

their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. There are no known populations of *C. crassipes* that either occur on Federal land and/or would be affected by activities authorized, funded, or carried out by a Federal agency.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general prohibitions and exceptions that apply to all endangered plants. All trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale this species in interstate or foreign commerce, or to remove and reduce to possession the species from areas under

Federal jurisdiction. In addition, for endangered plants, the 1988 amendments (Pub. L. 100-478) to the Act prohibit the malicious damage or destruction on Federal lands and the removal, cutting, digging up, or damaging or destroying of endangered plants in knowing violation of any state law or regulation, including state criminal trespass law. Certain exceptions apply to agents of the Service and state conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances.

It is anticipated that few trade permits would ever be sought or issued because the species is not common in cultivation or in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, P.O. Box 3507, Arlington, Virginia 22201 (703/358-2104).

National Environmental Policy Act

The Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Act, as amended. A notice outlining the Service's reasons for this determination was published in the *Federal Register* on October 25, 1983 (48 FR 49244).

References Cited

Poole, J.M. 1987. Status report on *Cryptantha crassipes*. U.S. Fish and Wildlife Service, Albuquerque, NM. 20 pp. + maps.

Author

The primary author of this final rule is Sonja Jahrsdoerfer, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103 (505/766-3972 or FTS 474-3972).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Regulation Promulgation

PART 17—[AMENDED]

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.12(h) by adding the following, in alphabetical order under the family Boraginaceae, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

* * * * *
(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Boraginaceae—Borage family:						
<i>Cryptantha crassipes</i>	Terlingua Creek cat's-eye	U.S.A. (TX)	E	439	NA	NA.

Dated: September 20, 1991.
Bruce Blanchard,
Acting Director, Fish and Wildlife Service.
 [FR Doc. 91-23384 Filed 9-27-91; 8:45 am]
BILLING CODE 4310-55-M

DEPARTMENT OF THE INTERIOR
50 CFR Part 17
RIN 1018-AB42
Endangered and Threatened Wildlife and Plants; Final Rule To List the Plant *Phlox nivalis* ssp. *texensis* (Texas Trailing Phlox) as Endangered
AGENCY: Fish and Wildlife Service, Interior.
ACTION: Final rule.

SUMMARY: The Fish and Wildlife Service (Service) determines *Phlox nivalis* ssp.

texensis (Texas trailing phlox) to be an endangered species under the authority of the Endangered Species Act of 1973 (Act), as amended. This plant presently is known from only 2 sites in east Texas, out of 17 sites that were known previously. The species is threatened by habitat loss from housing development, clearing for pine plantations, highway and pipeline construction, and fire suppression in a savanna ecosystem. This action will implement Federal protection provided by the Act for Texas trailing phlox. Critical habitat is not being designated.

EFFECTIVE DATE: October 30, 1991.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Service's Ecological Services Field Office, 17629 El Camino Real, suite 211, Houston, Texas 77058.

FOR FURTHER INFORMATION CONTACT: Kathy Nemeec (see **ADDRESSES**) at (713) 229-3681 or FTS 526-6700.

SUPPLEMENTARY INFORMATION:

Background

Phlox nivalis ssp. *texensis* is a trailing phlox that is known from only two sites in east Texas. The species is endemic to the Big Thicket area of Texas and associated with the following species: *Fagus grandiflora* (American beech), *Quercus* spp. (oak), *Magnolia* spp. (magnolia), *Pinus* spp. (pine), *Liquidambar styraciflua* (American sweetgum), *Bothriochloa* spp. (beardgrass), *Carya* spp. (hickory), and *Ilex vomitoria* (yaupon). Historically, Texas trailing phlox occurred in open, grassy, frequently burned, longleaf pine (*Pinus palustris*) savanna in sandy soil.

Texas trailing phlox is a short (30 cm.; 12 in.) clumpforming, perennial species with spreading, evergreen shoots. Sterile shoots have crowded, awl-shaped and needle-like leaves; fertile shoots have short, lance-shaped leaves. The flowers occur in a three-to-six flowered cyme; shoots and stems are pubescent with gland-tipped hairs. Flowers are purple-lavender, deep rose, pink, or white, and appear from late March to early April. The fruit is a three-seeded capsule. Little is known about the reproductive biology of this species.

Historically, Texas trailing phlox was known from Hardin, Tyler, and Polk Counties in east Texas. Seven collection sites were documented in the 1940's from Tyler County, five of those were multiple collections. Lundell (1942) described the species as " * * * abundant in the pine lands * * * between Woodville and Warren in Tyler County." Populations from the Big Thicket National Preserve, first documented in 1948, were not seen again until relocated by Ceyata Ajilvsgi in 1972 (Mahler 1980).

