



N. Tangalin, NTBG

Plants

Haha

Cyanea undulata

SPECIES STATUS:

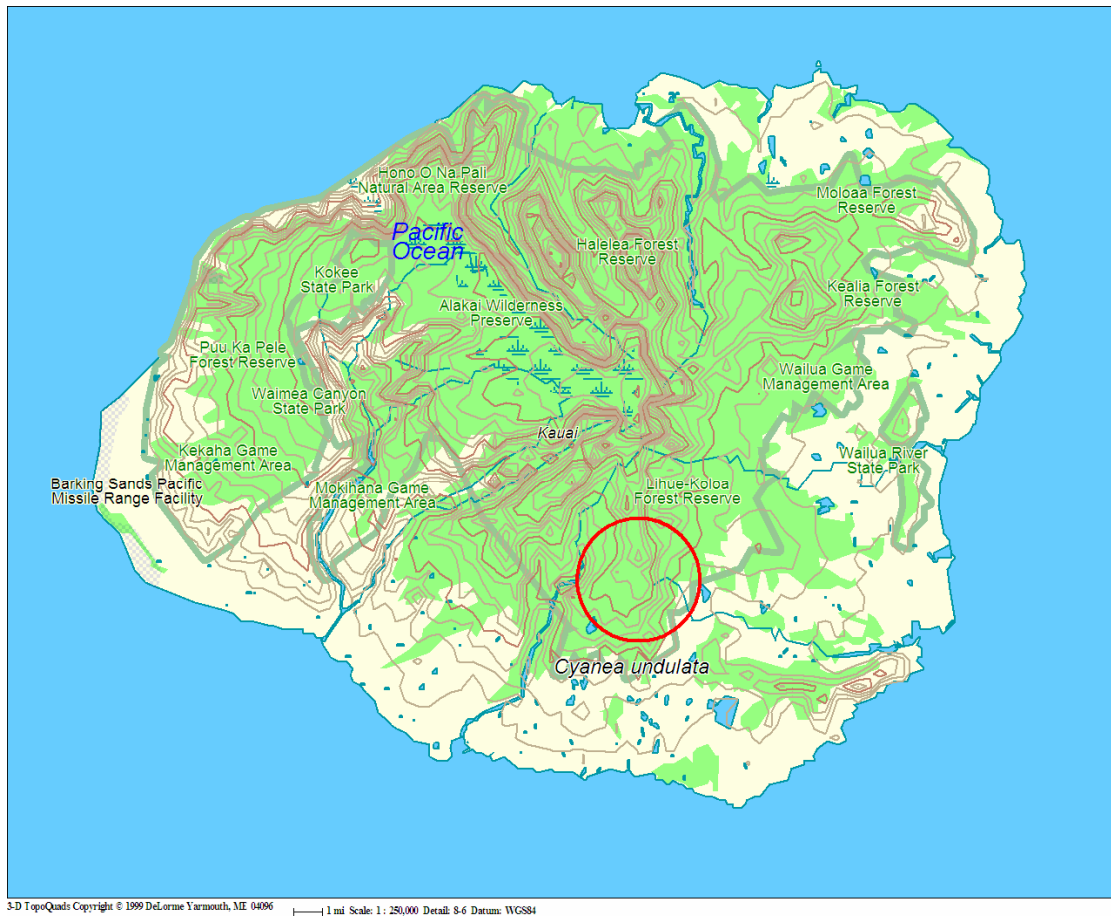
Federally Listed as Endangered
Genetic Safety Net Species
Hawai'i Natural Heritage Ranking -
Critically Imperiled (G1)
Endemism – Kaua'i
Critical Habitat - Designated

SPECIES INFORMATION: *Cyanea undulata* is an unbranched shrub in the bellflower family (Campanulaceae) and is about 6 to 12 ft (1.8 to 3.6 m) tall. The leaves are narrowly elliptic, about 12 to 16 in (30 to 40 cm) long and 1 to 2 in (3 to 5 cm) wide, with wavy margins; the upper surface is smooth and the lower is covered with fine, rust colored hairs. The leaf stem is winged throughout its length. The inflorescence is about 17 in (45 cm) long and bears five or six yellowish, slightly curved, hairy flowers. The fruit is an orange berry about 0.7 in (1.7 cm) long. The size, shape, and the wavy margins of the leaves distinguish this species from the rest of the genus.

DISTRIBUTION: Wahiawa drainage of Kaua'i. Until its rediscovery in 1988, *Cyanea undulata* was known only from the type collection made in 1909 in the "damp woods surrounding the Wahiawa swamp," and an earlier collection, now lost, in 1908, probably from the same area.

ABUNDANCE: As of May 2005, *Cyanea undulata* is known from a single small population of one mature, two juveniles, and six seedlings growing along the bank of a tributary of Wahiawa Stream.

LOCATION AND CONDITION OF KEY HABITAT: Wahiawa Stream drainage. *Metrosideros – Dicranopteris linearis* wet forest, 2,200 – 2,600 ft elevation, often on stream banks or steep to vertical slopes. Associated native species include *Syzygium sandwicense*, *Scaevola*, *Wikstroemia*, *Bobea*, *Hesperomannia lydgatei*, *Platydesma rostrata*, *Pritchardia*, *Cyanea spathulata*, *Cyanea sylvestris*, *Cyanea fissa*, *Ilex*, *Perrottetia*, and *Cyrtandra longifolia*. Alien species that have invaded this habitat include *Psidium cattleianum*, *Rubus rosifolius*, *Psidium cattleianum*, and *Melastoma septemnerium*.



THREATS:

- Habitat degradation and competition by alien plant species;
- Feral pigs;
- 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:

Hawai'i Natural Heritage Program, 2005. Hawaii Natural Heritage Program Search, <http://www.hinhp.org/printpage.asp?spp=PDMALOH0A0> [August 2005].

NTBG, 2005. Perlman, Steve. Field Data Booklet #52, SP 19564. Unpublished data.

USFWS. 1991. Final Listing, Endangered ETWP; Determination of Endangered Status for Five Plants from the Wahiawa Drainage Basin; Federal Register, Vol. 56, No. 183, (20-SEP-91), 56 FR 47695-47700, 6 pp.

Wagner, W.L., Herbst, D.R., and Sohmer, S.H., 1999. Manual of the Flowering Plants of Hawai'i-- Revised Edition. Honolulu, HI: University of Hawaii Press and Bishop Museum Press. 1853p.