Starr, HEAR

Plants

Diplazium molokaiense

SPECIES STATUS:
Federally Listed as Endangered
Genetic Safety Net Species
Hawai'i Natural Heritage Ranking - Critically Imperiled (G1)
Endemism – Kaua'i, O'ahu, Moloka'i, Lana'i and Maui
Critical Habitat - Designated

SPECIES INFORMATION: *Diplazium molokaiense*, a member of the spleenwort family (Aspleniaceae), has a short prostrate rhizome. The leaf stalks are 15 to 20 cm (6 to 8 in) long and green or straw-colored. The frond is thin-textured, ovate-oblong, 15 to 50 cm (6 to 20 in) long and 10 to 15 cm (4 to 6 in) wide, truncate at the base, and pinnate with a pinnatifid apex. The sori are 0.8 to 1.3 cm (0.3 to 0.5 in) long and lie alongside the side veins of the pinnae. *Diplazium molokaiense* can be distinguished from other species of *Diplazium* in the Hawaiian Islands by a combination of characters, including venation pattern, the length and arrangement of the sori, frond shape, and the degree of dissection of the frond.

DISTRIBUTION: Historically, *Diplazium molokaiense* was found at Kaholuamano on Kaua'i; Makaleha on O'ahu; Kalae, Kaluaaha, Mapulehu, and the Wailau Trail on Moloka'i; Mahana Valley and Kaiholena on Lāna'i; and Wailuku (Iao) Valley and Waikapu on West Maui.

ABUNDANCE: The currently known populations of *Diplazium molokaiense* totaled 23 individuals in 1992. Within the last 50 years, it has been recorded from only one location on O'ahu and three on East Maui. The O'ahu population is at Schofield Barracks in the Wai'anae Mountains. The three Maui populations are on the slopes of Haleakalā: two populations on the north slope at Ainahou and Maliko Gulch, and the third on the south slope at Waiopai Gulch.

LOCATION AND CONDITION OF KEY HABITAT: The currently known populations of *Diplazium molokaiense* are between 850 and 1,680 m (2,800 and 5,500 ft) in elevation in lowland to montane habitats, including Montane Mesic 'ōhi'a/koa Forest.

THREATS:

- Habitat degradation by feral goats, cattle (*Bos taurus*), and pigs;
- Competition with alien plant taxa;

- Stochastic extinction due to the extremely small number of 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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