Mahler (1980) documented five sites from Hardin and Tyler Counties in his status survey. Three populations of only a few clumps each, were located within a short distance of each other in Tyler County. In Hardin County, Texas trailing phlox occurs at two sites on and near Texas Nature Conservancy (TNC) land. The populations in Polk County were not relocated during Mahler's status survey (1980).

During 1989, a Texas Natural Heritage Program botanist relocated 2 out of 17

sites documented in the Heritage Program data base. The largest population occurs on TNC land in Hardin County, where several hundred plants are scattered across a former slash pine plantation in a sandy soil, fire-maintained pine savanna. A small population of only six flowering plants occurs at the edge of a pine plantation in Tyler County (Poole, Texas Parks and Wildlife Department, *in litt.*, 1989).

Texas trailing phlox was first collected in Hardin County, Texas, by Whitehouse in 1931. Lundell described the taxon as a subspecies of *Phlox nivalis* in 1942 and elevated it to the rank of species in 1945. Wherry (1955) in his monograph of Phlox and systematic treatment for the Flora of Texas (1966), recognized the taxon as a subspecies of *Phlox nivalis*.

Texas trailing phlox is known only from Texas. However, a disjunct relative, *Phlox nivalis* ssp. *nivalis*, occurs about 400 miles eastward in Florida. Texas trailing phlox differs from this subspecies in having minute, glandular hairs (Wherry 1955).

Section 12 of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*) directed the Secretary of the Smithsonian Institution to prepare a report of those plants considered to be endangered, threatened, or extinct. This report, designated as House Document No. 94-51, was presented to Congress on January 9, 1975. On July 1, 1975, the Service published a notice in the **Federal Register** (40 FR 27823) of its acceptance of the Smithsonian Institution report as a petition within the context of Section 4 of the Act and of its intention to review the status of the plant taxa named within. On June 16, 1976, the Service published a proposed rule in the **Federal Register** (41 FR 24523) to determine approximately 1,700 vascular plant species to be endangered species pursuant to Section 4 of the Act.

This list of 1,700 plant taxa was assembled on the basis of comments and data received by the Smithsonian Institution and the Service in response to House Document No. 94-51 and the July 1, 1975, **Federal Register** publication. Texas trailing phlox was included in the July 1, 1975, notice of review and in the June 16, 1976, proposal.

The Endangered Species Act Amendments of 1978 required that all proposals over two years old be withdrawn. A one-year grace period was given to those proposals already more than 2 years old. Subsequently, on December 10, 1979, (44 FR 70796), the Service published a notice of the withdrawal of the portion of the June 16, 1976, proposal that had not been made

final, along with other proposals that had expired; this notice of withdrawal included Texas trailing phlox.

On December 15, 1980, (45 FR 82480) and September 27, 1985, (50 FR 39526), the Service published updated notices reviewing the native plants being considered for classification as threatened or endangered. Texas trailing phlox was included in these notices as a category 1 species. Category 1 comprises taxa for which the Service has sufficient biological data to support proposing them as endangered or threatened.

Section 4(b)(3)(B) of the Endangered Species Act, as amended in 1982, requires the Secretary to make findings on certain pending petitions within one year of their receipt. Section 2(b)(1) of the Act's Amendments of 1982 further requires that all petitions pending on October 12, 1982, be treated as having been newly submitted on that date. Because Texas trailing phlox was included in the 1980 notice, the petition to list this species was treated as being newly submitted on October 12, 1982. In 1983, 1984, 1985, 1986, 1987, 1988, and 1989, the Service made the required one-year findings that the listing of Texas trailing phlox was warranted, but precluded by other listing actions of higher priority. Biological data, supplied by Mahler (1980), and Poole (*in litt.*, 1989), fully support the listing of Texas trailing phlox. A proposed rule to determine endangered status for this species was published in the **Federal Register** on May 29, 1990 (55 FR 21760).

Summary of Comments and Recommendations

In the May 29, 1990 proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices inviting public comment were published in the Houston Post on June 18, 1990; the Houston Chronicle on June 18, 1990; the Beaumont Enterprise on June 17, 1990; the Polk County Enterprise on June 18, 1990; the Silsbee Bee on June 21, 1990; and the Woodsman Publishing on June 21, 1990. Nine comments were received and are discussed below: One from a Federal agency, one from a private organization, and the remainder from individuals. All comments were supportive of the listing proposal.

