

'ohi'a, 'ohi'a ha, 'uki, and uluhe (HHP 1994L4 to 1994L7, Wagner *et al.* 1990).

The major threats to *Cyrtandra viridiflora* are habitat degradation or destruction by feral pigs, potential impacts from military activities, potential predation by rats, competition with the alien plants Koster's curse and strawberry guava, and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining populations and individuals (HHP 1994L4 to 1994L6; J. Lau, C. Russell, and J. Yoshioka, pers. comms. 1994).

*Delissea subcordata* was first collected on Oahu by Gaudichaud-Beaupre over 150 years ago. He later described and named it for its heart-shaped leaf base (Hillebrand 1888). Lammers considers all subsequently named varieties to be synonymous with *Delissea subcordata*, including *D. subcordata* var. *kauaiensis*, *D. subcordata* var. *obtusifolia*, *D. subcordata* var. *wailaeensis*, *D. subcordata* var. *waikaneensis*, and *Lobelia subcordata* (Lammers 1990, St. John 1977, Wawra 1873).

*Delissea subcordata*, a member of the bellflower family, is a branched or unbranched shrub 1 to 3 m (3.5 to 10 ft) tall. The leaves are egg-shaped or oval lance-shaped, with heart-shaped bases and blades 12 to 30 cm (4.7 to 12 in) long and 6 to 17 cm (2.4 to 6.7 in) wide. The leaf margins have shallow, rounded to sharply pointed teeth. Occasionally the leaf margin may be irregularly cut into narrow and unequal segments with one to six triangular lobes, 10 to 18 mm (0.4 to 0.7 in) long, toward the leaf base. Six to 18 white or greenish white flowers are arranged on a flowering stalk 4 to 10 cm (1.6 to 4 in) long. The calyx lobes are awl-shaped and 0.5 to 1 mm (0.02 to 0.04 in) long. The curved corolla is 45 to 60 mm (1.8 to 2.4 in) long and has a knob on the back side. The anthers are hairless. The fruit is an egg-shaped berry. This species is distinguished from others in this endemic Hawaiian genus by the shape and size of the leaves, the length of the calyx lobes and corolla, and the hairless condition of the anthers (Lammers 1990).

Historically *Delissea subcordata* was known from 21 scattered populations in the Waianae Mountains and 8 populations in the Koolau Mountains of Oahu. A specimen collected by Mann and Brigham in the 1860's and labeled as from the island of Kauai is believed to have been mislabeled (HHP 1994m8). *Delissea subcordata* is now known only from the Waianae Mountains in nine populations distributed from Kawaii

Gulch in the Kealia land section in the northern Waianae Mountains to the north branch of North Palawai Gulch about 20 km (12 mi) to the south. This species is found on private land (TNCH's Honouliuli Preserve), Federal land (Schofield Barracks Military Reservation and Lualualei Naval Reservation), and State land (Pahole and Kaala NARs or leased to the Federal government (Makua Military Reservation)). The total number of plants in the 9 remaining populations is estimated to be between 70 and 80. *Delissea subcordata* typically grows on moderate to steep gulch slopes in mesic native or alien-dominated forests from 430 to 760 m (1,400 to 2,500 ft) elevation. Associated plant taxa include a variety of native trees such as 'ala'a, hame, kukui, 'ohi'a, papala kepau, *Diospyros hillebrandii* (lama), *Nestegis sandwicensis* (olopua), and kopiko (HHP 1994m1 to 1994m26; Takeuchi and Shimabukuro (s.n.) 1987; Takeuchi, Yap, and Paquin (3422) 1987; Takeuchi and Paquin (2734) 1986; Takeuchi (2410) 1985).

*Delissea subcordata* is threatened by habitat degradation and/or destruction by ungulates such as pigs and goats; potential impacts from military activities, including road construction and housing development; potential predation by rats; competition with the alien plants Christmas berry, Koster's curse, strawberry guava, and *Lantana camara* (lantana); potential fire; and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining individuals (HHP 1994m1, 1994m7; Takeuchi & Shimabukuro (s.n.) 1987; Takeuchi (2410) 1985; J. Lau, L. Mehrhoff, and J. Yoshioka, pers. comms. 1994).

In 1933, F. Raymond Fosberg collected a plant in the Waianae Mountains that Leo D. Whitney (1937) named *Eragrostis fosbergii*. This species is maintained in the most recent treatment of Hawaiian members of this genus (O'Connor 1990).

*Eragrostis fosbergii* is a perennial grass (family Poaceae), with stout, tufted culms (stems) 60 to 100 cm (24 to 40 in) long, which usually arise from an abruptly bent woody base. The leathery leaf blades, 40 to 60 cm (16 to 24 in) long and 5 to 10 mm (0.2 to 0.4 in) wide, are flat but curl inward towards the apex. The small flowers occur in complex clusters that are somewhat open, pyramidal, and 20 to 40 cm (8 to 16 in) long. The pale to dark green spikelets (ultimate flower clusters) generally contain three to five flowers, and are about 5 mm (0.2 in) long. The slender glumes (small bracts at the base

of the spikelet) have margins fringed with long hairs. The lemmas (inner bracts that subtend the flowers) have loosely overlapping margins which are occasionally fringed with hairs. The fruit is a grain. This species is distinguished from others in the genus by its stiffly ascending flowering stalk and the long hairs on the margins of the glumes and occasionally on the margins of the lemmas (O'Connor 1990).

Historically *Eragrostis fosbergii* was known only from the Waianae Mountains of Oahu, from the slopes of Mount Kaala and in Waianae Kai and its associated ridges (HHP 1994n1 to 1994n6). This species was thought to be extinct until rediscovered by Joel Lau of TNCH in 1991. Only six individuals are known to remain in Waianae Kai in four populations on land owned by the State and the City and County of Honolulu (HHP 1994n3 to 1994n6). *Eragrostis fosbergii* typically grows on ridge crests or moderate slopes in native or alien forests between 720 and 830 m (2,360 and 2,720 ft) elevation. Associated plant taxa include Christmas berry, koa, 'ohi'a, *Psydrax odoratum* (alaha'e), *Dodonaea viscosa* ('a'ali'i), and *Eragrostis grandis* (kawelu) (HHP 1994n3 to 1994n6).

The major threats to *Eragrostis fosbergii* include degradation of habitat by feral pigs and goats; competition with alien plants such as Christmas berry, silk oak, and strawberry guava; and trampling by hikers. This species is also threatened by the risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining populations and individuals (HHP 1994n3 to 1994n6; C. Russell, pers. comm. 1994).

*Gardenia mannii* was first described by St. John and J.R. Kuykendall in 1949, based on a specimen they had collected a few years earlier in the Koolau Mountains, Oahu. In the same paper, St. John and Kuykendall also described *Gardenia mannii* var. *honoluluensis*, which is not currently recognized (Wagner *et al.* 1990). The specific epithet honors Horace Mann, Jr., an early collector of Hawaiian plants.

*Gardenia mannii*, a member of the coffee family (Rubiaceae), is a tree 5 to 15 m (16 to 50 ft) tall. The leaves are inversely lance-shaped or slightly more elliptic, 6 to 27 cm (2.4 to 10.6 in) long, and 3.5 to 10 cm (1.4 to 4 in) wide. The upper leaf surface is sticky. The fragrant flowers bloom in the late afternoon, and usually last for 2 days. They are solitary and occur at the branch tips. The cup-shaped calyx, 3 to 5 mm (0.1 to 0.2 in) long, extends into four to six leathery, long, thin, terminal spurs (hollow appendages). These spurs are linear