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Plants

Gahnia lanaiensis

SPECIES STATUS:

Federally Listed as Endangered
Genetic Safety Net Species
Hawai'i Natural Heritage Ranking –
Critically Imperiled
Endemism – Lāna'i
Critical Habitat - Designated

SPECIES INFORMATION: *Gahnia lanaiensis*, a member of the sedge family (Cyperaceae), is a tall (5 to 10 ft (1.5 to 3 m)), tufted, perennial, grass-like plant. This sedge may be distinguished from grasses and other genera of sedges on Lāna'i by its spirally arranged flowers, its solid stems, and its numerous, three-ranked leaves. *Gahnia lanaiensis* differs from the other members of the genus on the island by its achenes (seed-like fruits), which are 0.14 to 0.18 in (0.35 to 0.45 cm) long and purplish-black when mature.

DISTRIBUTION: *Gahnia lanaiensis* was first collected on Lāna'i, east of Munro Trail and north of Lanai-hale. The current distribution encompasses the entire known historic range of the species.

ABUNDANCE: *Gahnia lanaiensis* is known from 15 or 16 large clumped plants.

LOCATION AND CONDITION OF KEY HABITAT: The single known population grows in shrubby rainforest along the summit of Lanaihale and extends for a distance of about 0.8 mi (1.3 km) between 3,000 and 3,360 ft (915 and 1,025 m) in elevation.

THREATS:

- Increased potential for extinction from stochastic events due to small number of plants and restricted distribution;
- Long term threat posed by planned development of the island;
- Threatened competition from encroaching manuka (*Leptospermum scoparium*);
- Presently, hotels are being built and a tourist industry is planned for the area. The Munro Trail, which traverses Lanaihale, affords a beautiful view of the island and is sure to be popular with tourists. Approximately 30 percent of the known plants of *G. lanaiensis* grow along this trail system. Increased human use of the trail could lead to the destruction of individuals of the species. Disturbance of the soil or destruction of groundcover plants would increase the potential for erosion and open the area to invading exotic plants.

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 USFWS has developed a recovery plan (Lanai Plant Cluster (9 spp.)) 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.

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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