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## Plants

# kamakahala

*Labordia tinifolia* var. *wahiawaensis*

### SPECIES STATUS:

Federally Listed as Endangered

Genetic Safety Net Species

Hawai'i Natural Heritage Ranking - Vulnerable;

Subspecies Critically Imperiled (G3T1)

Endemism – Kaua'i

Critical Habitat - Designated

**SPECIES INFORMATION:** *Labordia tinifolia* var. *wahiawaensis*, a member of the Loganiaceae, is a shrub or small tree, usually 2 to 8 m (6.6 to 26.2 ft) tall. The young branches are cylindrical or nearly so and hairless. The elliptic to lance-shaped leaves are usually 4.5 to 21 cm (1.8 to 8.3 in) long and 2 to 5 cm (0.8 to 2 in) wide. The membranous leaves are medium green, hairless, and the veins are not impressed on the upper leaf surface. Normally, 9 to 12 flowers are clustered on a downward curving inflorescence stalk, 9 to 22 mm (0.35 to 0.9 in) long, each having an individual stalk 8 to 11 mm (0.2 to 0.4 in) in length. The pale yellowish-green flowers are narrowly urn-shaped, 17 to 19 mm (0.7 to 0.75 in) long. The tubular portion of the flowers is 5.5 to 7.8 mm (0.2 to 0.3 in) long with long, white hairs inside, while the egg-shaped lobes are 1.7 to 2.3 mm (0.07 to 0.09 in) long. The fruits are an egg-shaped capsule, 8 to 17 mm (0.2 to 0.7 in) long, usually with two valves and an apex with a beak 0.5 to 1.5 mm (0.02 to 0.1 in) long. Variety *wahiawaensis* is distinguished from the other two taxa by its larger corolla. This species differs from others of the genus by having a long common flower cluster stalk, hairless young stems and leaf surfaces, transversely wrinkled capsule valves, and corolla lobes usually 1.7 to 2.3 mm (0.1 in) long.

**DISTRIBUTION:** *Labordia tinifolia* var. *wahiawaensis* is known from the Wahiawa Drainage in the Wahiawa Mountains of Kaua'i from 630 to 740 m (2,070 to 2,430 ft) elevation on privately owned land, within a 0.8 by 1.2 km (0.5 by 0.75 mi) area.

**ABUNDANCE:** More than 100 plants were originally known but in 1992 Hurricane 'Iniki reduced the population to between 20 and 30 individuals.

**LOCATION AND CONDITION OF KEY HABITAT:** The plants grow along streams in lowland wet forests dominated by 'ōhi'a, in association with native species such as 'olapa, uluhe, ha'iwale, hame, kopiko, and manono.

**THREATS:**

- Competition from alien plants;
- Habitat degradation by pigs;
- Trampling by humans;
- Extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of individuals in the only known population.

**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. 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 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:**

- Survey for populations and distribution in known and likely habitats;
- Monitor exclosure fences for damage and inside exclosures 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:**

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