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## Plants

### Haha

#### *Cyanea truncata*

##### SPECIES STATUS:

Federally Listed as Endangered

Genetic Safety Net Species

IUCN Red List Ranking – Extinct in the Wild (EW)

Hawai'i Natural Heritage Ranking - Possibly Extinct (GH)

Endemism – O'ahu

Critical Habitat - Designated

**SPECIES INFORMATION:** *Cyanea truncata*, a member of the bellflower family (Campanulaceae), is an unbranched or sparsely branched shrub covered with small sharp prickles. The oval leaves, which are widest above the middle are 8 to 24 in (22 to 60 cm) long and 4 to 10 in (10 to 26 cm) wide, and are lined with hardened teeth along the margins. The upper surface of the leaf is hairless; the lower surface is hairy, has sparse projections, and is pale green. Clusters of 8 to 4 white flowers with magenta stripes are produced on horizontal or hanging stalks between 2 and 12 in (4 to 28 cm) long. Each slightly curved flower is 1.3 to 1.7 in (32 to 42 mm) long and about 0.3 in (7 mm) wide and has spreading corolla lobes that are occasionally truncate leaf base one-fourth to one-half as long as the flower. The fruits are round orange berries about 0.4 in (9 mm) long that contain many tiny seeds. *Cyanea truncata* is distinguished from other members of this genus by the length of the flower cluster stalk, and the size of the flowers and flower lobes.

**DISTRIBUTION:** Historically, this species has been recorded from a few scattered locations along the windward side of the Ko'olau Mountains. These included Punalu'u, Waikane, and Waiahole.

**ABUNDANCE:** One population of at least two individuals was known to exist in "Hidden Valley," a drainage northwest of Ka'a'awa Valley that terminates at Ka'a'awa Point in the Ko'olau range; however, that population was destroyed by feral pigs. A significant discovery of 20 individuals growing on private land along a gully floor further upstream from the site of the destroyed population was made in August 1991. That is the only known population of this species. Two mature plants and one juvenile were recently reported from the Kahana population.

**LOCATION AND CONDITION OF KEY HABITAT:** *Cyanea truncata* typically grows on windward slopes in mesic to wet forests at elevations between 800 and 1,300 ft (240

and 400 m). Associated native plant species include *Cyrtandra propinqua* (ha'iwale), *Neraudia melastomifolia* (ma'aloa), *Pisonia umbellifera* (papala kepau). Alien plant species that have invaded this habitat include *Clidemia hirta* (Koster's curse), *Psidium cattleianum* (strawberry guava), and *Aleurites moluccana* (kukui).



#### THREATS:

- Feral pigs;
- Competition with invasive plant species;
- Stochastic extinction due to low number of remaining individuals;
- Reduced reproductive vigor due to the small population size.

**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. The USFWS has developed a recovery plan that 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:**

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