



Betsy Gagne © Smithsonian Inst., 2005

## Plants

### Nanu

*Gardenia brighamii*

#### SPECIES STATUS:

Federally Listed as Endangered

Genetic Safety Net Species

IUCN Red List Ranking - CR C2a(i);D

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

Endemism – O'ahu, Maui, Moloka'i, Lāna'i, Island of Hawai'i

**SPECIES INFORMATION:** A tree up to about 5 m tall. Leaves are few and clustered toward the tips of branches. Flowers are white and fragrant, *Gardenia brighamii* is endemic to the Hawaiian Islands and at one time thought to have occurred on all of the main islands. Judging from its use by the Hawaiians as a cloth dye, its habitat, associated species, and distribution in the early 1900s, it was probably a relatively common member of the lowland dry forest. At the beginning of the 20th century, it was considered common on west Moloka'i and Maui, but already either extirpated or very rare on the other islands.

**DISTRIBUTION:** Lāna'i, in the Kanepuu area, Wahane Gulch, and Puhielelu Ridge. On O'ahu near Pu'u Ku'ua and Nankuli. On Moloka'i near Mahana.

**ABUNDANCE:** Total known wild population is less than 20 individuals. Estimated that there are less than 100 plants total.

**LOCATION AND CONDITION OF KEY HABITAT:** Dry forest. In rocky gulches, or on plateau lands with deep soils. On the island of Hawai'i old forested lava flows. The current habitat has been severely degraded by cattle and goats. The invasion of alien plants such as lantana and a variety of grasses has crowded out much of the dry forest and shades out any seedlings that may have evaded predation from rats.

#### THREATS:

- Habitat loss from agricultural and urban expansion;
- Grazing and trampling by feral ungulates;
- Competition with alien invasive plants;
- Degradation of habitat through erosion;
- Predation of seeds by rats.

**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. 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:**

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>.

Hawai'i Natural Heritage Program, 2005. Hawaii Natural Heritage Program Search, <http://www.hinhp.org/printpage.asp?spp=PDMAL0H0A0>.

US Fish and Wildlife Service. 1985. Final Listing, Endangered ETWP; Determination of End. Status for *Gardenia brighamii* (Na'u or Hawaiian Gardenia) & Withdrawal of Proposed Designation of Crit. Hab.; Federal Register, Vol. 50, No. 162, (21-AUG-85), 50 FR 33728 33731, 4 pp.

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Wagner, W. L., D. R. Herbst, and D. H. Lorence. 2005. Flora of the Hawaiian Islands website. <http://ravenel.si.edu/botany/pacificislandbiodiversity/hawaiianflora/index.htm> [August, 2005].