



## Plants

### *Hibiscadelphus hualalaiensis*

#### SPECIES STATUS:

Federally Listed as Endangered

Genetic Safety Net Species

IUCN Red List Ranking – Critically Endangered (CR D)

Hawai'i Natural Heritage Ranking - Possibly Extinct (Captive or Cultivated Only) (GHC)

Endemism – Island of Hawai'i

Critical Habitat - Designated

**SPECIES INFORMATION:** *Hibiscadelphus hualalaiensis*, of the mallow family (Malvaceae), is a tree 5 to 7 m (16 to 23 ft) tall with a trunk up to 30 cm (12 in) in diameter and whitish bark. The leaf blades are heart-shaped and 10 to 15 cm (4 to 6 in) long with a broad tip, a notched base, stellate hairs, and stalks 4 to 10 cm (1.5 to 4 in) long. One or two flowers are borne in the axils of the leaves and have stalks 1.5 to 14 cm (0.6 to 5.5 in) long. Five toothlike bracts are borne below each flower and the calyx is tubular or pouch-like. The overlapping petals form a curved bisymmetrical flower with longer upper petals, typical of bird-pollinated flowers. The flowers are greenish yellow on the outside and yellowish green, fading to purplish within, and 2 to 5.5 cm (0.8 to 2.2 in) long. The fruit is woody and the seeds have a dense covering of hairs. The species differs from others in this endemic Hawaiian genus by its flower color, smaller flower size, and tooth-like bracts.

**DISTRIBUTION:** *Hibiscadelphus hualalaiensis* was historically known from three populations, located in the Pu'u Wa'awa'a region of Hualalai, on the island of Hawai'i. The last known wild tree was in Pu'u Wa'awa'a Plant Sanctuary, owned and managed by the Department of Land and Natural Resources, State of Hawai'i. These trees died in 1992, but 12 cultivated trees have been planted within the fenced area. In addition, approximately ten cultivated plants can be found near the State's Kokia Sanctuary in Kaupulehu. Cultivated individuals were planted in Kipuka Puauulu in Hawai'i Volcanoes National Park, but were removed to prevent further hybridization with the *Hibiscadelphus giffardianus* plants that are native to the kipuka. The area where the plants are presently found is surrounded by State land that is leased for cattle ranching.

**ABUNDANCE:** There are no individuals extant in the wild, but 20 or more cultivated individuals are being grown at this time.

**LOCATION AND CONDITION OF KEY HABITAT:** This species grows in mixed Dry to Mesic Forest remnants on lava fields, at elevations between 915 and 1,020 m (3,000

and 3,350 ft). Associated taxa include 'ōhi'a, *Diospyros sandwicensis* (lama), *Sophora chrysophylla* (mamane), naio, *Pouteria sandwicensis* ('ala'a), *Charpentiera* sp. (papala), *Nothoestrum* sp. ('aiea), *Claoxylon sandwicense* (po'ola), and *Pennisetum clandestinum*.

#### **THREATS:**

- Cattle, pigs, and sheep (*Ovis aries*) that may get through the fence;
- Flower and seed feeding by roof rats;
- Competition from alien plants such as kikuyu grass and *Lantana camara* (lantana);
- Habitat change from volcanic activity;
- Risk of extinction from naturally occurring events;
- Reduced reproductive vigor due to the small number of known cultivated individuals from a single parent.

**CONSERVATION ACTIONS:** The goals of conservation actions are to not only protect current populations, but also establish new 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 historical range for surviving populations;
- Establish secure *ex-situ* stocks with complete representation of remaining individuals;
- Monitor enclosure fences for signs of ungulate ingress;
- Augment wild population and establish new populations in safe harbors.

#### **MONITORING:**

- Continue surveys of population 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:**

Center for Plant Conservation, 2005. National Collection of Endangered Plants. [http://www.centerforplantconservation.org/ASP/CPC\\_NCList\\_Quick.asp](http://www.centerforplantconservation.org/ASP/CPC_NCList_Quick.asp).

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US Fish and Wildlife Service. 1996. Final Listing, Endangered ETWP; Determination of Endangered Status for Six Plants from the Island of Lanai, Hawaii; Federal Register, Vol. 61, No. 198, (28-FEB-96), 61 FR 53137 53153, 17 pp.

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