wildlife Office, Gina Shultz, Assistant Field Supervisor Endangered Species

**Name of Reviewer(s)**:

Marie Bruegmann, Pacific Islands Fish and Wildlife Office, Plant Recovery Coordinator

Marilet A. Zablan, Pacific Islands Fish and Wildlife Office, Recovery Program Leader and Acting Assistant Field Supervisor for Endangered Species

**Methodology used to complete this 5-year review**:

This review was based on the final critical habitat designation for *Lobelia monostachya* and other species from the island of Oahu, as well as a review of current, available information. The National Tropical Botanical Garden, subcontracted by the Hawaii Biodiversity and Mapping Program, provided an initial draft of portions of the 5-year review.

**Background:**

For information regarding the species listing history and other facts, please refer to the Threatened and Endangered Species System (TESS) which is part of the Fish and Wildlife Service's Environmental Conservation On-line System (ECOS) database.

**Application of the 1996 Distinct Population Segment (DPS) Policy**:

This Policy does not apply to plants.

**Review Analysis**:

Please refer to the final critical habitat designation for *Lobelia monostachya* published in the Federal Register on June 17, 2003 (USFWS 2003) for a complete review of the species' status (including biology and habitat), threats, and management efforts. No new threats and no significant new information regarding the species biological status have come to light since listing to warrant a change in the Federal listing status of *L. monostachya*.

Historically, *Lobelia monostachya* was known only from the Koolau Mountains and had not been seen since its original discovery in the 1800's in Niu Valley and in the 1920's in

Manoa Valley. In 1994, one individual was discovered in a previously unknown location in Wailupe Valley. At the time of listing, a total of eight plants had been found (USFWS 1996). Currently there are two known naturally occurring populations. A population in Wailupe contains seven mature healthy individuals. Flowering was observed there in May 2007. The second population at Waialae Nui Ridge consists of one mature individual (Oahu Plant Extinction Prevention Program 2007).

The major threats to *Lobelia monostachya* include landslides and competition with invasive introduced plant species. All seven individuals of the species occur on steep cliffs where removal of invasive plants is virtually impossible (Oahu Plant Extinction Prevention Program 2007).

In addition to all of the other threats, species like *Lobelia monostachya* that are endemic to small portions of a single island are inherently more vulnerable to extinction than widespread species because of the higher risks posed to a few populations and individuals by random demographic fluctuations and localized catastrophes such as hurricanes and disease outbreaks (Factor E). When considered on their own, the natural processes associated with being a single island endemic do not affect *L. monostachya* to such a degree that it is threatened or endangered with extinction in the foreseeable future, but these natural processes can exacerbate the threat from anthropogenic factors, such as habitat loss for human development or predation by alien species (Factor E) (USFWS 1996).

Seeds for genetic storage and reintroduction have been collected from the Waialae Nui Ridge plant and five of the seven Wailupe plants. The other two plants are unreachable. The Harold L. Lyon Arboretum Micropropagation Laboratory has 189 individuals in storage and for reintroduction efforts and Center for Conservation Research and Training Seed Storage Laboratory has over 12,000 seeds in storage. Pahole Rare Plant Facility has four seedlings and a mature individual of this species (Oahu Plant Extinction Prevention Program 2007; J. Yoshioka, Plant Extinction Prevention Program, pers. comm. 2007). Sixteen mature individuals remain of outplantings into a small fenced area at Kulepeamoa. These plants flowered this year, but no seed set occurred (Oahu Plant Extinction Prevention Program 2007).

Stabilizing, downlisting, and delisting objectives are provided in the recovery plan for plants from the island of Oahu (USFWS 1996), based on whether the species is an annual, a short-lived perennial (fewer than 10 years), or a long-lived perennial. *Lobelia monostachya* 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 the island of Oahu. Each of these populations must be naturally reproducing and increasing in number, with a minimum of 50 mature individuals per population.

The stabilization goals for this species have not been met (see Table 1). Therefore, *Lobelia monostachya* meets the definition of endangered as it remains in danger of extinction throughout its range.

**Recommendations for Future Actions:**

- Continue weed control as possible.
- Continue reintroducing individuals into protected suitable habitat.
- Continue collecting fruit from any additional individuals that set seed to add to the genetic diversity of the *ex situ* material.

**References:**

Center for Conservation and Research Training Seed Storage Laboratory. 2007. Database Unpublished.

Harold L. Lyon Arboretum Micropropagation Laboratory. 2007. Database. Unpublished.

Oahu Plant Extinction Prevention Program. 2007. Section 6 Annual Performance Report. Prepared for U.S. Fish and Wildlife Service and Hawaii Division of Forestry and Wildlife. Unpublished.

[USFWS] U.S. Fish and Wildlife Service. 2007. Rare plant tracking database. August 28, 2007. Unpublished.

[USFWS] U.S. Fish and Wildlife Service. 2003. Endangered and threatened wildlife and plants; final designations or nondesignations of critical habitat for 101 plant species from the island of Oahu, Hawaii; final rule. Federal Register 68(116):35950-35993.

[USFWS] U.S. Fish and Wildlife Service. 1998. Recovery plan for the Oahu plants. Portland, Oregon. 207 pages + appendixes.

[USFWS] U.S. Fish and Wildlife Service. 1996. Determination of endangered status for twenty-five plant species from the Island of Oahu, HI; final rule. Federal Register 61(198):53089-53108.

**Table 1. Status of *Lobelia monostachya* from listing through 5-year review.**

| Date | No. wild indivs | No. outplanted | Stability Criteria identified in Recovery Plan | Stability Criteria Completed? |
|---|---|---|---|---|
| 1994 – listing | 8 | 0 | All threats managed in all 3 populations | No |
| | | | Complete genetic storage | No |
| | | | 3 populations with 50 mature individuals each | No |
| 1998 – recovery plan | 8 | 0 | All threats managed in all 3 populations | No |
| | | | Complete genetic storage | Partially |
| | | | 3 populations with 50 mature individuals each | No |
| 2003 – critical habitat | 3 | 0 | All threats managed in all 3 populations | No |
| | | | Complete genetic storage | Partially |
| | | | 3 populations with 50 mature individuals each | No |
| 2007 – 5-yr review | 8 | 16 | All threats managed | Partially |
| | | | Complete genetic storage | Yes |
| | | | 3 populations with 50 mature individuals each | No |

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SIGNATURE PAGE for 5-YEAR REVIEW on *Lobelia monostachya*

**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__ No Change in listing status

**Field Supervisor, Fish and Wildlife Service**

Approve Patrick Ford Date 1/18/08