is consistent with statutory requirements. Section 203 requires EPA to establish a plan for informing and advising any small governments that may be significantly or uniquely impacted by the rule.

EPA has determined that the approval action promulgated does not include a Federal mandate that may result in estimated annual costs of $100 million or more to either State, local, or tribal governments in the aggregate, or to the private sector. This Federal action approves pre-existing requirements under State or local law, and imposes no new requirements. Accordingly, no additional costs to State, local, or tribal governments, or to the private sector, result from this action.

G. Submission to Congress and the Comptroller General

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. This rule is not a ''major'' rule as defined by 5 U.S.C. 804(2).

H. Petitions for Judicial Review

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by November 2, 1999. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (See section 307(b)(2).)

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Oxides of nitrogen, Ozone, Particulate matter, Reporting and recordkeeping requirements, Volatile organic compounds.

Dated: August 18, 1999.

Felicia Marcus,

Regional Administrator, Region IX.

Part 52, chapter I, title 40 of the Code of Federal Regulations is amended as follows:

PART 52—[AMENDED]

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

2. Section 52.220 is amended by adding paragraph (c)(247) to read as follows:

§ 52.220 Identification of plan.

* * * * *

(c) * * *

(267) New plan for Owens Valley PM–10 Planning Area for the following agency was submitted on December 10, 1998 by the Governor's designee.

(i) Incorporation by reference.

(A) Great Basin Unified APCD.

(1) Owens Valley PM–10 Planning Area Demonstration of Attainment State Implementation Plan, Section 7–4, Commitment to adopt 2003 SIP Revision and Section 8–2, the Board Order adopted on November 16, 1998 with Exhibit 1.

* * * * *

[FR Doc. 99–22930 Filed 9–2–99; 8:45 am]

BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 73

[FCC 99–147; MM Docket No. 91–259; RM–7309, RM–7942, RM–7943, RM–7944, RM–7948]

Radio Broadcasting Services; Canovanas, Culebra, Las Piedras, Mayaguez Quebradillas San Juan and Vieques, PR, and Christiansted and Frederiksted, VI

ACTION: Final rule; Application for review.

SUMMARY: This document denies an Application for Review filed by WKJB AM–FM, Inc. directed to the *Memorandum Opinion and Order* in this proceeding. Based upon preferential FM allotment priorities, the Commission finds a proposed channel substitution, its reallotment, and the modification of a station's license to be within the public's interest. With this action, the proceeding published September 16, 1996 (61 FR 48638) is terminated.

FOR FURTHER INFORMATION CONTACT: Robert Hayne, Mass Media Bureau (202) 418–2177.

SUPPLEMENTARY INFORMATION: This is a synopsis of the *Memorandum Opinion and Order* in MM Docket No. 91–259, adopted June 17, 1999, and released June 21, 1999. The full text of this decision is available for inspection and copying during normal business hours in the FCC's Reference Information Center at Portals II, CY–A257, 445 12th Street, SW, Washington, D.C. The complete text of this decision may also be purchased from the Commission's copy contractor, International Transcription Service, (202) 857–3800, 1231 20th Street, NW, Washington, D.C. 20036.

Federal Communications Commission.

Magalie Roman Salas,

Secretary.

[FR Doc. 99–23071 Filed 9–2–99; 8:45 am]

BILLING CODE 6712–01–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AE22

Endangered and Threatened Wildlife and Plants; Final Endangered Status for 10 Plant Taxa From Maui Nui, HA

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: Under the authority of the Endangered Species Act of 1973 (Act), as amended, we (the U.S. Fish and Wildlife Service (Service)) determine endangered status for 10 plant taxa—*Clermontia samuelii* (óha wai), *Cyanea copelandii* ssp. *haleakalaensis* (haha), *Cyanea glabra* (haha), *Cyanea hamatiflora* ssp. *hamatiflora* (haha), *Dubautia plantaginea* ssp. *humilis* (na'ena'e), *Hedyotis schlechtendahliana* var. *remyi* (kopa), *Kanaloa kahoolawensis* (kohe malama malama o Kanaloa), *Labordia tinifolia* var. *lanaiensis* (kamakahala), *Labordia triflora* (kamakahala), and *Melicope munroi* (alani). All 10 taxa are endemic to the Maui Nui group of islands in the Hawaiian Islands. This group includes Maui, Molokai, Lanai, and Kahoolawe. *Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, Cyanea glabra, Cyanea hamatiflora* ssp. *hamatiflora*, and *Dubautia plantaginea* ssp. *humilis* are endemic to the island of Maui. *Hedyotis schlechtendahliana* var. *remyi* and *Labordia tinifolia* var. *lanaiensis* are

endemic to the island of Lanai. *Kanaloa kahoolawensis* is endemic to the island of Kahoolawe, although pollen studies indicate it may have been a dominant species on Oahu until 800 years ago. *Labordia triflora* is endemic to Molokai, and *Melicope munroi* is found on Lanai but was also known historically from Molokai. The 10 plant taxa and their habitats have been variously affected or are currently threatened by one or more of the following—competition, predation or habitat degradation from alien species, natural disasters, and random environmental events (e.g., landslides, flooding, and hurricanes). This final rule implements the Federal protection provisions provided by the Act for these 10 plant taxa. Listing under the Act also triggers protection for these taxa under State Law.

