

a restricted range that makes it vulnerable to any local environmental disturbance or single incident that could destroy a significant percentage of the known individuals; and the limited gene pool that may depress reproductive vigor (HINHP Database 2001; Service 1998b; 56 FR 46235).

Cyanea truncata (Haha)

Cyanea truncata, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is an unbranched or sparsely branched shrub covered with small sharp prickles. Its oval leaves are wider above the middle and lined with hardened teeth along the margins. *Cyanea truncata* is distinguished from other members of this genus by the length of the flower cluster stalk and the size of the flowers and flower lobes (Lammers 1999).

Cyanea truncata was observed in flower in December 1919 and November 1980, the last time the species was observed at that population before feral pigs extirpated it. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b; 59 FR 14482).

Historically, *Cyanea truncata* was known from Punaluu, Waikane, and Waiahole in the northern Koolau Mountains of Oahu. Two occurrences are currently known to exist in Hanaimoa Gulch on State and private lands (GDSI 2001; HINHP Database 2001).

Cyanea truncata typically grows on windward slopes and stream banks in mesic to wet forests at elevations between 54 and 705 m (177 and 2,312 ft). Associated native plant species include *Cibotium chamissoi*, *Cyrtandra calpidicarpa* (haiwale), *Cyrtandra laxiflora* (haiwale), *Cyrtandra propinqua* (haiwale), *Diospyros sandwicensis*, *Hibiscus arnottianus*, *Metrosideros polymorpha*, *Neraudia melastomifolia* (maaloa), *Pipturus albidus*, or *Pisonia umbellifera* (HINHP Database 2001; Lammers 1999; Service 1998b).

The major threats to *Cyanea truncata* are habitat degradation and predation by feral pigs; competition with the invasive nonnative plant species *Christella parasitica*, *Clidemia hirta*, *Cordyline fruticosa*, *Oplismenus hirtellus*, and *Psidium cattleianum*; predation by rats and slugs; and extinction due to naturally caused events and/or reduced reproductive vigor due to the small number of remaining individuals (Service 1998b; 59 FR 14482).

Cyrtandra crenata (Haiwale)

Cyrtandra crenata, a member of the African violet family (Gesneriaceae) and a short-lived perennial, is a shrub 1 to 2 m (3 to 7 ft) tall with few branches and leaves arranged in whorls of three, which are tufted at the end of branches. *Cyrtandra crenata* is distinguished from other species in the genus by the combination of its three-leaf arrangement, bilaterally symmetrical calyx, and brownish, hemispherical glands (Wagner *et al.* 1999).

Cyrtandra crenata has been observed in flower in June. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b; 59 FR 14482).

Historically, *Cyrtandra crenata* was known from Waikane Valley along the Waikane-Schofield Trail in the Koolau Mountains and was last observed in 1947 (HINHP Database 2001).

Cyrtandra crenata typically grows on steep slopes, in ravines, or gulches in mesic to wet forests between elevations of 328 and 779 m (1,076 and 2,555 ft) with associated native plant species such as *Dicranopteris linearis*, *Machaerina angustifolia*, and *Metrosideros polymorpha* (HINHP Database 2001; Service 1998b; Wagner *et al.* 1999).

The primary threat to *Cyrtandra crenata* is extinction due to naturally caused events and/or reduced reproductive vigor due to the species' restricted range. No individuals are known to be extant at this time (Service 1998b; 59 FR 14482).

Cyrtandra dentata (Haiwale)

Cyrtandra dentata, a member of the African violet family (Gesneriaceae) and a short-lived perennial, is a sparingly branched shrub ranging from 1.5 to 5 m (5 to 16 ft) tall with papery textured leaves. This species is distinguished from others in the genus by the number and arrangement of the flowers, the length of the bracts and flower stalks, and the shape of the leaves (Wagner *et al.* 1999).

Cyrtandra dentata has been observed in flower and fruit in May and November. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Cyrtandra dentata was historically known from six occurrences in the Waianae Mountains and three occurrences in the Koolau Mountains of Oahu. Currently, this species is found only in Pahole Gulch, Kapuna Valley,

Ekahanui Gulch, Keawapilau Gulch, Kahanahaiki, Kawai Iki Gulch, Opauea Stream, and Makaleha Valley on Federal, State, city, and county lands (within TNCH's Honouliuli Preserve). The 11 known occurrences total 136 individuals (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Cyrtandra dentata typically grows in gulches, slopes, stream banks, or ravines in mesic or wet forest with associated native plant species such as *Acacia koa*, *Metrosideros polymorpha*, *Pipturus albidus*, *Pisonia sandwicensis*, *Pisonia umbellifera*, *Pouteria sandwicensis*, *Syzygium sandwicensis*, or *Urera glabra*, at elevations between 255 and 953 m (836 and 3,126 ft) (HINHP Database 2001; Wagner *et al.* 1999; EDA, *in litt.* 2001).

The major threats to *Cyrtandra dentata* are competition with the nonnative plant species *Aleurites moluccana*, *Belchnum appendiculatum*, *Christella parasitica*, *Clidemia hirta*, *Psidium cattleianum*, *Psidium guajava*, and *Schinus terebinthifolius*; potential predation by rats; potential fire; and a risk of extinction from naturally occurring events (such as landslides/hurricanes/flooding) and/or reduced reproductive vigor due to the small number of extant occurrences and individuals (HINHP Database 2001; Service 1998b; 61 FR 53089).

Cyrtandra polyantha (Haiwale)

Cyrtandra polyantha, a member of the African violet family (Gesneriaceae) and a short-lived perennial, is an unbranched or few-branched shrub 1 to 3 m (3 to 10 ft) in height with leathery, elliptic, unequal leaves. *Cyrtandra polyantha* is distinguished from other species in the genus by the texture and hairiness of the leaf surfaces and the length, shape, and degree of cleft of the calyx. This species differs from *C. crenata* by the lack of short-stalked glands and by its leathery leaves, opposite leaf arrangement, and radially symmetrical calyx (Wagner *et al.* 1999).

Nothing is known about the flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors for *Cyrtandra polyantha* (Service 1998b).

Historically, *Cyrtandra polyantha* was known from the Kalihi region and from Kulepeamo Ridge above Niu Valley on the leeward (southwest) side of the southern Koolau Mountains. Currently, one occurrence with three individuals is extant on the summit ridge between Kuliouou and Waimanalo on State and private lands (HINHP Database 2001).

Cyrtandra polyantha grows on ridges in *Metrosideros polymorpha* mesic or