

*Touchardia latifolia* (HINHP Database 2001).

The major threats to *Phyllostegia parviflora* var. *lydgatei* are habitat degradation and/or destruction by feral pigs; landslides or rockslides; competition with the nonnative plant species *Ageratina adenophora*, *Christella parasitica*, *Passiflora suberosa*, *Psidium cattleianum*, *Rivina humilis*, *Rubus rosifolius*, and *Schinus terebinthifolius*; and a risk of extinction and/or reduced reproductive vigor due to the small number of remaining individuals and occurrences. The major threats to *Phyllostegia parviflora* var. *parviflora* on Oahu are competition with the nonnative plant species *Ageratina* sp. and *Clidemia hirta*; and extinction and/or reduced reproductive vigor due to the small number of remaining individuals in each respective occurrence (HINHP Database 2001; Service 1999; 61 FR 53108).

*Plantago princeps* (laukahi kuahiwi)

*Plantago princeps*, a short-lived member of the plantain family (Plantaginaceae), is a small shrub or robust perennial herb. This species differs from other native members of the genus in Hawaii by its large branched stems, flowers at nearly right angles to the axis of the flower cluster, and fruits that break open at a point two-thirds from the base. The four varieties, vars. *anomala*, *laxiflora*, *longibracteata*, and *princeps*, are distinguished by the branching and pubescence of the stems; the size, pubescence, and venation of the leaves; the density of the inflorescence; and the orientation of the flowers (Wagner *et al.* 1999).

Individuals have been observed in fruit from April through September. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1999).

*Plantago princeps* was historically found on Kauai, Oahu, Molokai, Hawaii, and Maui. It is no longer extant on the island of Hawaii. *Plantago princeps* var. *longibracteata* was known from Kauai and Oahu, but there are currently no remaining Oahu populations. The 11 extant occurrences of var. *princeps* on Oahu consist of between 130 and 180 individuals on Federal, State, city, county, and private lands at Palawai Gulch, Ekahanui Gulch, Nanakuli-Lualualei Ridge, Makua-Makaha Ridge, Mohiaka Gulch, and Pahole Gulch (EDA Database 2001; GDSI 2001; HINHP Database 2001).

On Oahu, *Plantago princeps* var. *longibracteata* was typically found on the sides of waterfalls and wet rock

faces between 64 and 835 m (210 and 2,739 ft) elevation. Associated native plant species included *Bidens* sp., *Coprosma granadensis* (makole), *Eugenia* sp., *Lobelia gaudichaudii* (NCN), *Metrosideros rugosa*, or *Scaevola glabra*. *Plantago princeps* var. *princeps* is typically found on slopes and ledges in *Metrosideros polymorpha* lowland mesic forests and shrublands between 110 and 1,064 m (361 to 3,490 ft) elevation. Associated native plant species include *Artemisia australis*, *Bidens* sp., *Chamaesyce* sp., *Dubautia plantaginea*, *Eragrostis* sp., *Lysimachia* sp., *Pilea peplodes*, and *Viola* sp. (pamakani) (HINHP Database 2001; EDA, *in litt.* 2001).

The primary threats to *Plantago princeps* var. *longibracteata* on Oahu were predation and habitat degradation by feral pigs and goats and competition with various nonnative plant species. The primary threats to *Plantago princeps* var. *princeps* are rockslides and competition with the nonnative plant species *Erigeron karvinskianus*, *Melinis minutiflora*, and *Schinus terebinthifolius* (HINHP Database 2001; Service 1999; 59 FR 56333).

*Platanthera holochila* (NCN)

*Platanthera holochila*, a short-lived perennial member of the orchid family (Orchidaceae), is an erect, deciduous herb. The stems arise from underground tubers, the pale green leaves are lance-to egg-shaped, and the greenish-yellow flowers occur in open spikes. This is the only species of this genus that occurs on the Hawaiian Islands (Wagner *et al.* 1999). It is distinguished from other Hawaiian orchids by its underground tubers that lack roots at the nodes or pseudobulbs and by the shape and length of its dorsal sepal.

Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown for this species (Service 1999).

Historically, *Platanthera holochila* was known from Maui, Oahu, Molokai, and Kauai. Currently, it is extant on Kauai, Molokai, and Maui. This species was last collected on Oahu in 1938 in the area from Puu Kainapua to Kawainui-Kaipapau summit ridge and Kipapa Gulch (HINHP Database 2001).

On Oahu, *Platanthera holochila* was found in *Metrosideros polymorpha*-*Dicranopteris linearis* wet forest or *M. polymorpha* mixed shrubland between 447 and 867 m (1,466 and 2,844 ft) elevation. Associated native plant species included *Broussaisia arguta*, *Cibotium* sp., *Clermontia* sp. (oha wai), *Coprosma* sp., *Dubautia* sp., *Gahnia* sp., *Leptecophylla tameiameiae*, *Luzula*

*hawaiiensis* (wood rush), *Lycopodiella cernua*, *Lythrum maritimum* (pukamole), *Polypodium pellucidum* (ae), *Sadleria* sp., *Scaevola* sp., *Vaccinium reticulatum*, and *Wikstroemia* sp. (akia) (Service 1999; 61 FR 53108).

The major threats to *Platanthera holochila* are habitat degradation and destruction by ungulates such as cattle and feral pigs, predation by slugs, competition with alien plants, over collection, and the small number of occurrences and individuals, which make the species highly vulnerable to extinction from random environmental events and reduced reproductive vigor (Service 1999).

*Pteris lidgatei* (NCN)

*Pteris lidgatei*, a short-lived member of the maidenhair fern family (Adiantaceae), is a coarse perennial herb, 0.5 to 1 m (1.6 to 3.3 ft) tall. It can be distinguished from other species of *Pteris* on the Hawaiian Islands by the texture of its fronds and the tendency of the sori along the leaf margins to be broken into short segments instead of being fused into continuous marginal sori (Wagner 1949; Wagner and Wagner 1992).

Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown for this species (Service 1998a).

Historically, *Pteris lidgatei* was found on Oahu, Molokai, and Maui. Currently, this species is known from Oahu and Maui. Nine occurrences with approximately 13 individuals occur on Oahu on Federal, State, and private lands Kaluanui, Kawainui drainage, Kaukonahua Gulch, Kawai Iki Stream, Waimano Stream, and Waimano Gulch (EDA Database 2001; GDSI 2001; HINHP Database 2001).

*Pteris lidgatei* on Oahu grows on steep stream banks and cliffs around 75 m (246 ft) elevation in wet *Metrosideros polymorpha*-*Dicranopteris linearis* forest with *Asplenium* sp. (NCN), *Broussaisia arguta*, *Cibotium chamissoi*, *Cyrtandra* sp., *Dicranopteris linearis*, *Diplopterygium pinnatum*, *Doodia lyonii* (NCN), *Dryopteris sandwicensis*, *Elaphoglossum crassifolium* (ekaha), *Isachne pallens*, *Machaerina angustifolia*, *Sadleria squarrosa*, *Selaginella arbuscula*, or *Sphenomeris chinensis* (palaa) (HINHP Database 2001; EDA, *in litt.* 2001).

The primary threats to *Pteris lidgatei* on Oahu are competition with the nonnative plant species *Ageratina riparia*, *Christella parasitica*, *Clidemia hirta*, *Paspalum conjugatum*, *Psidium cattleianum*, *Pterolepis glomerata*, and