

Plants

'Ala'alahua, mahoe

Alecryon macrococcus var. *auwahiensis*



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SPECIES STATUS:

Federally Listed as Endangered

Genetic Safety Net Species

IUCN Red List Ranking - CR B2ab(i,ii,iii,iv,v)

Hawai'i Natural Heritage Ranking - Critically

Imperiled (G1T1)

Endemism - Maui

Critical Habitat - Designated

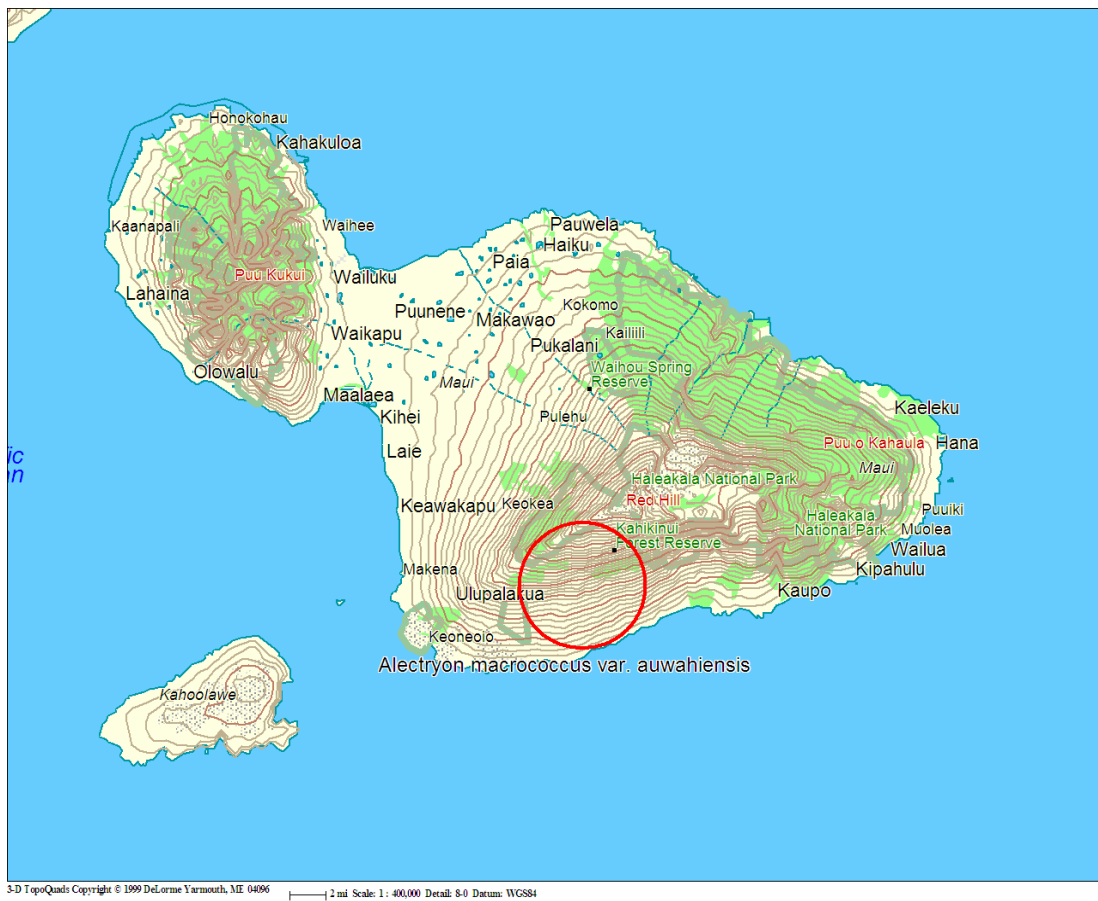
SPECIES INFORMATION: *Alecryon macrococcus* of the soapberry family (Sapindaceae) is a tree up to 36 ft (11 m) tall with reddish brown branches. The leaves are usually 8 to 22 in (20 to 55 cm) long, typically with two to five pairs of egg-shaped, slightly asymmetrical leaflets. Glossy and smooth above, the leaves have a conspicuous netted pattern of veins. A dense covering of rust-colored hairs persists on the lower surfaces of mature leaves of *A. macrococcus* var. *auwahiensis*, whereas the mature leaves of *A. macrococcus* var. *macrococcus* lack hairs or are only slightly hairy. In both varieties, the flowers, which may be either bisexual or male, are borne in branched clusters up to 12 in (30 cm) long and lack petals. The fruit of this tree provided food for the early Hawaiians, as both the seed and the scarlet-colored, fleshy aril around it have mild but slightly sweet flavors. The two varieties recognized for this species are Federally Listed as Endangered. The first, variety *macrococcus*, is found on four Hawaiian islands. The second, discussed here, is variety *auwahiensis*, found only on the island of Maui, and is much rarer.

