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Plants

Popolo'aiakeakua

Solanum sandwicense

SPECIES STATUS:

Federally Listed as Endangered

Genetic Safety Net Species

Hawai'i Natural Heritage Ranking - Critically Imperiled

Endemism – Kaua'i, O'ahu, Island of Hawai'i

Critical Habitat - Designated

SPECIES INFORMATION: *S. sandwicense*, a member of the nightshade family (Solanaceae), is a large sprawling shrub that can grow up to 4 meters (13 ft) tall. This shrub has a trunk that can grow up to 15 centimeters (6 in) in diameter. With the exception of some young parts, the rest of the plant is very pubescent with yellowish stellate hairs that are dense on the lower leaves, and sparser on the upper surface. The flowers of *S. sandwicense* are perfect (having both male and female reproductive parts) that have bent peduncles so the flowers face downward. These actinomorphic (radially symmetrical) flowers have white erect filaments, yellow anthers, and a pale green stigma.

DISTRIBUTION: This species is known from Honouliuli Preserve, O'ahu and from Koke'e and Nā Pali Coast State Parks, on Kaua'i.

ABUNDANCE: On Kaua'i, 13-14 plants in 5 populations. No wild plants are known on O'ahu or Hawai'i.

LOCATION AND CONDITION OF KEY HABITAT: *S. sandwicense* inhabits open, sunny areas in diverse lowland to montane mesic forests, 760 to 1,220 (2,500 to 4,000 ft) meters elevation. The last remaining populations are located on both State and privately owned land. The habitat has been degraded by feral pigs and invasion of alien plant taxa. Associated species of *S. sandwicense* include *Acacia koa* (koa), *Metrosideros polymorpha* ('ōhi'a), *Dicranopteris linearis* (uluhe), *Psychotria hexandra* (Kopiko), and *Melicope* sp. (alani).

THREATS:

- Habitat degradation by feral pigs;
- Competition with non-native plant species;
- Fire;

- Stochastic extinction;
- Reduce vigor due to the small number of existing individuals;
- The impact of tomato mosaic virus has yet to be assessed.

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:

- 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:

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