

Chamaesyce sp., *Chenopodium oahuense* (aheahea), *Leptecophylla tameiameia*, *Lipochaeta rockii* (nehe), *Nestegis sandwicensis*, *Nothocestrum latifolium* (aiea), *Pleomele auwahiensis*, *Sida fallax*, or *Sophora chrysophylla* (mamane) (HINHP Database 2000; J. Lau, *in litt.* 2001).

Major threats to *Schiedea sarmentosa* include habitat degradation by feral goats and pigs, competition by the non-native plants *Melinis minutiflora* and *Ricinus communis* (castor bean), and fire. The species is also threatened by a risk of extinction from naturally occurring events due to the low number of occurrences (Service 1998a, 61 FR 53130).

Silene alexandri (NCN)

Silene alexandri, a member of the pink family (Caryophyllaceae), is an erect, short-lived perennial herb, 30 to 60 cm (1 to 2 ft) tall, and woody at the base. The narrow, elliptic leaves are hairless except for a fringe along the margins. Flowers are arranged in open clusters on stalks. The hairless stems, flowering stalks, and sepals and the larger flowers with white petals separate this species from other members of the genus (Wagner *et al.* 1999).

Little is known about the life history of this species. Its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1996a).

Historically, *Silene alexandri* was known from Makolelau and Kamalo on East Molokai. Recently, the single known occurrence, comprised of fewer than 10 individuals, was reported to be extirpated in the wild. However, individuals remain in cultivation (GDSI 2000; HINHP Database 2000; Steve Perlman, NTBG, pers. comm., 2001).

The only known occurrence was found on moderate to steep slopes or cliffs in dry forest at an elevation between 316 and 1,073 m (1,036 and 3,519 ft). Associated plant species include *Bidens menziesii*, *Carex wahuensis* (NCN), *Diospyros sandwicensis*, *Dodonaea viscosa*, *Leptecophylla tameiameia*, or *Schiedea* spp. (J. Lau, *in litt.* 2001).

Threats to *Silene alexandri* include habitat degradation by feral goats, possible predation by goats and cattle (*Bos taurus*), and catastrophic extinction through random environmental events, of which the most serious is fire (Service 1996a, 57 FR 46325).

Stenogyne bifida (NCN)

Stenogyne bifida, a nonaromatic member of the mint family (Lamiaceae), is a climbing, short-lived perennial herb, with smooth or slightly hairy,

four-angled stems. The long, narrow calyx teeth and the deep lobe in the upper lip of the yellow corolla separate this species from others of the genus (Weller and Sakai 1999).

Little is known about the life history of this species. Its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1996a).

Historically, *Stenogyne bifida* was known from scattered occurrences from Waianui in central Molokai to Pukoo Ridge on East Molokai. This species is now known from only 5 East Molokai occurrences totaling fewer than 10 individuals on Manawai-Kahananui Ridge on private lands; on Kolo Ridge, at Kamoku Flats; and on the east fork of Kawela Gulch on the privately owned land of TNCH's Pelekunu Preserve (GDSI 2000, HINHP Database 2000).

Stenogyne bifida typically grows on gulch slopes in *Metrosideros polymorpha*-dominated montane mesic to wet forest with native species such as *Broussaisia arguta*, *Cheirodendron trigynum*, *Cibotium* sp., *Cyanea* sp., *Dicranopteris linearis*, *Dodonaea viscosa*, *Hedyotis hillebrandii* (manono), *Hedyotis* sp., *Leptecophylla tameiameia*, *Pipturus albidus*, *Pouteria sandwicensis*, *Psychotria* sp., *Vaccinium* sp., or *Wikstroemia* sp. at elevations between 336 and 1,300 m (1,102 and 4,264 ft) (HINHP Database 2000; Service 1996a; J. Lau, *in litt.* 2001).

The most pervasive threat to this species is habitat degradation by ungulates (axis deer, goats, and pigs) (Service 1996a, 57 FR 46325).

Tetramolopium rockii (NCN)

Tetramolopium rockii, a member of the aster family (Asteraceae), is a glandular, hairy, prostrate short-lived perennial shrub that forms complexly branching mats. The species has been divided into two varieties in the most recent treatment of this genus in Hawaii. Leaves of *T. rockii* var. *calcisabulorum* have slightly inrolled edges and are whitish due to the long silky hairs on their surfaces, whereas var. *rockii* has smaller, less hairy, flat, yellowish-green leaves. This species differs from others of the genus by its growth habit, its hairy and glandular surfaces, its spatulate leaf shape, and its yellow disk florets (Lowrey 1999).

Little is known about the life history of this species. Its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1996a).

Of the two recognized varieties of *Tetramolopium rockii*, var. *rockii* was

first discovered at Moomomi about 80 years ago and is still extant in that area. *Tetramolopium rockii* var. *rockii* is found in four areas from Kalawao to Kahinaakalani, Keieho Point to Kapalauoa, and Moomomi to Kahinaakalani. *Tetramolopium rockii* var. *calcisabulorum* is only reported from Keieho Point to Kapalauoa, intergrading with var. *rockii* where their ranges overlap. The total number of individuals of both varieties in the 4 occurrences is estimated to be 174,000; they are located on State lands, including land managed by the National Park Service at Kalaupapa National Historical Park, and privately owned lands (GDSI 2000, HINHP Database 2000).

Tetramolopium rockii is restricted to hardened calcareous sand dunes or ash-covered basalt in the coastal spray zone or coastal dry shrubland and grassland between sea level and 199 m (0 and 653 ft) in elevation. Native plant species associated with this species include *Diospyros sandwicensis*, *Fimbristylis cymosa* (mauu akiaki), *Heliotropium anomalum* (hinahina), *Melanthera integrifolia*, *Metrosideros polymorpha*, *Osteomeles anthyllidifolia* (ulei), *Pouteria sandwicensis*, *Psydrax odorata*, *Scaevola* sp. (naupaka), *Sida fallax*, or *Sporobolus virginicus* (akiaki) (HINHP Database 2000, Lowrey 1999, Service 1996a).

The major threats to *Tetramolopium rockii* are habitat degradation by ungulate (axis deer and cattle) activity and human recreation, competition with the non-native plant *Prosopis pallida* (kiawe), and catastrophic extinction due to fire (57 FR 46325).

Multi-Island Species

Adenophorus periens (pendant kihi fern)

Adenophorus periens, a short-lived perennial member of the grammitis family (Grammitidaceae), is a small, pendant, epiphytic (not rooted on the ground) fern. This species differs from other species in this endemic Hawaiian genus by having hairs along the pinna (leaflet) margins, by the pinnae being at right angles to the midrib axis, by the placement of the sori (a cluster of spore cases) on the pinnae, and the degree of dissection of each pinna (Linney 1989, Service 1999a).

Little is known about the life history of *Adenophorus periens*, which seems to grow only in dense closed-canopy forest with high humidity. Its breeding system is unknown, but outbreeding is very likely to be the predominant mode of reproduction. Spores (minute, reproductive dispersal unit of ferns) are dispersed by wind, possibly by water, and perhaps on the feet of birds or