

extinction since a single naturally occurring event (e.g., a hurricane) could destroy all remaining plants (61 FR 53070; C. Koga, in litt. 1999; A. Kyono, pers. comm., 2000).

*Pteralyxia kauaiensis* (kaulu)

*Pteralyxia kauaiensis*, a member of the dogbane family (Apocynaceae), is a long-lived perennial tree 3 to 8 m (10 to 26 ft) tall. The leaves are dark green and shiny on the upper surfaces, but pale and dull on the lower surfaces. This species differs from the only other species of this endemic Hawaiian genus in having reduced lateral wings on the seed (Wagner *et al.* 1999).

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

Historically, *Pteralyxia kauaiensis* was known from the Wahiawa Mountains in the southern portion of Kauai. This species is now known from 39 occurrences, with a total of 1,124 to 1,161 individuals in the following scattered locations on State land: Limahuli Valley, the left and right branches of Kalalau Valley, Pohakuao, Makaha Valley, Kuia Valley, Haeleele Valley, Koaie Canyon, Kawaiiki Valley, Hipalau, Haupū, Blue Hole, Poomau Valley, and Kapaliikea within the Lihue-Koloa Forest Reserve, Na Pali Coast State Park, Na Pali-Kona Forest Reserve, and Puu Ka Pele Forest Reserve. There is also an undocumented sighting of one individual at Makaleha, above the town of Kapaa (HINHP Database 2000; Wagner *et al.* 1999; 59 FR 9304; K. Wood, in litt. 1999).

This species is typically found in diverse mesic or *Diospyros sandwicensis* mixed mesic forests with *Pisonia* spp. between elevations of 127 and 1,563 m (418 and 5,128 ft). Associated native plant species include *Acacia koa*, *Alectryon macrococcus*, *Alphitonia ponderosa*, *Antidesma platyphyllum* var. *hillebrandii*, *Bobea brevipes*, *Carex* spp., *Charpentiera elliptica*, *Claoxylon sandwicense*, *Cyanea* spp., *Dianella sandwicensis*, *Diospyros* spp. (lama), *Diplazium sandwichiianum*, *Dodonaea viscosa*, *Euphorbia haeleeleana*, *Freycinetia arborea*, *Gahnia* spp., *Gardenia remyi* (nanu), *Hedyotis terminalis*, *Hibiscus kokio*, *Kokia kauaiensis*, *Leptecophylla tameiameia*, *Metrosideros polymorpha*, *Myrsine lanaiensis*, *Neraudia* spp. (NCN), *Nesoluma polynesicum*, *Nestegis sandwicensis*, *Peperomia* spp., *Pipturus* spp., *Pisonia sandwicensis*, *Pleomele aurea*, *Poa sandwicensis*, *Pouteria*

*sandwicensis*, *Pritchardia* spp., *Psychotria* spp., *Psydrax odorata*, *Rauvolfia sandwicensis*, *Santalum freycinetianum* var. *pyrularium*, *Schiedea* spp., *Syzygium sandwicensis*, *Tetraplasandra* spp., *Xylosma hawaiiense*, or *Zanthoxylum dipetalum* (HINHP Database 2000; 59 FR 9304; K. Wood, pers. comm., 2001).

The major threats to *Pteralyxia kauaiensis* are habitat destruction by feral animals and competition with introduced plants. Animals affecting the survival of this species include feral goats and pigs, and possibly rats, which may eat the fruit. Fire could threaten some populations. Introduced plants competing with this species include *Aleurites moluccana*, *Cordyline fruticosa*, *Erigeron karvinskianus*, *Lantana camara*, *Psidium cattleianum*, or *Psidium guajava* (HINHP Database 2000; Service 1995; 59 FR 9304).

*Remya kauaiensis* (NCN)

*Remya kauaiensis*, one of three species of a genus endemic to the Hawaiian Islands, is in the aster family (Asteraceae). *Remya kauaiensis* is a small short-lived perennial shrub, about 1 m (3 ft) tall, with many sprawling branches covered with a fine tan fuzz near their tips. The lower surface of the leaves is covered with fine white hairs. This species is distinguished from the other Kauai species in the genus by being hairy, having shorter flower head stalks, and having narrower tips on the floral bracts (Wagner *et al.* 1999).