DISTRIBUTION: *A. macrococcus* var. *auwahiensis* is found only on the island of Maui, on the south slope of the volcano Haleakalā, at elevations of 1,017 and 3,562 m (1,168 and 3,337 ft). It apparently was confined to the leeward side of East Maui, where it occurred in Auwahi and Kanaio districts.

ABUNDANCE: *Alecryon macrococcus* var. *auwahiensis* is known historically from two locations. The first is the area known as Auwahi. In 1910, J.F. Rock found about 40 trees in the forest of Auwahi. The population size was reported to be large in the first half of the century but has subsequently declined to about twelve individuals within 29 hectares of private and State-owned (but privately leased) ranchland. The second is the ridge east of Pahihi Gulch. As of 1992, 22 individuals of *A. macrococcus* var. *auwahiensis*

are known from the two populations. The current number of trees still surviving needs to be updated.

LOCATION AND CONDITION OF KEY HABITAT: *A. macrococcus* var. *auwahiensis* occurs in dry to mesic lowland forest types, growing on dry slopes or in gulches at an elevation of 1,200 to 3,500 ft (360 to 1,070 m). Associated native species include *Metrosideros polymorpha* (ohi'a), *Diospyros sandwicensis* (lama), *Nestegis sandwicensis* (olopua), and *Psychotria* spp. (kopiko). The area was severely degraded by cattle grazing, and heavily invaded by alien plant species such as *Opuntia* sp., *Melinis minutiflora* (molasses grass), *Pennisetum clandestinum* (kikuyu grass), *Psidium cattleianum* (strawberry guava), and *Schinus terebinthifolius* (Christmasberry).



THREATS:

- Infestations by the black twig borer;
- Habitat degradation by feral pigs;
- Competition for light, space, and water with alien plants;
- Fire;
- Predation of fruits and flowers by rodents;

- Predation and habitat degradation by cattle and goats;
- Small number of remaining individuals.

CONSERVATION ACTIONS: The goals of conservation actions are to not only protect current populations, but also establish further populations to reduce the risk of extinction. The US Fish and Wildlife Service 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 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;
- Maintain current system of small fenced enclosures around individual trees.

MONITORING:

- Survey for populations and distribution in known and likely habitats;
- Monitor enclosure fences and trees for signs of ungulate damage;
- Monitor plants for insect damage and plant diseases.

RESEARCH PRIORITIES:

- Develop proper horticultural and pest management protocols;
- 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.

Hawai`i Natural Heritage Program. 2005. Hawaii Natural Heritage Program Search, <http://www.hinhp.org/printpage.asp?spp=PDMALOH0A0>.

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>.

NTBG. 1999. Perlman, Steve. Field Data Booklet #37, SP 16749. Unpublished data.

Starr, Forest and Kim. 2005. Plants of Hawaii website. www.hear.org/starr/hiplants/images/600max/htm [August, 2005].

USFWS. 1992. Final Listing, Endangered ETWP; Determination of Endangered of Threatened Status for 15 Plants from the Island of Maui, Hawaii; Federal Register, Vol. 57, No. 95,(15-MAY-92), 57 FR 20772-20788, 16 pp.

Wagner, W.L., Herbst, D.R., and Sohmer, S.H., 1999. Manual of the Flowering Plants of Hawai'i--
Revised Edition. Honolulu, HI: University of Hawaii Press and Bishop Museum Press. 1853p.