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## Plants

### Haha

*Cyanea st-johnii*

#### SPECIES STATUS:

Federally Listed as Endangered

Genetic Safety Net Species

IUCN Red List Ranking - CR B1ab (i,iii,iv,v)

Endemism – O'ahu

Critical Habitat - Designated

**SPECIES INFORMATION:** *Cyanea st.-johnii*, a member of the bellflower family (Campanulaceae), is an unbranched shrub with a woody stem 30 to 60 cm (12 to 24 in) long. The leaves are lance-shaped to inversely lance-shaped, 6 to 13 cm (2.4 to 5.1 in) long and 1.5 to 2 cm (0.6 to 0.8 in) wide. The leaf edges are thickened, smoothly toothed, and curl under. The flowering stalk is 5 to 15 mm (0.2 to 0.6 in) long, with 5 to 20 flowers. The hairless, white petals, 3 to 6 cm (1.2 to 2.4 in) long, are suffused with pale violet in the inner surface. This species is distinguished from others in this endemic Hawaiian genus by the length of the leaves, the distinctly curled leaf margins, and the petal color.

**DISTRIBUTION:** *Cyanea st.-johnii* was known historically from 11 populations in the central and southern Ko'olau Mountains of O'ahu. The occurrence is limited to the Ko'olau range, subpopulations are severely fragmented and continuing decline has been observed in the number of subpopulations and total number of mature individuals.

**ABUNDANCE:** As of 1995, between 40 and 50 plants were known from five populations—Waimano Trail summit to Aiea Trail summit, the summit ridge crest between Manana and Kipapa trails, between the summit of Aiea and Halawa trails, Summit Trail south of Poamoho cabin, and Wailupe-Waimanalo summit ridge. More recent surveys indicate that this species has probably been reduced to fewer than 20 individuals.

**LOCATION AND CONDITION OF KEY HABITAT:** The remaining populations are found on City and County of Honolulu, private, and State Lands. This species typically grows on wet, windswept slopes and ridges from 690 to 850 m (2,260 to 2,800 ft) elevation in 'ōhi'a mixed shrubland or 'ōhi'a-uluhe shrubland. Associated native plant taxa include naupaka kuahiwi, 'uki, *Bidens* sp. (ko'oko'olau), and *Freycinetia arborea* ('ie'ie). *Clidemia hirta*, one of the harmful weeds in Hawai'i, exists in some of the localities.

**THREATS:**

- The plants between the summit of Aiea and Halawa Trail are threatened by trampling by hikers;
- Habitat degradation and/or destruction by feral pigs;
- Predation by rats;
- Competition with the alien plants, including *Clidemia hirta*;
- Reduced reproductive vigor due to the small number of remaining populations and individuals.

**CONSERVATION ACTIONS:** The goals of conservation actions are to not only protect current populations, but also establish further populations to reduce the risk of extinction. The USFWS has developed a recovery plan details specific tasks needed to recover this species. In addition to common statewide and island conservation actions, specific actions include:

- Survey historic range for surviving populations;
- Establish secure *ex-situ* stocks with complete representation of remaining individuals;
- Augment wild population and establish new populations in safe harbors.

**MONITORING:**

- Survey for populations and distribution in known and likely habitats;
- Monitor plants for insect damage and plant diseases.

**RESEARCH PRIORITIES:**

- Develop proper horticultural protocols and pest management;
- Survey *ex-situ* holdings and conduct molecular fingerprinting;
- Conduct pollination biology and seed dispersal studies;
- Map genetic diversity in the surviving populations to guide future re-introduction and augmentation efforts.

**References:**

International Union for Conservation of Nature and Natural Resources, 2004, IUCN Red List of Threatened Species: Data Base Search, <http://www.redlist.org/search/search-basic.html> [August 2005].

USFWS. 1995. Final Listing, Endangered ETWP; Determination of Endangered Status for Twenty-five Plant Species From the Island of Oahu, Hawaii. Federal Register, Vol. 60, No. 190, (10-OCT-96), 61 FR 53089-53108, 20 pp.

Wagner, W. L., D. R. Herbst, and D. H. Lorence, 2005. Flora of the Hawaiian Islands website. <http://ravenel.si.edu/botany/pacificislandbiodiversity/hawaiianflora/index.htm> [August 2005].