Issue 1: One commenter mentioned the need to designate critical habitat for Texas trailing phlox.

Response: The threat of loss due to illegal collection remains a concern; publication of critical habitat descriptions and maps would make the plant more vulnerable and increase enforcement problems. Moreover, protection resulting from critical habitat designation is achieved through the section 7 process. Since Texas trailing phlox is currently known only from private lands where section 7 largely does not apply, the designation of critical habitat would not appreciably benefit the species. Critical habitat for Texas trailing phlox may be designated in the future if populations are found on Federal lands.

Issue 2: Some commenters requested additional surveys be done in the Big Thicket National Preserve to find other populations of the Texas trailing phlox.

Response: Based on the best scientific and commercial information available, the Service has determined that the Texas trailing phlox qualifies to be listed as endangered as explained in the "Summary of Factors" section of this rule. The necessity for further surveys that aid in the recovery of the plant will be addressed following the listing process.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that Texas trailing phlox should be classified as an endangered species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR Part 424) promulgated to implement the listing provisions of the Act were followed. 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). These factors and their application to *Phlox nivalis* ssp. *texasensis* Lundell (Texas trailing phlox) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

Loss of habitat has caused this subspecies to decline within its range during the last 30 years. Because of the small number of plants within a small number of populations in only two general localities, the taxon is vulnerable to further loss of habitat (Mahler 1980). Housing development and large scale land clearing for pine plantations in Tyler County, Texas, have eliminated former populations of Texas trailing phlox. Pipeline construction adjacent to the TNC land recently destroyed a once thriving population.

The population on the TNC land could be negatively affected by aerial drift from herbicide spray that is often applied from low-flying aircraft in timber areas (Mahler 1980). Loss of additional habitat would be detrimental to this plant.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

None known. Because of its rarity and potential use as an ornamental, Texas trailing phlox is of interest to botanists, plant breeders, and rare plant enthusiasts. Therefore, collection of plants is a potential threat.

C. Disease or Predation

None apparent.

D. The Inadequacy of Existing Regulatory Mechanisms

Texas trailing phlox is not currently protected by either Federal or State law. The Act would provide protection and encourage active management through the "Available Conservation Measures" discussed below.

E. Other Natural or Manmade Factors Affecting its Continued Existence

Fire suppression within the savanna ecosystem has reduced the amount of suitable habitat for this species. Much of the former habitat has deteriorated because of aggressive invasion of successional hardwoods into unburned pine savannas. A prescribed burning and slash pine removal program on the TNC land has enhanced habitat for Texas trailing phlox.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list Texas trailing phlox as endangered, as the Service has determined it to be in danger of extinction throughout all or a significant portion of its range. With documented population declines and imminent threats, the species warrants protection under the Act. Critical habitat is not being designated for the reasons discussed below.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires, to the maximum extent prudent and determinable, that the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not presently prudent for this species. There are only two sites known for Texas

trailing phlox. Loss of even a few plants to activities such as collection for scientific purposes could extirpate the species. As discussed under Factor B in the Summary of Factors Affecting the Species, Texas trailing phlox is threatened by taking, an activity difficult to enforce against and only regulated by the Act with respect to plants in cases of (1) removal and reduction to possession of endangered plants from lands under Federal jurisdiction, or their malicious damage or destruction on such lands; and (2) removal, cutting, digging up, or damaging or destroying in knowing violation of any State law or regulation, including State criminal trespass law. Such provisions are difficult to enforce. Publication of critical habitat descriptions and maps would make Texas trailing phlox more vulnerable and increase enforcement problems.

The populations of Texas trailing phlox are found on private lands where Federal involvement in land-use activities does not generally occur. Additional protection resulting from critical habitat designation is achieved through the section 7 consultation process. Since section 7 would not apply to the majority of land-use activities occurring within critical habitat, its designation would not appreciably benefit the species.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not

likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. There are no known populations of Texas trailing phlox that either occur on Federal land and/or would be affected by activities authorized, funded, or carried out by a Federal agency.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general prohibitions and exceptions that apply to all endangered plants. All trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale this species in interstate or foreign commerce, or to remove and reduce to possession the species from areas under Federal jurisdiction. In addition, for endangered plants, the 1988 amendments (Pub. L. 100-478) to the Act prohibit the malicious damage or destruction on Federal lands and the removal, cutting, digging up, or damaging or destroying of endangered plants in knowing violation of any State law or regulation, including State criminal trespass law. Certain

exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances.

