

with a mixture of dominant plant species that may include *Metrosideros polymorpha*, *Dicranopteris linearis*, or *Leptecophylla tameiameia* at elevations between 558 and 1,032 m (1,830 and 3,385 ft). Associated plant species include *Dodonaea viscosa*, *Dubautia* spp., *Myrsine* sp. (kolea), *Sadleria* spp., or *Sphenomeris chinensis* (HINHP Database 2000; 64 FR 48307).

The primary threats to *Hedyotis schlechtendahlia* var. *remyi* are habitat degradation and destruction by axis deer; competition with nonnative plant species, such as *Leptospermum scoparium*, *Myrica faya* (firetree), *Psidium cattleianum* (strawberry guava), or *Schinus terebinthifolius* (Christmasberry); and random environmental events or reduced reproductive vigor due to the small number of remaining individuals and occurrences (HINHP Database 2000; 64 FR 48307).

*Labordia tinifolia* var. *lanaiensis* (kamakahala)

*Labordia tinifolia* var. *lanaiensis*, a short-lived perennial in the logan family (Loganiaceae), is an erect shrub or small tree 1.2 to 15 m (4 to 49 ft) tall. The stems branch regularly into two forks of nearly equal size. This subspecies differs from the other species in this endemic Hawaiian genus by having larger capsules (a dry, generally many seeded fruit) and smaller corollas (petals, whorl of flower parts) (Wagner *et al.*, 1999).

Little is known about the life history of *Labordia tinifolia* var. *lanaiensis*. Its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 2001).

*Labordia tinifolia* var. *lanaiensis* was historically known from the entire length of the summit ridge of Lanaihale. Currently, *L. tinifolia* var. *lanaiensis* is known from only one occurrence on privately owned land at the southeastern end of the summit ridge of Lanaihale. This occurrence totals 3 to 8 scattered individuals (GDSI 2000; HINHP Database 2000; Service 2001).

The typical habitat of *Labordia tinifolia* var. *lanaiensis* is gulch slopes in lowland mesic forest. Associated native species include *Alyxia oliviformis* (maile), *Bobea elatior* (ahakea launui), *Clermontia* spp., *Coprosma* spp., *Cyrtandra grayana* (haiwale), *Dicranopteris linearis*, *Diospyros sandwicensis*, *Diploterygium pinnatum*, *Freycinetia arborea*, *Hedyotis acuminata* (au), *Melicope* spp., *Myrsine lessertiana* (kolea), *Perrottetia sandwicensis*,

*Pipturus albidus*, *Pittosporum confertiflorum* (hoawa), *Pleomele fernaldii* (hala pepe), *Pouteria sandwicensis* (alaa), *Psychotria* spp., *Sadleria cyatheoides* (amau), *Scaevola chamissoniana*, or *Xylosma hawaiiense* (maua) at elevations between 550 and 1,013 m (1,804 and 3,323 ft) (HINHP Database 2000; Service 2001; 64 FR 48307).

*Labordia tinifolia* var. *lanaiensis* is threatened by axis deer and several nonnative plant species. The species is also threatened by random environmental factors or reduced reproductive vigor because of the small population (Service 2001; 64 FR 48307).

*Phyllostegia glabra* var. *lanaiensis* (NCN)

*Phyllostegia glabra* var. *lanaiensis* is a robust, erect to decumbent (reclining, with the end ascending), glabrous, short-lived perennial herb in the mint family (Lamiaceae). Its leaves are thin and narrow, often red-tinged or with red veins, and toothed at the edges. The flowers are white, occasionally tinged with purple, and are variable in size, about 1 to 2.5 centimeters (cm) (0.4 to 1.0 in) long. This variety is very similar to *Phyllostegia glabra* var. *glabra*; it may be difficult to differentiate between the two species without flowers (Wagner *et al.*, 1999).

Little is known about the life history of *Phyllostegia glabra* var. *lanaiensis*. Its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1995).

*Phyllostegia glabra* var. *lanaiensis* is known from only two collections from Lanai (one near Kaiholena) and was last collected in 1914 (two fertile specimens). A report of this plant from the early 1980s probably was erroneous and should be referred to as *Phyllostegia glabra* var. *glabra* (Robert Hobdy, Hawaii Division of Forestry and Wildlife (DOFAW), pers. comm., 1992; Service 1995).

Nothing is known of the preferred habitat of or native plant species associated with *Phyllostegia glabra* var. *lanaiensis* on the island of Lanai (Service 1995).

Nothing is known of the threats to *Phyllostegia glabra* var. *lanaiensis* on the island of Lanai (Service 1995).

*Viola lanaiensis* (NCN)

*Viola lanaiensis*, a short-lived perennial of the violet family (Violaceae), is a small, erect, unbranched or little-branched subshrub. The leaves, which are clustered toward the upper part of the stem, are lance-

shaped with a pair of narrow, membranous stipules (leaf-like appendages arising from the base of a leaf) below each leaf axis. The flowers are small and white with purple-tinged or purple veins, and occur singly or up to four per upper leaf axil. The fruit is a capsule, about 1.0 to 1.3 cm (0.4 to 0.5 in) long. It is the only member of the genus on Lanai (Wagner *et al.*, 1999).

Little is known about the life history of *Viola lanaiensis*. Its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1995).

*Viola lanaiensis* was known historically from scattered sites on the summit, ridges, and upper slopes of Lanaihale (from near the head of Kaiolena and Hookio Gulches to the vicinity of Haalelepaakai, a distance of about 4 km (2.5 mi)), at elevations of approximately 850 to 975 m (2,790 to 3,200 ft). An occurrence of *V. lanaiensis* was known in the late 1970s along the summit road near the head of Waialala Gulch where an occurrence of approximately 20 individuals flourished. That occurrence has since disappeared due to habitat disturbance. Two occurrences are currently known from privately owned land on southern Lanai: In Kunoa Gulch, between Kunoa and Waialala Gulches; and in the upper end of the northernmost drainage of Awehi Gulch, in Hauola Gulch and along Hauola Trail. It is estimated that the occurrences total less than 80 plants (GDSI 2000; HINHP Database 2000).

The habitat of *Viola lanaiensis* is *Metrosideros polymorpha*-*Dicranopteris linearis* lowland wet forest or lowland mesic shrubland. The species has been observed on moderate to steep slopes from lower gulches to ridgetops, at elevations between 639 and 1,032 m (2,096 and 3,385 ft), with a soil and decomposed rock substrate in open to shaded areas. It was once observed growing from crevices in drier soil on a mostly open rock area near a recent landslide. Associated vegetation includes ferns and short windswept shrubs or other diverse mesic community members, such as *Antidesma* spp. (hame), *Carex* sp. (NCN), *Coprosma* spp., *Freycinetia arborea*, *Hedyotis centranthoides* (NCN), *Hedyotis terminalis*, *Ilex anomala*, *Leptecophylla tameiameia*, *Myrsine* spp., *Nestegis sandwicensis* (olopua), *Psychotria* spp., *Scaevola chamissoniana*, or *Xylosma* sp. (Service 1995; 56 FR 47686).

The main threats to *Viola lanaiensis* include browsing and habitat disturbance by axis deer; encroaching