

No Photo Available

Plants

Wawae'iole

Huperzia nutans

SPECIES STATUS:

Federally Listed as Endangered

Genetic Safety Net Species

Hawai'i Natural Heritage Ranking - Critically Imperiled (G1)

Endemism – Kaua'i, O'ahu

Critical Habitat - Designated

SPECIES INFORMATION: *Huperzia nutans*, a member of the club moss family (Lycopodiaceae) is a clumped club moss that is terrestrial or epiphytic. Stems erect or pendulous, 25-35 cm long, unforked to 2-forked, 3-4 cm wide at base. Fertile terminal portions of the stems fork once or twice and curve downward, leaves on these portions are smaller.

DISTRIBUTION: Ko'olau Mountains of O'ahu and Wahiawa Mountains of Kaua'i, 500-600 m elevation.

ABUNDANCE: In the vicinity of North Kaukonahua and Waikane-Schofield trail, fewer than ten plants have been observed.

LOCATION AND CONDITION OF KEY HABITAT: Growing on the ground or on tree trunks and limbs, in wet forests and shrublands on ridgecrests, gulch slopes, and gulch bottoms.

THREATS:

- Habitat degradation by feral pigs;
- Fruit predation by rats;
- Competition from alien plant species;
- Stochastic extinction;
- Reduced reproductive vigor due to the small number of remaining individuals.

CONSERVATION ACTIONS: The goals of conservation actions are not only to protect current populations, but also to establish further 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 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 enclosure fences for damage and inside enclosures 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/trackedspecies.asp?taxa=P&usesa=>.

Palmer, Daniel D., 2003, Hawaii's Ferns and Fern Allies, Honolulu, HI: University of Hawaii Press, 324p.

US Fish and Wildlife Service. 1994. Final Listing, Endangered ETWP; Endangered Status for 11 Plant Species from the Koolau Mountain Range, Island of Oahu, HI; Federal Register, Vol. 56 No. 183, (28-MAR-94), 59 FR 14482 14493, 9 pp.

Wagner, W. L., D. R. Herbst, and D. H. Lorence. 2005-. Flora of the Hawaiian Islands website. <http://ravenel.si.edu/botany/pacificislandbiodiversity/hawaiianflora/index.htm> [August, 2005].