It is anticipated that few trade permits would ever be sought or issued because the species is not common in cultivation or in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, P.O. Box 3507, Arlington, VA 22201 (703/358-2104).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

Lundell, C.L. 1942. Studies of American spermatophytes-III. Contrib. Univ. Mich. Herb. 8:77-79.
 Mahler, W.F. 1980. Status report, *Phlox nivalis* ssp. *texensis*. Lundell. U.S. Fish and Wildlife Service, Albuquerque, NM. 12 pp.

Wherry, E.T. 1966. Polemoniaceae. in C.I. Lundell (ed.), Flora of Texas 1(3):283-321.
 Wherry, E.T. 1955. The genus *Phlox*. Morris Arboretum Monographs III. 174 pp.

Author

The primary author of this final rule is Sonja Jahrsdoerfer, U.S. Fish and Wildlife Service, 222 South Houston, suite A, Tulsa, OK 74127 (918/581-7458 or FTS 745-7458).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Regulation Promulgation

PART 17—[AMENDED]

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.12(h) by adding the following, in alphabetical order under the Family Polemoniaceae, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

* * * * *
 (h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Polemoniaceae—Phlox family:						
<i>Phlox nivalis</i> ssp. <i>texensis</i>	Texas trailing phlox	U.S.A. (TX)	E	440	NA	NA

Dated: September 20, 1991.
 Bruce Blanchard,
 Director, Fish and Wildlife Service.
 [FR Doc. 91-23385 Filed 9-27-91; 8:45 am]
 BILLING CODE 4310-55-M

50 CFR Part 17
RIN 1018-AB42
Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Two Na Pali Coast Plants: *Hedyotis st.-johnii* (Na Pali Beach *Hedyotis*) and *Schiedea apokremnos* (Ma'oli'oli)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service) determines two plants, *Hedyotis st.-johnii* (Na Pali beach *hedyotis*) and *Schiedea apokremnos* (ma'oli'oli), to be endangered pursuant

to the Endangered Species Act of 1973, as amended (Act). These species are known only from the northwest (Na Pali) coast of the island of Kauai, Hawaii. *Hedyotis st.-johnii* is known from 5 populations totaling less than 200 individuals, and *S. apokremnos* from 5 known populations totaling about 100 plants. The latter species is threatened by predation and habitat degradation by feral goats, and both species are threatened by competition from alien plant species. The small number and size of populations are a considerable threat to both species, as the limited gene pool may depress reproductive vigor, or a single environmental disturbance could destroy a significant

percentage of the extant individuals. This rule implements the protection and recovery provisions provided by the Act for these plants.

EFFECTIVE DATE: October 30, 1991.

ADDRESSES: The complete file for this rule is available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, 300 Ala Moana Boulevard, room 6307, Honolulu, Hawaii 96813.

FOR FURTHER INFORMATION CONTACT: Joan E. Canfield, at the above address (808/541-2749 or FTS 551-2749).

SUPPLEMENTARY INFORMATION:

Background

Hedyotis st-johnii was first collected in 1947 by Harold St. John, E.J. Britten, and R.S. Cowan on the vertical sea cliffs between Kalalau and Honopu valleys on Kauai. The next collection was made by B.C. Stone in 1956 from the same location. Two years later Stone and Lane (1958) described the plant as a new species, naming it in honor of its discoverer. All subsequent collections have been from a 4.5 mile (mi) (7.2 kilometer (km)) long section of the Na Pali coast: between Kalalau and Honopu Beaches, and from Nualolo Valley, Nualolo Kai, and Milolii Beach.

Hedyotis st-johnii is still extant in all of those areas except perhaps Nualolo Kai, which has not been resurveyed in 11 years (Carolyn Corn and Robert Hobdy, State Division of Forestry and Wildlife, and Steven Perlman, Hawaii Plant Conservation Center (HPCC), pers. comms., 1990). Less than 200 individuals have been seen, with some populations numbering as low as 1 plant (Corn 1984, Hawaii Heritage program (HHP) 1990b, HPCC 1990a). Similar, inaccessible habitat might harbor as yet undiscovered individuals (C. Corn and R. Hobdy, pers. comms., 1990). Known only from State-owned land, *H. st-johnii* is restricted to Na Pali Coast State Park.

