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Plants

ʻOha

Delissea subcordata

SPECIES STATUS:
Federally Listed as Endangered
Genetic Safety Net Species
Hawaiʻi Natural Heritage Ranking - Critically Imperiled (G1)
Endemism – Oʻahu
Critical Habitat - Designated

SPECIES INFORMATION: *Delissea subcordata*, a member of the bellflower family (Campanulaceae), is a branched or unbranched shrub 1 - 3 m tall. Leaves ovate or ovate-lanceolate, blades 12 - 30 cm long, 6 - 17 cm wide, margins crenate, denticulate, serrate, or doubly serrate, the teeth incurved, or occasionally irregularly laciniate with 1 - 6 triangular lobes 10 - 18 mm long toward the base, apex obtuse, acute, or acuminate, base cordate, subcordate, or truncate, petioles 6 - 18 cm long. Inflorescences 6 - 18 flowered, glabrous, peduncles 40 - 100 mm long, pedicels 13 - 18 mm long; hypanthium ovoid to cylindrical; calyx lobes subulate, 0.5 - 1 mm long; corolla white or greenish white, curved, 45 - 60 mm long, with 1 dorsal knob; anthers glabrous. Berries ovoid, 12 -16 mm long, 8 - 12 mm in diameter. Seeds ca. 1 mm long. Occurring in diverse mesic forest, 250 - 400 m, Koʻolau Mountains, and 450 - 550 m, Waiʻanae Mountains, Oʻahu.

DISTRIBUTION: The persistence of this plant in the Waiʻanae Mountains is well documented. However, it has not been collected in the Koʻolau Mountains since 1934 and may be extinct there.

ABUNDANCE: Currently 60-70 plants observed. *Delissea subcordata* is now known only from the Waiʻanae Mountains in nine populations distributed from Kawaiu Gulch in the Kealia land section in the northern Waiʻanae Mountains to the north branch of North Palawai Gulch about 20 km (12 mi) to the south.

LOCATION AND CONDITION OF KEY HABITAT: *Delissea subcordata* typically grows on moderate to steep gulch slopes in mixed mesic forests between 162 and 1,025 m (531 and 3,362 ft) elevation. This species is found on private land (Honouliuli Preserve), Federal land (Schofield Barracks Military Reservation and Lualualei Naval Reservation), State land (Pahole and Kaʻala NARs, and land leased to the Federal government (Makua Military Reservation). Associated native plant species include *Acacia koa, Alyxia oliviformis, Antidesma* sp., *Bobea* sp. (ahakea), *Chamaesyce multiformis*

(akoko), *Charpentiera obovata, Claoxylon sandwicense, Diospyros hillebrandii* (lama), *Diospyros sandwicensis, Hedyotis acuminata, Metrosideros polymorpha, Myrsine lanaiensis, Nestegis sandwicensis, Pisonia* sp., *Pouteria sandwicensis, Psychotria hathewayi, Psydrax odorata,* and *Streblus pendulinus*. Alien plant species that have invaded this habitat include *Schinus terebinthifolius* (Christmas berry), *Clidemia hirta* (Koster's curse), and *Lantana camara* (lantana).

THREATS:

- Fire;
- Habitat degradation/destruction by feral pigs;
- Goats;
- Competition with the alien plants;
- Potential impacts from military activities, including road construction and housing development;
- Predation by rats.

CONSERVATION ACTIONS: The goals of conservation actions are not only to protect current populations, but also to establish new populations to reduce the risk of extinction. A USFWS recovery plan details specific tasks needed to recover this species. In addition to common statewide and island conservation actions, specific actions include:

- Survey historical 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:

Hawai'i Natural Heritage Program, 2005. Hawaii Natural Heritage Program Search, http://www.hinhp.org/printpage.asp?spp=PDMAL0H0A0.

USFWS. 1996. Final Listing, Endangered ETWP; Determination of Endangered Status for Twenty-five Plant Species From the Island of Oahu, Hawaii. Federal Register, Vol. 61, No. 198, (10-OCT-96), 61 FR 53089-53108, 19 pp.

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