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Hawai'i Natural Heritage Ranking - Critically Imperiled (G1)
Endemism – Moloka'i, Maui

Plants

Popolo, haha nui

Cyanea solanacea

SPECIES STATUS:

Genetic Safety Net Species

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SPECIES INFORMATION: *Cyanea solanacea*, a member of the bellflower family (Campanulaceae), are shrubs 2-5 m tall; stems branched, muricate to aculeate (densely so in juveniles). Leaves dimorphic: juveniles pinnately cleft to divided, blades 20-40 cm long, 6-13 cm wide (across the segments), upper surface green, papillose to aculeate, lower surface pale green, pubescent and muricate to aculeate, segments 9-13 per side, oblong to oblanceolate or triangular, 10-25 mm wide, margins of the segments irregularly lobed to divided, apex acute or obtuse, petioles 2.5-5 cm long, pubescent and muricate to aculeate; adults elliptic to oblanceolate or obovate, blades 16-36 cm long, 4-14 cm wide, upper surface green, glabrous or papillose, lower surface pale green, pubescent, margins irregularly callose-dentate, lobed, or cleft, apex acuminate or acute, base cuneate, petioles 2.5-6 cm long, glabrous or pubescent. Inflorescences 5-10-flowered, peduncles 20-50 mm long, pedicels 8-12 mm long; hypanthium oblong to obconical, 8-10 mm long, 3-4 mm wide, glabrous, pubescent, or muricate; calyx lobes oblong or ovate, 4-15 mm long, 3-6 mm wide, apex obtuse to truncate or emarginate, sometimes with an apiculation; corolla white tinged with pale lilac, 48-60 mm long, 4-5 mm wide, pubescent or rarely subglabrous, the tube suberect to gently curved, the lobes spreading, 3/4 as long to as long as the tube; staminal column pubescent; anthers pubescent, the lower 2 with apical tufts of white hairs. Berries orange, ellipsoid, 11-16 mm long, crowned by the persistent calyx lobes.

DISTRIBUTION: Endemic to Moloka'i, and possibly west Maui. Occurring in wet forest, 1,080-1,190 m, in various locations on Moloka'i, including Kawela Gulch, Olokui, Pelekunu Valley, and Hanalilolilo.

ABUNDANCE: Not well known. Forty plants were reported in 1991 at Olokui, but it is not clear whether or not this occurrence was truly *C. solanacea*. The only current record found was that of one plant at Pelekunu Valley rim in 2004 and three plants at Hanalilolilo Stream in 2005.

LOCATION AND CONDITION OF KEY HABITAT: Moloka'i, including Kawela Gulch, Olokui NAR, Pelekunu Preserve, and Kamukou Preserve, in *Metrosideros* wet forest, at 3,600 to 4,000 ft elevation. Associated native species include *Ilex*, *Broussaisia*,

Cheirodendron, *Clermontia pallida*, *Machaerina*, *Cibotium*, *Astelia*, *Dubautia laxa*, *Sadleria*, and *Cyrtandra*.



THREATS:

- Feral pigs;
- Competition from alien plant species;
- Stochastic extinction due to small number of individuals;
- Loss of reproductive vigor due to 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. 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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