Schiedea apokremnos was first collected in the early 1900's by J.M. Lydgate from an unrecorded locality on Kauai. Harold St. John made the next collection at Nualolo Kai on the Na Pali coast in 1965. Five years later, he described the taxon as a new species (St. John 1970), naming it for the plant's habitat of steep cliffs. All subsequent collections have been from Kaaweiki Ridge and three areas along a 6.5 mi (10.5 km) long section of the Na Pali coast: Milolii Valley, Kalalau Beach, and between Kaaalahina and Manono ridges. The species is probably extant at all locations except Nualolo Kai, although the Kalalau and Milolii populations have not been revisited for over 6 years (C. Corn, Timothy Flynn,

National Tropical Botanical Garden, and R. Hobdy, pers. comms., 1990). A total of about 100 plants has been seen, with only the Kaaalahina-Manono population numbering more than 5 individuals (Corn 1984; HHP 1990c; HPCC 1990b; T. Flynn and S. Perlman, pers. comms., 1990). As with *Hedyotis st-johnii*, more plants could exist in similar, inaccessible habitat (R. Hobdy and S. Perlman, pers. comms., 1990). In addition, a *Schiedea* recently collected from a gulch near the head of Kalalau Valley, if identified as *S. apokremnos*, would extend the known range of this species (R. Hobdy, pers. comm., 1990). Like *H. st-johnii*, *S. apokremnos* is known strictly from State-owned land. The Kaaweiki population is in Puu Ka Pele Forest Reserve, while all others are in Na Pali Coast State Park.

Hedyotis st-johnii is a succulent perennial herb of the coffee family (Rubiaceae) with slightly woody, trailing, quadrangular stems up to 1 foot (ft) (30 centimeters (cm)) long. The fleshy leaves are clustered toward the base of the stem and are broadly ovate to broadly elliptic, 2 to 6 inches (in) (5.5 to 15 cm) long and about 2 in (3.5 to 7.5 cm) wide. Clusters of flowers are borne on 3 to 6 in (7 to 15 cm) long flowering stems. The leafy, broadly ovate calyx lobes are about 0.1 in (3 to 4 millimeters (mm)) long and wide, enlarging in fruit to about 0.4 in (8 to 11 mm) long and wide. The green petals are fused into a tube about 0.2 in (5 to 8 mm) long and wide. The fruit consists of kidney-shaped capsules with dark brown to blackish angular seeds. *H. st-johnii* is distinguished from related species by its succulence, basally clustered fleshy leaves, shorter floral tube, and large leafy calyx lobes when in fruit (Wagner *et al.* 1990).

Schiedea apokremnos is a low, branching shrub of the pink family (Caryophyllaceae) that is 8 to 20 in (20 to 50 cm) tall. The leaves are oppositely arranged, oblong, somewhat fleshy and glabrous, and about 1 to 2 in (3 to 5 cm) long and 0.2 to 0.5 in (0.6 to 1.2 cm) wide. The flowers lack petals and are in clusters with green and often purple-tinged bracts and sepals; the sepals are about 0.1 in (2 to 3 mm) long. The round to kidney-shaped seeds are produced in capsules. *Schiedea apokremnos* is distinguished from related species by shorter sepals, nectaries, and capsules (Wagner *et al.* 1990).

Hedyotis st-johnii and *Schiedea apokremnos* grow in the crevices of near-vertical coastal cliff faces. While *H. st-johnii* is confined to north-facing, nearly vertical sea cliffs within the spray zone below 250 ft (75 meters (m)) elevation, *S. apokremnos* extends 0.3 mi

(0.5 km) inland, occupying cliffs and rock outcrops from 200 to 1,100 ft (60 to 330 m) elevation (Carr 1982; HHP 1990b; HPCC 1990a, 1990b; C. Corn and T. Flynn, pers. comms., 1990). Sparse dry coastal shrub vegetation with *Artemisia australis* ('ahinahina), *Chamaesyce celastroides* ('akoko), and the alien *Pluchea symphytifolia* (sourbush) is typical of the habitat of *H. st-johnii* and lower elevation sites of *S. apokremnos* (HHP 1990b, 1990c; HPCC 1990a, 1990b; S. Perlman, pers. comm., 1990). The upper elevation site of *S. apokremnos* is dominated by the introduced *Leucaena leucocephala* (koa haole), with natives *Wilkesia hobbayi* (dwarf iliau), *Lipochaeta connata* (nehe), and *Lobelia niihauensis* (T. Flynn, pers. comm., 1990).

