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Plants

haha

Cyanea crispa

SPECIES STATUS:

Federally Listed as Endangered

Genetic Safety Net Species

IUCN Red List Ranking - Critically Endangered (CR D)

Hawai'i Natural Heritage Ranking - Critically Imperiled (G1)

Endemism – O'ahu

Critical Habitat - Designated

SPECIES INFORMATION: *Cyanea crispa*, a member of the bellflower family (Campanulaceae), is an unbranched shrub with leaves clustered at the ends of succulent stems. The broad oval leaves, 12 to 30 in (30 to 75 cm) long and 3.5 to 6.3 in (9 to 16 cm) wide, have undulating, smooth or toothed leaf margins. Each leaf is on a stalk 0.3 to 1.6 in (0.8 to 4 cm) long. Clusters of three to eight fuzzy flowers grow on stalks 0.8 to 1.2 in (2 to 3 cm) long, with each flower borne on a stalk 0.4 to 0.8 in (1 to 2 cm) long. The calyx lobes are oval or oblong, 0.2 to 0.5 in (6 to 12 mm) long, and often overlapping at the base. The fused petals, 1.6 to 2.4 in (4 to 6 cm) long and fuzzy, are pale magenta with darker longitudinal stripes. The fruits are spherical berries 0.4 in (1 cm) in diameter and contain many minute, dark seeds. *Cyanea crispa* is distinguished from other species in this endemic Hawaiian genus by its leaf shape, distinct calyx lobes, and the length of the flowers and stalks of flower clusters.

DISTRIBUTION: Historically, *Cyanea crispa* was known from scattered locations throughout the upper elevations of the Ko'olau Mountains of O'ahu; from Kaipapau Valley to the north to Waialae Iki Ridge to the southeast.

ABUNDANCE: As of 1992, this species was known from Wai'ahole Ditch Trail, Moanalua Valley, Kapakahi Gulch, the west fork of Niu Valley, and Pia Valley, where a single individual was discovered in 1991. The five populations were scattered over a distance of about 14 mi (23 km). Three of the populations contained a single individual each. The other two populations were thought to contain only a few plants each, giving a total of fewer than 10 individuals for the entire species. At Pia Valley, 5-10 plants were observed as recently as April 2005. The status of the other populations is unknown.

LOCATION AND CONDITION OF KEY HABITAT: *Cyanea crispa* is found in habitats ranging from steep, open mesic forests to gentle slopes or moist gullies of closed wet forests, at elevations between 600 and 2,400 ft. Associated plant species include 'awa.

kukui, common *Cyrtandra* species, *Pisonia*, and *Touchardia latifolia* (olona), and the introduced species, *Psidium cattleianum* (strawberry guava), *Clidemia hirta*, and *Cordyline fruticosa* (ti).



THREATS:

- Pigs;
- Rats;
- Competition from alien plant species, especially *Clidemia hirta*;
- Landslides;
- Stochastic extinction and reduced reproductive vigor due to the small number of remaining individuals.

CONSERVATION ACTIONS: The goals of conservation actions are to not only protect current populations, but to also establish further populations to reduce the risk of extinction. This species is being propagated at the Lyon Arboretum and the National Tropical Botanical Garden in Hawai‘i. 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 exclosure fences for damage and inside exclosures 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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