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## Plants

### 'Aku'aku

#### *Cyanea platyphylla*

##### SPECIES STATUS:

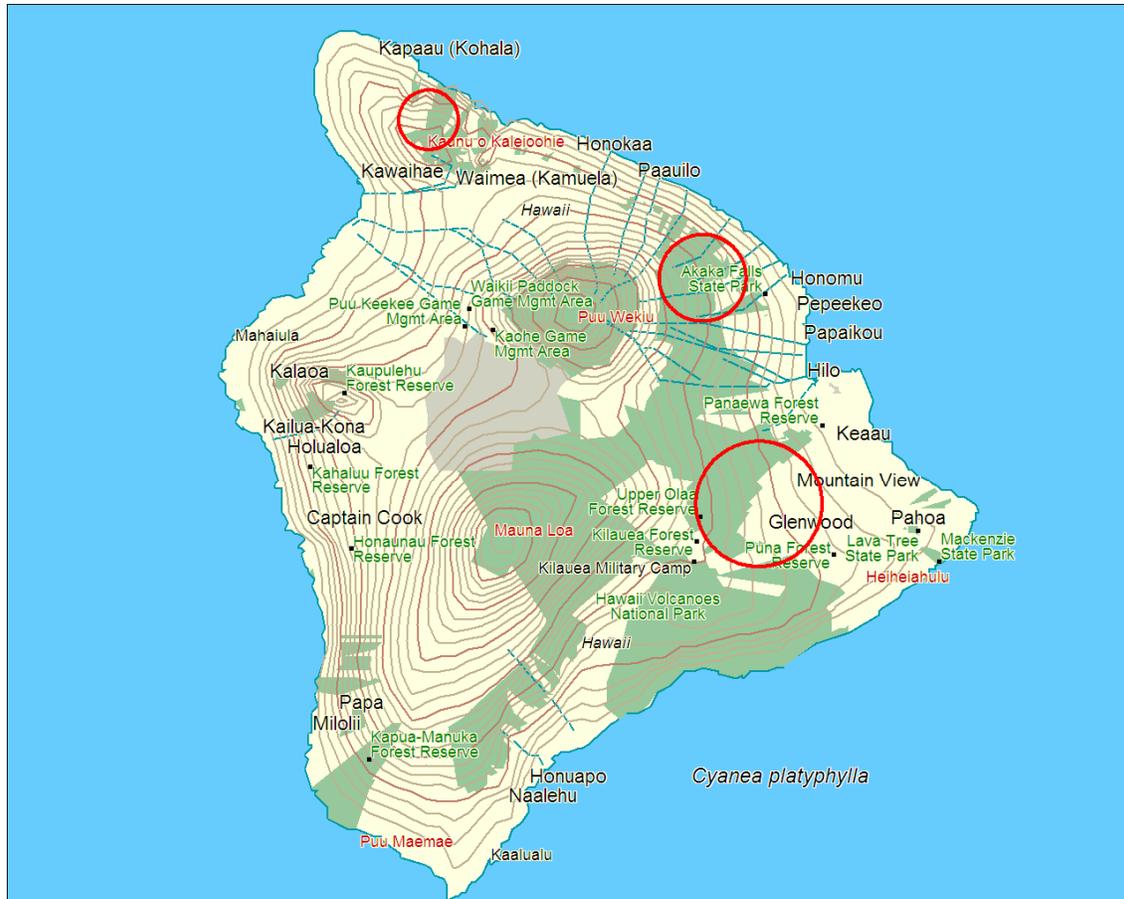
Federally Listed as Endangered  
Genetic Safety Net Species  
Hawai'i Natural Heritage Ranking –  
Critically Imperiled (G1)  
Endemism - Island of Hawai'i  
Critical Habitat - Designated

**SPECIES INFORMATION:** *Cyanea platyphylla*, a member of the bellflower family (Campanulaceae), is an unbranched palm-like shrub 1 to 3 m (3 to 10 ft) tall with stems covered with short, sharp, pale spines on the upper portions, especially as juveniles. This species has different leaves in the juvenile and adult plants. The juvenile leaves are 10.5 to 25 cm (4.1 to 10 in) long and 4 to 7.5 cm (1.6 to 3.0 in) wide, with prickles on leaves and stalks. Adult leaves are 34 to 87 cm (13 to 34 in) long and 7 to 22 cm (2.8 to 8.7 in) wide, and are only sparsely prickled. Six to 25 flowers are clustered on the end of a main stalk 20 to 90 cm (8 to 35 in) long, and each flower has a stalk 1 to 2.5 cm (0.4 to 1 in) long. The hypanthium is topped by five small, triangular calyx lobes. Petals, which are white or yellowish white with magenta stripes, are fused into a curved tube with five spreading lobes. The corolla is 4.2 to 5.4 cm (1.7 to 2.1 in) long and 5 to 10 millimeters (mm) (0.2 to 0.4 in) wide. Berries are pale orange, 8 to 10 mm (0.3 to 0.4 in) long, and 6 to 8 mm (0.2 to 0.3 in) wide. The species differs from others in this endemic Hawaiian genus by its juvenile and adult leaves, precocious flowering, and smaller flowers.

**DISTRIBUTION:** *Cyanea platyphylla* was historically known from the Kohala Mountains, Waipio Valley, Laupahoehoe in the Hamakua District, in the mountains above Hilo, Pahoa, Glenwood, Honaunau in South Kona, and the unknown location "Kalanilehua."

**ABUNDANCE:** Four to six populations, totaling about 50-100 plants. As of 2004, one population of 2 mature specimens are known to still exist along Kilau Stream, and 11 plants near Pu'u Makaala in Laupahoehoe Natural Area Reserve. Approximately four additional populations, each with 50 to 100 individuals, were rediscovered in 1995 during surveys in the Kohala Mountains. Two additional populations in Laupahoehoe NAR have not been seen since 1982 and could not be relocated in 1989.

**LOCATION AND CONDITION OF KEY HABITAT:** Laupahoehoe Natural Area Reserve, owned by the State of Hawai'i. *Cyanea platyphylla* is typically found in *Metrosideros polymorpha* ('ōhi'a)— *Acacia koa* (koa) Lowland and Montane Wet Forests at elevations between 120 and 915 m (390 and 3,000 ft). Associated taxa include *Cibotium* sp. (hapu'u), *Athyrium sandwichianum* (ho'i'o), *Antidesma* sp. (hame), *Clermontia* spp. ('oha wai), *Hedyotis* sp. (pilo), and *Cyrtandra* sp. (ha'iwale). Alien species that have invaded this habitat include *Passiflora ligularis*, *Rubus rosifolius*, *Commelina diffusa*, *Ficus* spp., and *Psidium* spp.



**THREATS:**

- Pigs;
- Competition and habitat modification by introduced plant taxa;
- Rats, which eat the fruit;
- Volcanic activity;
- Stochastic extinction;
- Reduced reproductive vigor due to the low numbers of populations and 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. The extant Laupahoehoe population has been spot-fenced by NAR to protect it from pig depredation. 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 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.

**References:**

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