The greatest immediate threat to the survival of *Schiedea apokremnos* is predation and habitat degradation by feral goats. As a result of past goat activity, *Hedyotis st-johnii* is almost entirely restricted to sites inaccessible to goats, where the plants are now threatened by competition from alien plant species. Alien plants are a threat to at least one population of *S. apokremnos* as well. The small size of most populations and a restricted distribution are serious potential threats to these two species. The limited gene pool may depress reproductive vigor, or a single environmental disturbance could destroy a significant percentage of the extant individuals. Landslides and fire pose additional potential threats to both species. Some *S. apokremnos* individuals are functionally female and must be cross-pollinated to set seed. This reproductive strategy may threaten populations with few individuals (Stephen Weller, University of California at Irvine, pers. comm., 1990).

Federal action on *Hedyotis st-johnii* began as a result of section 12 of the Act, which directed the Secretary of the Smithsonian Institution to prepare a report on plants considered to be endangered, threatened, or extinct in the United States. This report, designated as House Document No. 94-51, was presented to Congress on January 9, 1975. In that document, *H. st-johnii* was considered to be endangered; *S. apokremnos* was not included. On July 1, 1975, the Service published a notice in the *Federal Register* (40 FR 27823) of its acceptance of the Smithsonian report as a petition within the context of section 4(c)(2) (now section 4(b)(3)) of the Act, and giving notice of its intention to review the status of the plant taxa named therein. As a result of that review, on June 16, 1976, the Service published a proposed rule in the *Federal*

Register (41 FR 24523) to determine endangered status pursuant to section 4 of the Act for approximately 1,700 vascular plant species, including *H. st.-johnii*. The list of 1,700 plant taxa was assembled on the basis of comments and data received by the Smithsonian Institution and the Service in response to House Document No. 94-51 and the July 1, 1975, Federal Register publication.

General comments received in response to the 1976 proposal are summarized in an April 26, 1978, Federal Register publication (43 FR 17909). In 1978, amendments to the Act required that all proposals over 2 years old be withdrawn. A 1-year grace period was given to proposals already over 2 years old. On December 10, 1979, the Service published a notice in the Federal Register (44 FR 70796) withdrawing that portion of the June 16, 1976, proposal that had not been made final, along with four other proposals that had expired. The Service published an updated notice of review for plants on December 15, 1980 (45 FR 82479), including *Hedyotis st.-johnii* as a Category 1 candidate. Category 1 species are those for which the Service has on file substantial information on biological vulnerability and threats to support preparation of listing proposals. In the updated notice of review for plants published by the Service on September 27, 1985 (50 FR 39525), and February 21, 1990 (55 FR 6183), *Schiedea apokremnos* was included along with *H. st.-johnii* as a Category 1 candidate.

Section 4(b)(3)(B) of the Act requires the Secretary to make findings on certain pending petitions within 12 months of their receipt. Section 2(b)(1) of the 1982 amendments further requires that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. On October 13, 1983, the Service found that the petitioned listing of these species was warranted, but precluded by other pending listing actions, in accordance with section 4(b)(3)(B)(iii) of the Act; notification of this finding was published on January 20, 1984 (49 FR 2485). Such a finding requires the petition to be recycled, pursuant to section 4(b)(3)(C)(i) of the Act. The finding was reviewed in October of 1984, 1985, 1986, 1987, 1988, and 1989. On August 3, 1990, the Service published in the Federal Register (55 FR 31612) a proposal to list *Hedyotis st.-johnii* and *Schiedea apokremnos* as endangered. This proposal was based primarily on information supplied by the Hawaii Heritage Program, several reports from the Hawaii Division of Forestry and

Wildlife, and observations of botanists and naturalists. The Service now determines *Hedyotis st.-johnii* and *Schiedea apokremnos* to be endangered species with the publication of this rule.

Summary of Comments and Recommendations

In the August 3, 1990, proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final listing decision. The public comment period ended on October 2, 1990. Appropriate State agencies, county and city governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. A newspaper notice was published in The Garden Island on August 15, 1990, which invited general public comment. The one comment that was received was from a conservation organization that noted it had no information or advice to add to the proposed rule.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Hedyotis st.-johnii* and *Schiedea apokremnos* should be classified as endangered species. Procedures found at section 4 of the Endangered Species Act (16 U.S.C. 1533) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. 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). These factors and their application to *Hedyotis st.-johnii* B. Stone and Lane (Na Pali beach hedyotis) and *Schiedea apokremnos* St. John (ma'oli'oli) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Feral goats and cattle have altered and degraded the vegetation of much of Kauai, including the valleys and slopes where *Hedyotis st.-johnii* and *Schiedea apokremnos* have been collected (Corn *et al.* 1979, HHP 1990a). Goats have inhabited these rugged areas of the island for over 150 years (Cuddihy and Stone 1990). An estimated 1,650 goats inhabited the Na Pali coast in 1982; they are still abundant throughout the portion of the coast that *H. st.-johnii* and *S. apokremnos* inhabit (HHP 1990d, Tomich 1986). These goats are managed by the State as a game species with a limited hunting season (Tomich 1986).

