

2000; HINHP Database 2000; K. Wood, *in litt.* 1999).

*Labordia lydgatei* is found on streambanks in *Metrosideros polymorpha*-*Dicranopteris linearis* lowland wet forest at elevations between 182 and 1,048 m (597 and 3,437 ft). Associated native plant species include *Antidesma platyphyllum* var. *hillebrandii* (hame), *Cyanea* spp., *Cyrtandra* spp., *Dubautia knudsenii*, *Hedyotis terminalis*, *Ilex anomala*, *Labordia hirtella* (kamakahala), *Psychotria* spp., or *Syzygium sandwicensis* (HINHP Database 2000; Service 1994; K. Wood, pers. comm., 2001).

Competition from nonnative plants poses the greatest threat to the survival of *Labordia lydgatei* (56 FR 47695). Additional threats include habitat degradation from feral pigs; rats, a potential seed predator; landslides and erosion; reduced germination; and a lack of dispersal or pollination agents (Service 1994).

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

*Labordia tinifolia* var. *wahiawaensis*, a member of the logania family (Loganiaceae), is a shrub or small tree with hairless, cylindrical young branches. This long-lived perennial species differs from others of the genus by having a long common flower cluster stalk, hairless young stems and leaf surfaces, transversely wrinkled capsule valves, and length of the corolla lobes. Three varieties of *Labordia tinifolia* are recognized: var. *lanaiensis* on Lanai and Molokai; var. *tinifolia* on Kauai, Oahu, Molokai, Maui, and Hawaii; and var. *wahiawaensis*, endemic to Kauai. The variety *wahiawaensis* is distinguished from the other two by its larger corolla (Wagner *et al.* 1999).

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

*Labordia tinifolia* var. *wahiawaensis* has only been known from one occurrence with a current total of approximately 20 to 30 individual plants on private land in the Wahiawa drainage in the Wahiawa Mountains (GDSI 2000; HINHP Database 2000).

*Labordia tinifolia* var. *wahiawaensis* grows along streambanks in lowland wet forests dominated by *Metrosideros polymorpha* at elevations between 458 and 1,006 m (1,502 and 3,301 ft), with *Antidesma platyphyllum*, *Athyrium microphyllum* (akolea), *Cheirodendron* spp., *Cyrtandra* spp., *Dicranopteris linearis*, *Hedyotis terminalis*, or

*Psychotria* spp. (HINHP Database 2000; K. Wood, pers. comm., 2001).

The primary threats to the remaining individuals of *Labordia tinifolia* var. *wahiawaensis* are competition with nonnative plants, habitat degradation by feral pigs, trampling by humans, and a risk of extinction from catastrophic random events or reduced reproductive vigor due to the small number of individuals in a single population (61 FR 53070).

*Lipochaeta fauriei* (nehe)

*Lipochaeta fauriei*, a member of the aster family (Asteraceae), is a perennial herb with somewhat woody, erect or climbing stems. This short-lived perennial species differs from other species on Kauai by having a greater number of disk and ray flowers per flower head, longer ray flowers, and longer leaves and leaf stalks (Gardner 1976, 1979; Service 1995; Wagner *et al.* 1985, 1990).

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

Historically and currently, *Lipochaeta fauriei* is known from Olokele Canyon on Kauai. This species is now found on State-owned land in Poopooiki Valley, Kuia Valley, Haelele Valley, and Kawaiiki Valley within Kuia NAR, Na Pali-Kona Forest Reserve, and Puu Ka Pele Forest Reserve. Currently there is a total of five occurrences with 82 individuals. An occurrence in Koaie Canyon previously thought to be *L. fauriei* was later identified as *Melanthera subcordata* (nehe) (Gardner 1979; GDSI 2000; HINHP Database 2000; Service 1995; K. Wood, *in litt.* 1999).

This species grows most often in moderate shade to full sun and is usually found on the sides of steep gulches in diverse lowland mesic forests at elevations between 436 and 947 m (1,432 and 3,108 ft). Associated native plant species include *Acacia koa*, *Carex meyenii*, *Carex wahuensis*, *Dicranopteris linearis*, *Diospyros* spp., *Dodonaea viscosa*, *Euphorbia haeleleana*, *Hibiscus waimeae*, *Kokia kauaiensis*, *Myrsine lanaiensis*, *Nestegis sandwicensis*, *Pleomele aurea*, *Psychotria greenwelliae*, *Psychotria mariniana*, or *Sapindus oahuensis* (lonomea) (HINHP Database 2000; K. Wood, pers. comm., 2001).

Major threats to *Lipochaeta fauriei* are predation and habitat degradation by feral goats and pigs and competition with invasive nonnative plants. Fire is also a significant threat to *L. fauriei* due

to the invasion of *Melinis minutiflora*, a fire-adapted grass that creates unnaturally high fuel loads. The small total number of individuals makes the species susceptible to extinction from naturally occurring events, such as landslides or hurricanes, and/or reduced reproductive vigor (HINHP Database 2000; Service 1995; 59 FR 9304).

*Lipochaeta micrantha* (nehe)

*Lipochaeta micrantha*, a member of the aster family (Asteraceae), is a somewhat woody short-lived perennial herb. The small number of disk flowers separates this species from the other members of the genus on the island of Kauai. The two recognized varieties of this species, var. *exigua* and var. *micrantha*, are distinguished by differences in leaf length and width, degree of leaf dissection, and the length of the ray florets (Gardner 1976, 1979; Wagner *et al.* 1990).

Little is known about the life histories of *Lipochaeta micrantha* var. *exigua* and *L. m.* var. *micrantha*. Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1995).

Historically, *Lipochaeta micrantha* var. *exigua* was only known from the Haupu Range on Kauai. Currently, five occurrences of *L. micrantha* var. *exigua*, with a total of 110 individuals, are known from privately owned land in the vicinity of Haupu Range and southwest of Hokunui summit. Historically, *L. micrantha* var. *micrantha* has been known from Olokele Canyon, Hanapepe Valley, and the Koloa District on Kauai. Currently, this variety is only known from five occurrences totaling 121 individuals on State land within the Na Pali-Kona Forest Reserve in Koaie Canyon and Kawaiiki Valley (GDSI 2000; HINHP Database 2000).

*Lipochaeta micrantha* grows on cliffs, ridges, streambanks, or slopes in mesic to wet mixed communities at elevations between 35 and 1,362 m (115 and 4,468 ft). Associated species include *Acacia koa*, *Antidesma* spp., *Artemisia australis*, *Bidens sandwicensis*, *Bobea* spp., *Chamaesyce celastroides* var. *hanapepens*, *Diospyros* spp., *Dodonaea viscosa*, *Eragrostis grandis*, *Eragrostis variabilis*, *Hibiscus kokio*, *Lepidium bidentatum* (anaunau), *Lobelia niihauensis*, *Melicope* spp., *Metrosideros polymorpha*, *Neraudia kauaiensis* (NCN), *Nototrichum* spp., *Pipturus* spp., *Plectranthus parviflorus* (ala ala wai nui), *Pleomele aurea*, *Psydrax odorata*, *Rumex albescens* (huahuako), *Sida fallax*, or *Xylosma*