EFFECTIVE DATE: This rule takes effect October 4, 1999.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Pacific Islands Ecoregion, Pacific Islands Fish and Wildlife Office, 300 Ala Moana Boulevard, Room 3–122, Box 50088, Honolulu, Hawaii 96850.

FOR FURTHER INFORMATION CONTACT: Karen Rosa, Assistant Field Supervisor—Endangered Species, Pacific Islands Ecoregion at the above address (telephone 808/541–3441; facsimile 808/541–3470).

SUPPLEMENTARY INFORMATION:

Background

Clermontia samuelii, Cyanea copelandii ssp. *haleakalaensis, Cyanea glabra, Cyanea hamatiflora* ssp. *hamatiflora, Dubautia plantaginea* ssp. *humilis, Hedyotis schlechtendahliana* var. *remyi, Kanaloa kahoolawensis, Labordia tinifolia var. lanaiensis, Labordia triflora,* and *Melicope munroi* are, or were, known from four Hawaiian Islands—Molokai, Lanai, Maui, and Kahoolawe. The current and historical distribution by island for each of the 10 taxa is presented in Table 1.

TABLE 1. SUMMARY OF ISLAND DISTRIBUTION OF THE 10 SPECIES

Species	Island within Maui Nui			
	Maui	Molokai	Lanai	Kahoolawe
Clermontia samuelii	Current.			
Cyanea copelandii ssp. *haleakalaensis*	Current.			
Cyanea glabra	Current.			
Cyanea hamatiflora ssp. *hamatiflora*	Current.			
Dubautia plantaginea ssp. *humilis*	Current.			
Hedyotis schlechtendahliana ssp. *remyi*	.....	.....	Current.	
Kanaloa kahoolawensis	.....	.....	.....	Current.*
Labordia tinifolia var. *lanaiensis*	.....	.....	Current.	
Labordia triflora	.....	Current.		
Melicope munroi	.....	Historical	Current.	

KEY
Current—population last observed within the past 20 years.
Historical—population not seen for more than 20 years.
*Kanaloa kahoolawensis was most likely a dominant species in the lowland areas of Oahu, and possibly Maui, up until 800 years ago, according to pollen records.

The Hawaiian archipelago includes eight large volcanic islands (Niihau, Kauai, Oahu, Molokai, Lanai, Kahoolawe, Maui, and Hawaii), as well as offshore islets, shoals, and atolls set on submerged volcanic remnants at the northwest end of the chain. The archipelago covers a land area of about 16,600 square kilometers (sq km) (6,400 sq miles (sq mi)), extending roughly between latitude 18°50′ to 28°15′ N and longitude 154°40′ to 178°70′ W, and ranging in elevation from sea level to 4,200 meters (m) (13,800 feet (ft)) (Department of Geography 1983). The four main central islands of Maui, Molokai, Lanai, and Kahoolawe are part of a large volcanic mass of six major volcanoes that during times of lower sea level were united as a single island, which was named Maui Nui and covered about 5,200 sq km (2,000 sq mi).

The climate of the Hawaiian Islands reflects the tropical setting buffered by the surrounding ocean (Department of Geography 1983). The prevailing winds are northeast trades with some seasonal fluctuation in strength. There are also winter storm systems and occasional hurricanes. Temperatures vary over the year an average of 5° Celsius (C) (11° Fahrenheit (F)) or less, with daily variation usually exceeding seasonal variation in temperature. Temperature varies with elevation and ranges from a maximum recorded temperature of 37.7 °C (99.9 °F), measured at 265 m (870 ft) elevation, to a minimum of –12.7 °C (9.1 °F) recorded at 4,205 m (13,795 ft) elevation. Annual rainfall varies greatly by location, with marked windward to leeward gradients over short distances. Minimum average annual rainfall is less than 250 millimeters (mm) (10 inches (in.)); the maximum average precipitation is greater than 11,000 mm (450 in.) per year. Precipitation is greatest during the months of October through April. A dry season is apparent in leeward settings, while windward settings generally receive tradewind-driven rainfall throughout the year (Department of Geography 1983).