The restriction of these two plant species to inaccessible cliffs suggests that goat predation may have eliminated them from more accessible locations, as is the case for other rare plants of the Na Pali coast (Corn *et al.* 1979; R. Hobdy, pers. comm., 1990). While browsing on *S. apokremnos* and vegetation adjacent to both species, goats disturb the ground, which limits seedling development, accelerates erosion, reduces habitat, and promotes the invasion of more aggressive alien plants (Carr 1982, Corn *et al.* 1979, HHP 1990a, Herbst 1989, Scott *et al.* 1986). Koa haole and *Hyptis pectinata* (comb hyptis) are common invasive alien species at the Kaaweiki site of *S. apokremnos* (T. Flynn, pers. comm., 1990). Most of the other populations of *S. apokremnos* and some populations of *H. st.-johnii*, confined to sparsely vegetated cliff crevices, are apparently not threatened by alien plants (R. Hobdy, pers. comm., 1990). However, alien plants do constitute the primary threat to other populations of *H. st.-johnii*, with sourbush being the main competitor (C. Corn and S. Perlman, pers. comms., 1990).

Landslides are another potential threat to *Hedyotis st.-johnii* (HPC 1990a) and *Schiedea apokremnos* (C. Corn, pers. comm., 1990). Vegetation was destroyed by a recent landslide near Honopu Beach on a cliff similar to habitat of *H. st.-johnii* (C. Corn, pers. comm., 1990). Corn *et al.* (1979) consider fire an immediate serious threat to the rare plants of the cliff faces and valleys of the Na Pali coast. Under dry conditions, human-set fires would spread rapidly and destroy these plants, due to the strong prevailing winds and dry fuel load on cliff ledges (Corn *et al.* 1979). Fire poses a potential and growing threat to *H. st.-johnii* and *S. apokremnos*, especially as already heavy recreational use of the Na Pali Coast State Park increases (Corn *et al.* 1979, Culliney 1988, HHP 1990d). Because of their inaccessible location, however, it is unlikely that these two species would be otherwise threatened by proposed park development (C. Corn and Wayne Souza, Division of State Parks, pers. comms., 1990).

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Illegal collecting for scientific or horticultural purposes or excessive visits by people interested in seeing rare plants could result from increased publicity and could seriously affect the species (HHP 1990d). The co-occurrence at one site of *Schiedea apokremnos* and

dwarf iliau, currently proposed for listing as an endangered species (Herbst 1989), could bring additional publicity and visitation. Disturbance to the accessible areas by trampling would promote erosion and greater ingress by competing alien species.

C. Disease or Predation

Predation by feral goats is probably the greatest present threat to the survival of *Schiedea apokremnos* (T. Flynn, R. Hobdy, and S. Perlman, pers. comms., 1990). Goat browsing on this species has been observed at the Kaaweiki population for the past several years (T. Flynn, pers. comm., 1990). At precisely the same locality, grazing damage by increasing numbers of goats is recognized as a serious present threat to another rare species, dwarf iliau (Carr 1982, Herbst 1989). The most accessible population of *Hedyotis st.-johnii*, behind Kalalau Beach, is threatened by goat predation (S. Perlman, pers. comm., 1990). Other than that site, however, goat predation has apparently already eliminated *H. st.-johnii* from all sites goats are capable of reaching (C. Corn, R. Hobdy, and S. Perlman, pers. comms., 1990). No evidence of disease or predation by other species has been reported for either species.

D. The Inadequacy of Existing Regulatory Mechanisms

All populations of *Hedyotis st.-johnii* and *Schiedea apokremnos* are located on State-owned park or forest reserve land. State regulations prohibit the removal, destruction, or damage of plants found on these lands. However, the regulations are difficult to enforce because of limited personnel. Hawaii's Endangered Species Act (Hawaii Revised Statutes (HRS), sect. 195D-4(A)) states, "Any species of aquatic life, wildlife, or land plant that has been determined to be an endangered species pursuant to the (Federal) Endangered Species Act (of 1973) shall be deemed to be an endangered species under the provisions of this chapter * * *". Further, the State may enter into agreements with Federal agencies to administer and manage any area required for the conservation, management, enhancement, or protection of endangered species (HRS, sect. 195D-5(c)). Funds for these activities could be made available under section 6 of the Federal Act (State Cooperative Agreements). Listing of *H. st.-johnii* and *S. apokremnos* will therefore reinforce and supplement the protection available to the species under State law. The Federal Act will also offer additional protection to the two species, because it is a violation of the

