

violet family (Gesneriaceae). It is a shrub with opposite, elliptic to almost circular leaves that are sparsely to moderately hairy on the upper surface and covered with velvety, rust-colored hairs underneath. This species is distinguished from other species of the genus by the broad opposite leaves, the length of the flower cluster stalks, the size of the flowers, and the amount of hair on various parts of the plant (Wagner *et al.*, 1999).

The reproductive biology of some species of *Cyrtandra* has been studied, but not *C. munroi* specifically. The studies of other members of the genus suggest that a specific pollinator may be necessary for successful pollination. Seed dispersal may be via birds, which eat the fruits. Flowering time, longevity of plants and seeds, specific environmental requirements, and other limiting factors are unknown (Service 1995).

Cyrtandra munroi was historically and is currently known from Lanai and Maui. Currently on Lanai there are a total of two occurrences containing 17 individuals on privately owned land in the Kapohaku-Waiapaa area, and in the gulch between Kunoa and Waialala gulches (GDSI 2000; HINHP Database 2000).

The habitat of this species is diverse mesic forest, wet *Metrosideros polymorpha* forest, and mixed mesic *M. polymorpha* forest, typically on rich, moderately steep gulch slopes at elevations between 667 and 1,032 m (2,188 and 3,385 ft). It occurs on soil and rock substrates on slopes from watercourses in gulch bottoms and up the sides of gulch slopes to near ridgetops. Associated native species include *Alyxia oliviformis*, *Bobea elatior*, *Clermontia* spp., *Coprosma* spp., *Cyrtandra grayana*, *Dicranopteris linearis*, *Diospyros sandwicensis*, *Diplopterygium pinnatum*, *Freycinetia arborea*, *Hedyotis acuminata* (au), *Melicope* spp., *Myrsine lessertiana*, *Perrottetia sandwicensis*, *Pipturus albidus*, *Pittosporum confertiflorum*, *Pleomele fernaldii*, *Pouteria sandwicensis*, *Psychotria* spp., *Sadleria cyatheoides*, *Scaevola chamissoniana*, or *Xylosma hawaiiense* (HINHP Database 2000; Service 1995).

The threats to this species on Lanai are browsing and habitat disturbance by axis deer; competition with the nonnative plant species *Leptospermum scoparium*, *Melinis minutiflora* (molasses grass), *Myrica faya*, *Paspalum conjugatum* (Hilo grass), *Pluchea carolinensis*, *Psidium cattleianum*, or *Rubus rosifolius* (thimbleberry); depressed reproductive vigor; and loss

of appropriate pollinators (Service 1995; 57 FR 20772).

Diellia erecta (NCN)

Diellia erecta, a short-lived perennial fern in the spleenwort family (Aspleniaceae), grows in tufts of three to nine lance-shaped fronds emerging from a rhizome covered with brown to dark gray scales. This species differs from other members of the genus in having large brown or dark gray scales, fused or separate sori along both margins, shiny black midribs that have a hardened surface, and veins that do not usually encircle the sori (Degener and Greenwell 1950; Wagner 1952).

Little is known about the life history of *Diellia erecta*. Its reproduction cycles, dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1999).

Historically, *Diellia erecta* was known on Kauai, Oahu, Molokai, Lanai, Maui, and the island of Hawaii. Currently, it is known from Oahu, Molokai, Maui, and the island of Hawaii and was recently rediscovered on Kauai. On Lanai it was last seen in 1929 (HINHP Database 2000; Service 1999).

This species is found in brown granular soil with leaf litter and occasional terrestrial moss on north-facing slopes in deep shade and on steep slopes or gulch bottoms in *Pisonia* spp. forest at elevations between 651 and 955 m (2,135 and 3,132 ft). Associated native plant species include native grasses or ferns (HINHP Database 2000; Service 1999; J. Lau and K. Wood, pers. comms., 2001).

The major threats to *Diellia erecta* on Lanai included habitat degradation by axis deer and mouflon sheep, and competition with nonnative plant species (Service 1999; 59 FR 56333).

Diplazium molokaiense (NCN)

Diplazium molokaiense, a short-lived perennial fern and a member of the spleenwort family (Aspleniaceae), has a short prostrate rhizome and green or straw-colored leaf stalks with thin-textured fronds. This species can be distinguished from other species of *Diplazium* in the Hawaiian Islands by a combination of characteristics, including venation pattern, the length and arrangement of the sori, frond shape, and the degree of dissection of the frond (Wagner and Wagner 1992).

Little is known about the life history of *Diplazium molokaiense*. Its reproduction cycles, dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1998a).

Historically, *Diplazium molokaiense* was found on Kauai, Oahu, Molokai, Lanai, and Maui. Currently, this species is known only from Maui. It was last seen on Lanai in 1914 (HINHP Database 2000).

This species occurs in shady, damp places in wet forests at elevations between 737 and 1,032 m (2,417 and 3,385 ft) (HINHP Database 2000; Service 1998a; J. Lau, pers. comm., 2001).

The primary threats to *Diplazium molokaiense* on Lanai included habitat degradation by axis deer and mouflon sheep, and competition with nonnative plant species (HINHP Database 2000; Service 1998a; 59 FR 49025).

Hedyotis mannii (pilo)

Hedyotis mannii is a short-lived perennial and a member of the coffee family (Rubiaceae). It has smooth, usually erect stems 30 to 60 cm (1 to 2 ft) long, which are woody at the base and four-angled or -winged. It is distinguished from other species by its growth habit, its quadrangular or winged stems, the shape, size, and texture of its leaves, and its dry capsule, which opens when mature (Wagner *et al.*, 1999).

Little is known about the life history of this plant. Reproductive cycles, longevity, specific environmental requirements, and limiting factors are unknown (Service 1996b).

Hedyotis mannii was once widely scattered on Lanai, West Maui, and Molokai. After a hiatus of 50 years, this species was rediscovered in 1987 by Steve Perlman on Molokai. In addition, an occurrence was discovered on Maui and two occurrences, now numbering between 35 and 40 individual plants, were discovered on Lanai in 1991 on privately owned land in Maunalei and Hauola gulches (GDSI 2000; HINHP Database 2000; Service 1996b).

Hedyotis mannii typically grows on dark, narrow, rocky gulch walls and on steep streambanks in wet forests between 711 and 1,032 m (2,332 and 3,385 ft) in elevation. Associated plant species include *Carex meyenii*, *Dryopteris sandwicensis*, *Freycinetia arborea*, *Sadleria* spp., or *Scaevola chamissoniana* (HINHP Database 2000; Service 1996b; J. Lau, pers. comm., 2001).

The primary threats to *Hedyotis mannii* are the limited number of individuals which makes it extremely vulnerable to extinction from random environmental events; habitat degradation caused by axis deer and mouflon sheep; and nonnative plants, such as *Melinis minutiflora*, *Psidium cattleianum*, and *Rubus rosifolius* (57 FR 46325).