Seedlings of this species have not been observed. Flowers have been observed in April, May, June, and August, and are probably insect-pollinated. Seeds are probably wind or water-dispersed. *Remya kauaiensis* may be self-incompatible (Herbst 1988; Service 1995; 56 FR 1450).

Historically, this species was found at Koaie, Mohihi, Kalalau, Makaha, Nualolo, Kawaiula, Kuia, Honopu, Awaawapuhi, Kopakaka, and Kauhao on Kauai. There are currently 17 known occurrences with a total of 106 to 114 individuals on State-owned land. They occur in Hipalau Valley, Awini Valley, Koaie Canyon, Mohihi Stream, the left branch of Kalalau Valley, Awaawapuhi and Nualolo Valleys, Kuia and Kawaiula Valleys, Makaha Valley, Kauhao Valley, and Kaulaula Valley within the Alakai Wilderness Preserve, Kuia NAR, Na Pali Coast State Park, Na Pali-Kona Forest Reserve, Puu Ka Pele Forest Reserve, and Waimea Canyon State Park (GDSI 2000; HINHP Database 2000; K. Wood, in litt. 1999).

*Remya kauaiensis* grows chiefly on steep, north or northeast-facing slopes at elevations between 560 and 1,247 m

(1,836 and 4,090 ft). It is found primarily in *Acacia koa*-*Metrosideros polymorpha* lowland mesic forest with *Chamaesyce* spp. (akoko), *Claoxylon sandwicense*, *Dianella sandwicensis*, *Diospyros* spp., *Dodonaea viscosa*, *Hedyotis terminalis*, *Melicope* spp., *Nestegis sandwicensis*, *Pouteria sandwicensis*, *Psychotria* spp., *Schiedea* spp., or *Tetraplasandra* spp. (HINHP Database 2000; Herbst 1988; 56 FR 1450; K. Wood, pers. comm., 2001).

The primary threats to *Remya kauaiensis* include herbivory and habitat degradation by feral goats, pigs, cattle, and deer, and competition from nonnative plant species. Other threats include erosion, fire, and risk of extinction from naturally occurring events, such as landslides or hurricanes, and/or reduced reproductive vigor due to the small number of remaining populations and individuals (Service 1995; 56 FR 1450).

*Remya montgomeryi* (NCN)

*Remya montgomeryi* in the aster family (Asteraceae) was discovered in 1985 by Steven Montgomery on the sheer, virtually inaccessible cliffs below the upper rim of Kalalau Valley, Kauai. It is a small short-lived perennial shrub, about 1 m (3 ft) tall, with many sprawling to weakly erect, smooth branches. The species is distinguished from *R. kauaiensis* by being hairless, with longer flower head stalks and broader floral bract tips (Wagner *et al.* 1999).

Seedlings of this species have not been observed. Flowers have been observed in April through August and are probably insect-pollinated. Seeds are probably wind or water-dispersed. *Remya montgomeryi* may be self-incompatible (Herbst 1988; 56 FR 1450).

*Remya montgomeryi* is known only from Kauai. Six occurrences with 143 individuals are reported on State-owned land in the left and right branches of Kalalau Valley, Koaie Canyon, and Kuia Valley within the Alakai Wilderness Preserve and Na Pali Coast State Park (GDSI 2000; HINHP Database 2000; Herbst 1988; K. Wood, in litt. 1999).

*Remya montgomeryi* grows at elevations between 336 and 1,344 m (1,102 and 4,411 ft), primarily on steep, north or northeast-facing slopes or cliffs in transitional wet or *Metrosideros polymorpha*-dominated mixed mesic forest. Associated native plant species include *Artemisia australis*, *Bobea* spp., *Boehmeria grandis*, *Cheirodendron* spp., *Claoxylon sandwicense*, *Cyrtandra* spp., *Dubautia* spp., *Ilex anomala*, *Lepidium serra*, *Lysimachia* spp. (kolokolo kuahiwi), *Myrsine linearifolia*, *Nototrichium* spp., *Pleomele aurea*, *Poa*