Act for any person to remove, cut, dig up, damage, or destroy an endangered plant in an area not under Federal jurisdiction in knowing violation of any State law or regulation or in the course of any violation of a State criminal trespass law.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

The small size of the extant populations (totaling 100 individuals of *Schiedea apokremnos* and less than 200 of *Hedyotis st.-johnii*) is in itself a considerable threat to these species. The limited gene pool may depress reproductive vigor, or a single fire, landslide, or other natural or human-caused environmental disturbance could destroy a significant percentage of the known individuals. Reproduction of *S. apokremnos* may also be potentially threatened by the species' breeding system: Some progeny of one individual are known to be unisexual, requiring cross-pollination to set seed (S. Weller, pers. comm., 1990). If those plants do not flower simultaneously or are too widely separated for pollination, no seed will be set.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by these two species in determining to make this rule final. Based on this evaluation, the preferred action is to list *Hedyotis st.-johnii* and *Schiedea apokremnos* as endangered. For the two species, only about 200 and 100 individuals respectively are known in the wild, and they face threats from feral goat predation and habitat degradation. Competing alien plants, fires, and landslides pose additional threats. Small population size makes these species particularly vulnerable to extinction from stochastic events. Because these two species are in danger of extinction throughout all or a significant portion of their ranges, they fit the definition of endangered as defined in the Act. Critical habitat is not being designated for these species for reasons discussed in the "Critical Habitat" section of this rule.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate critical habitat concurrently with determining a species to be endangered or threatened. The Service finds that designation of critical habitat is not presently prudent for these two species. Such a determination would result in no known benefit to the species. The publication of descriptions

and maps required when critical habitat is designated would increase the degree of threat of trampling (causing erosion and invasion of alien plants), vandalism, and taking at the Kaaweiki site of *Schiedea apokremnos*. *Hedyotis st.-johnii* might be subject to an increased threat of taking and vandalism as well. The listing of these species as endangered publicizes the rarity of the plants and, thus, can make them attractive to researchers, curiosity seekers, or collectors of rare plants.

All involved parties and the landowner have been notified of the location and importance of protecting the habitat of these two species. Protection of the species' habitat will be addressed through the recovery process and, if applicable, the section 7 consultation process. Therefore, the Service finds that designation of critical habitat for *Hedyotis st.-johnii* and *Schiedea apokremnos* is not prudent at this time, because such designation would increase the degree of threat from vandalism, collecting, or other human activities and because it is unlikely to aid in conservation of these species.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) of the Act requires Federal agencies to insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter

into formal consultation with the Service. There are no known Federal activities that might affect either of these species.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general prohibitions and exceptions that apply to all endangered plants. With respect to *Hedyotis st.-johnii* and *Schiedea apokremnos*, all trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal with respect to any endangered plant for any person subject to the jurisdiction of the United States to import or export; transport in interstate or foreign commerce in the course of a commercial activity; sell or offer for sale these species in interstate or foreign commerce; remove and reduce to possession any such species from areas under Federal jurisdiction; maliciously damage or destroy any such species on any area under Federal jurisdiction; or remove, cut, dig up, damage, or destroy listed plants on any other area in knowing violation of any State law or regulation or in the course of any violation of a State criminal trespass law. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered plant species under certain circumstances.

It is anticipated that few trade permits would ever be sought or issued because these two species are not common in cultivation or in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, room 432-ARLSQ, Arlington, Virginia 22203-3507 (703/358-2104 or FTS 921-2093).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted

pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

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Author

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List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Regulations Promulgation

PART 17—[AMENDED]

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for part 17 continues to read as follows:
Authority: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Public Law 99-625, 100 Stat. 3500; unless otherwise noted.
2. Amend § 17.12(h) by adding the following, in alphabetical order under the families Caryophyllaceae and Rubiaceae, respectively, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

* * * * *
(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Caryophyllaceae—Pink family:						
<i>Schiedea apokremnos</i>	Ma'oli'oli.....	U.S.A. (HI).....	E	441	NA	NA
Rubiaceae—Coffee family:						

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
<i>Hedyotis st. johnii</i>	Na Pali beach hedyotis	U.S.A. (HI)	E	441	NA	NA

Dated: September 20, 1991.

Bruce Blanchard,

Acting Director, Fish and Wildlife Service.

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