

## Plants

No Photo Available

### Alani

#### *Melicope balloui*

##### **SPECIES STATUS:**

Federally Listed as Endangered

Genetic Safety Net Species

IUCN Red List Ranking – Endangered (EN B1+2c, C2b)

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

Endemism - Maui

Critical Habitat - Designated

**SPECIES INFORMATION:** *Melicope balloui* is a small tree or shrub, the new growth of which has yellowish brown woolly hairs and waxy scales. Plant parts later become nearly hairless. Leaves are opposite, leathery, inversely ovate to elliptic, 5 to 10 cm (2.0 to 3.9 in) long by 3 to 7 cm (1.2 to 2.8 in) wide, and have petioles 1.0 to 2.6 cm (0.4 to 1.0 in) long. The upper and lower surfaces of mature leaves are hairless except along the midrib of the lower surface. Each flower cluster is on a main stalk 3 to 16 mm (0.1 to 0.6 in) long and comprises five to nine flowers on individual stalks about 5 mm (0.2 in) long. Only female flowers have been observed and each consists of four sepals about 3 mm (0.1 in) long, four petals about 4 mm (0.2 in) long, an eight-lobed nectary disk, eight reduced and nonfunctional stamens, and a four-lobed ovary with many short, fine hairs. The fruit, a four-lobed capsule 2.5 to 2.7 cm (1.0 to 1.1 in) wide, consists of 1.2 to 1.3 cm (0.5 in) long carpels fused about a quarter of their length. Sepals and petals usually remain attached to the mature fruit. One or two glossy black seeds about 7 mm (0.3 in) long are found in each fertile carpel. The exocarp and endocarp are covered with fine, short hairs. *Melicope balloui* is distinguished from other species of the genus by the partially fused carpels of its four-lobed capsule and the usually persistent sepals and petals.

**DISTRIBUTION:** *Melicope balloui* has been found only on the island of Maui on the northern and southeastern slopes of Haleakalā. There are two known extant populations, located approximately 4.0 km (2.5 mi) apart near Pu'u o Kaka'e on privately owned land and in Kipahulu Valley on federally owned land within Haleakalā National Park.

**ABUNDANCE:** The two populations are comprised of an estimated total of no more than ten individuals.

**LOCATION AND CONDITION OF KEY HABITAT:** . This species typically grows in koa- and 'ōhi'a-dominated Montane Wet Forests at elevations between 760 and 1,520 m

(2,500 and 5,000 ft). Associated native taxa include *Coprosma* sp. (pilo), *Dicranopteris linearis* (uluhe), *Joinvillea ascendens*, and *Peperomia subpetiolata* ('ala'alawai nui).

**THREATS:**

- Habitat degradation and damage to plants by feral pigs;
- Goats;
- Axis deer;
- Competition with alien plant taxa, such as *Paspalum conjugatum* (Hilo grass) and *Psidium cattleianum* (strawberry guava);
- Black twig borer;
- Reduced reproductive vigor and/or extinction from stochastic events due to the small number of existing populations and individuals.

**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. 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;
- 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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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>.

US Fish and Wildlife Service. 1994. Final Listing, Endangered Status for Three Hawaiian Plant Species of the Genus *Melicope*; Federal Register, Vol. 56 No. 183, (05-DEC-94), 59 FR 62346 62352, 7 pp.

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