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Plants

A'e

Zanthoxylum dipetalum var. *tomentosum*

SPECIES STATUS:

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

SPECIES INFORMATION: *Zanthoxylum dipetalum* is a tree that can grow up to 15 m tall with a trunk that can grow as large as 30 cm in diameter. There are two recognized varieties of *Zanthoxylum dipetalum*. The first variety, *dipetalum*, is found on four Hawaiian Islands. The second variety, *tomentosum*, is rare and found only on the island of Hawai'i. This variety is distinguished from *Zanthoxylum dipetalum* var. *dipetalum* by the hairs on the undersurface of its leaflets. It is distinguished from other Hawaiian species of the genus by reduced lower leaflets, the presence of only one joint on some of the leaflet stalks, and larger seeds.

DISTRIBUTION: This species is located on Pu'u Wa'awa'a, on the island of Hawai'i.

ABUNDANCE: Only one population has ever been known, discovered in 1919. It is located at Pu'u Wa'awa'a on Mt. Hualalai, on the island of Hawai'i. Approximately 24 individuals are now known, scattered through the area.

LOCATION AND CONDITION OF KEY HABITAT: This species is found in degraded 'ohi'a-dominated montane mesic forests, often on a'a lava, at elevations between 915 and 1,040 meters. Associated species include mamane, lama, alaa, iliahi, ohe kolea, and kopiko.

THREATS:

- Browsing and trampling by cattle;
- Direct damage to plants and habitat degradation by feral pigs and sheep;
- Competition with invasive alien plant taxa;
- Fire, the likelihood of which has been increased by the presence of the invasive grass *Pennisetum setaceum* (fountain grass);

- Natural disturbances such as volcanic activity.

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. 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:

- 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:

International Union for Conservation of Nature and Natural Resources, 2004, IUCN Red List of Threatened Species: Data Base Search, <http://www.redlist.org/search/search-basic.html>.

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US Fish and Wildlife Service. 1996. Final Listing, Determination of Endangered Status for Thirteen Plants From the Island of Hawaii, State of Hawaii ; Federal Register, Vol. 61, No. 198, (10-OCT-96), 61 FR 53137 53153, 17 pp.

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