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Plants

Haha

Cyanea grimesiana subsp. *obatae*

SPECIES STATUS:

Federally Listed as Endangered
Genetic Safety Net Species
Hawai'i Natural Heritage Ranking - Subspecies
Critically Imperiled (G1T1)
Endemism – O'ahu
Critical Habitat - Designated

SPECIES INFORMATION: *Cyanea grimesiana* subsp. *obatae*, a member of the bellflower family (Campanulaceae), is a shrub, usually unbranched, growing from 3.3 to 10.5 ft (1 to 3.2 m) tall. Its leaves are 10.5 to 23 in. (27 to 58 cm) long by 5.5 to 12.5 in. (14 to 32 cm) wide and are deeply cut into 9 to 12 lobes per side. The plant usually has small prickles on its stem and leaves. Clusters of 6 to 12 stalked flowers arise from the leaf axils. Sepals are fused to the ovary forming a cup 0.3 to 0.6 in. (0.7 to 1.6 cm) long with small, narrow, triangular lobes at the tips. The petals are purplish or greenish to yellow-white, often washed or striped with magenta, and are about 2 to 3 in. (5.5 to 8 cm) long and 0.2 to 0.4 in. (0.5 to 1 cm) wide. Fruits are elliptical orange berries, 0.7 to 1.2 in. (1.8 to 3 cm) long. This subspecies can be distinguished from the other two subspecies by its short, narrow, calyx lobes which are not fused or overlapping.

DISTRIBUTION: Historically, *C. grimesiana* subsp. *obatae* is known from the southern Wai'anae Mountains from Pu'u Hapapa to Ka'aikukai, a distance of about 4 ml (6.5 km).

ABUNDANCE: This taxon is known to be extant in Kalua'a Gulch, but may also still exist in Ekahanui and North Palawai Gulches. All populations are on privately owned land. The most recent data from National Tropical Botanical Gardens' collectors states that as of 2004, 1 plant remained representing the Kalua'a population; as of 2003, 8 adults and 10 juveniles were observed in the Palikea population; as of 2001, 5 plants were observed at the Ekahanui population.

LOCATION AND CONDITION OF KEY HABITAT: Locations described above. *C. grimesiana* subsp. *obatae* typically grows on steep, moist, shaded slopes in diverse mesic to wet forests at an elevation of 1,800 to 2,200 ft (550 to 670 m). Associated plants include both native and introduced species such as *Pipturus albidus* (mamaki), *Charpentiera* (papala), *Claoxylon sandwicense* (po'ola), *Pisonia* (papala kepau), *Acacia koa* (koa), *Aleurites moluccana* (kukui), *Cyanea membranacea* (haha), and various fern taxa. The habitat of this

species has been invaded by alien plant species, including *Clidemia hirta* (Koster's curse), *Schinus terebinthifolius* (Christmas Berry), and others.

THREATS:

- Competition from alien plants;
- Predation of seeds or fruits by introduced slugs;
- Stochastic extinction and/or reduced reproductive vigor due to the small number of extant individuals;
- Habitat degradation by feral pigs.

CONSERVATION ACTIONS: The goals of conservation actions are not only to protect current populations, but also to establish further populations to reduce the risk of extinction. An enclosure was established around the Palikea and Ekahahui populations. Twenty four plants have been outplanted in the Palikea enclosure by 2003. The USFWS has developed a recovery plan that details specific tasks needed to recover this species. A later recovery plan also 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 enclosure fences for damage and inside enclosures for signs of ungulate ingress;
- 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.

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