sarmentosa to be a separate species (Warren Wagner, Smithsonian Institution, and Stephen Weller, University of California, Irvine, in litt. 1994).

Schiedea sarmentosa, a member of the pink family (Caryophyllaceae), is a many-branched shrub 30 to 45 cm (12 to 18 in) tall. The opposite leaves are slender and threadlike, 1.5 to 4.5 cm (0.6 to 1.8 in) long, and 0.5 to 1.5 mm (0.01 to 0.05 in) wide. The leaves are covered with dense, glandular hairs. There may be as many as 40 to 60 inflorescences on one plant, often with 50 to 100 flowers in each inflorescence. The flowers are female on some plants and bisexual on others. The green sepals are egg-shaped, 2 to 3 mm (0.07 to 0.12 in) long, and somewhat hairy. The staminodes (false stamens) are half as long as the sepals and two-branched at the tip. The fruits are oval capsules. This species differs from others in this endemic Hawaiian genus by its densely bushy habit, leaf width, hairiness, and staminode length (Sherff 1946; S. Weller and W. Wagner, in litt., 1994).

Schiedea sarmentosa has been found in Kawela Gulch, Makolelau, and Onini Gulch (HHP 1991b, 1993b; HPCC 1991b, 1992; Sherff 1946; J. Lau, HHP, in litt. 1994). Currently, only two populations are known. One population at the boundary of TNC's Kamakou Preserve in Onini Gulch has approximately 30 individuals (HHP 1993b). The other population occurs on privately owned

land in Makolelau, and consists of 4 subpopulations totalling approximately 300 to 400 individuals (Steve Perlman, HPCC, and S. Weller, pers. comms. 1994). Estimates of the total number of individuals have ranged up to 1,000 (J. Lau, HHP, pers. comm. 1994). An accurate count is somewhat difficult because this species is interspersed with Schiedea lydgatei (Steve Perlman, HPCC, and S. Weller, pers. comms. 1994). Schiedea sarmentosa is typically found on steep slopes in 'ohi'a-Dodonaea viscosa ('a'ali'i) lowland dry or mesic shrubland between 610 and 790 m (2,000 and 2,600 ft) elevation (HHP 1991b, 1993b; HPCC 1991b, 1992). Associated species include Styphelia tameiameiae (pukiawe), Chenopodium oahuensis ('aheahea), Alyxia oliviformis (maile), Pleomele sp. (hala pepe), and Chamaesyce sp. ('akoko) (HHP 1993b; HPCC 1991b, 1992). Major threats to Schiedea sarmentosa include feral goats and pigs, the alien plants Melinis minutiflora (molasses grass) 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 populations (J. Lau, in litt. 1994; S. Perlman, pers. comm. 1994).

Previous Federal Action

Federal government action on these plants began when the Service published a revised notice of review in the Federal Register (55 FR 6183) on

February 21, 1990, of native plants considered for listing under the Act. Lysimachia maxima (as L. ternifolia) and Schiedea sarmentosa (as S. menziesii) were included as Category 2 candidate species. Category 2 candidates are those for which listing as endangered or threatened is possibly appropriate, but for which sufficient data on biological vulnerability and threats are not currently available to support proposed rules. Lysimachia maxima (as L. ternifolia) and Schiedea sarmentosa (as S. menziesii) were also included as Category 2 candidates in the September 30, 1993 (58 FR 51144) notice of review. Since the 1993 notice, new information suggests that the numbers and distribution are sufficiently restricted and threats sufficiently great for the above two Category 2 species, as well as Cyanea *dunbarii*, to warrant listing at this time.

Summary of Factors Affecting the Species

Section 4 of the Endangered Species Act and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). The threats facing the three species in this proposed rule are summarized in Table 1.

TABLE 1.—SUMMARY OF THREATS

Species	Alien mammals				Alien	Substrate	Human im-	Fire	Limited
	Deer	Goats	Pigs	Rats	plants	loss	pacts	riie	No.*
Cyanea dunbarii Lysimachia maxima Schiedea sarmentosa	Ρ	P X	P P X	Ρ	x x	X X P	P P P	x	X1.2 X1.2 X1

Key X=Immediate and significant threat.

P=Potential threat.

*=No more than 100 individuals and/or no more than 5 populations.

1=No more than 5 populations.

2=No more than 100 individuals.

These factors and their application to Cyanea dunbarii Rock (haha), Lysimachia maxima (R. Knuth) St. John (No common name (NCN)), and Schiedea sarmentosa Degener & Sherff (NCN) are as follows:

A. The present or threatened destruction, modification, or curtailment of their habitat or range. The habitats of the plants included in this proposed rule have undergone extreme alteration because of past and present land management practices, including deliberate alien animal and

plant introductions, agricultural development, and recreational use. Natural disturbances such as storms and landslides also destroy habitat and can have a significant effect on small populations of plants. Destruction and modification of habitat by introduced animals pose serious threats to one of the proposed species and pose serious potential threats in the event that these introduced animals spread to portions of Molokai where the other two species occur (see Table 1).

When Polynesian immigrants settled in the Hawaiian Islands, they brought water-control and slash-and-burn systems of agriculture and encouraged plants that they introduced to grow in valleys. Their use of the land resulted in erosion, changes in the composition of native communities, and a reduction of biodiversity (Cuddihy and Stone 1990, Kirch 1982, Wagner et al. 1985). Hawaiians settled and altered many areas of Molokai, including areas in which some of the proposed species grew. Many forested slopes were