The native-dominated vegetation of the Hawaiian Islands varies greatly according to elevation, moisture regime, and substrate. The most recent classification of Hawaiian natural communities recognizes nearly 100 native vegetation types. Within these types are numerous island-specific or region-specific associations, comprising an extremely rich array of vegetation types within a very limited geographic area. Major vegetation formations include forests, woodlands, shrublands, grasslands, herblands, and pioneer associations on lava and cinder substrates (Gagné and Cuddihy 1990).

In Hawaii, lowland, montane, and subalpine forest types extend from sea level to above 3,000 m (9,800 ft) in elevation. Coastal and lowland forests are generally dry or mesic and may be open or closed-canopied. The stature of lowland forests is generally under 10 m (30 ft). Three of the taxa in this final rule (*Cyanea copelandii* ssp. *haleakalaensis, Labordia tinifolia* var. *lanaiensis,* and *Labordia triflora*) have been reported from lowland mesic forest habitat. Montane wet forests, occupying elevations between 915 and 1,830 m

(3,000 and 6,000 ft), occur on the windward slopes and summits of the islands of Kauai, Oahu, Molokai, Maui, and Hawaii. The forests may be open- to closed-canopied, and may exceed 20 m (65 ft) in stature. Several species of native trees and tree ferns usually dominate montane wet forests. Four of the taxa in this final rule (*Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, Cyanea glabra,* and *Cyanea hamatiflora* ssp. *hamatiflora*) have been reported from montane wet forest habitat.

Hawaiian shrublands are also found from coastal to alpine elevations. The majority of Hawaiian shrubland types are in dry and mesic settings, or on cliffs and slopes too steep to support trees. One taxon in this final rule, *Kanaloa kahoolawensis,* has been reported from coastal dry shrubland on Kahoolawe. Two taxa in this final rule, *Dubautia plantaginea* ssp. *humilis* and *Melicope munroi,* have been reported from lowland wet shrublands, and *Hedyotis schlechtendahliana* var. *remyi* has been reported from lowland mesic shrublands.

The land that supports these 10 plant taxa is owned by various private parties, the State of Hawaii (including forest reserves and natural area reserves), and the Federal government (Department of the Interior, National Park Service (NPS)).

Discussion of the 10 Plant Taxa

Clermontia samuelii C. Forbes

Clermontia samuelii, was first described by C.N. Forbes from a collection he made in 1919 (Degener and Degener 1958, Forbes 1920). Harold St. John described *C. hanaensis* in 1939, based on a specimen collected by C.N. Forbes in 1920 (Degener and Degener 1960, St. John 1939). Later, St. John formally described *C. gracilis, C. kipahuluensis,* and *C. rosacea* (St. John 1987a). In the most recent treatment of this endemic Hawaiian genus, Lammers considers all four species to be synonymous with *C. samuelii,* and divides the species into two subspecies—ssp. *hanaensis* (including the synonyms *C. hanaensis* and *C. kipahuluensis*) and ssp. *samuelii* (including *C. gracilis* and *C. rosacea*) (Lammers 1988, 1990).

Clermontia samuelii, a member of the bellflower family (Campanulaceae), is a terrestrial shrub 1.2 to 5 m (4 to 16 ft) tall. The leaves are elliptical, sometimes broader at the tip, with blades 5 to 10 centimeters (cm) (2 to 4 in.) long and 1.8 to 4.5 cm (0.7 to 1.8 in.) wide. The upper surfaces of the leaves are dark green, often tinged purplish, and may be sparsely hairy. The lower surfaces of the leaves are pale green, and sparsely to densely hairy. The leaf margins are thickened, with shallow, ascending, rounded teeth. The tips and bases of the leaves are typically sharply pointed. The inflorescences (flowering clusters) bear two to five flowers on a main stem that is 4 to 18 mm (0.2 to 0.7 in.) long. The stalk of each individual flower is 12 to 28 mm (0.5 to 1.1 in.) long. The hypanthium (cup-like structure at the base of the flower) is widest on the top, 8 to 14 mm (0.3 to 0.6 in.) long, and 5 to 10 mm (0.2 to 0.4 in.) wide. The sepals and petals are similar in color (rose or greenish white to white), curved, and tubular. The flowers are 36 to 55 mm (1.4 to 2.2 in.) long and 5 to 10 mm (0.2 to 0.4 in.) wide. The lobes of the sepals and petals are erect, and extend 0.2 to 0.5 times beyond the tube. Berries of this species have not yet been observed. *C. samuelii* ssp. *hanaensis* is differentiated from *C. samuelii* ssp. *samuelii* by the greenish white to white flowers; longer, narrower leaves with the broadest point near the base of the leaves; and fewer hairs on the lower surface of the leaves. The species is separated from other members of this endemic Hawaiian genus by the size of the flowers and the hypanthium (Lammers 1990).

Historically, *Clermontia samuelii* has been reported from eight locations on Haleakala, East Maui, from Keanae Valley on the windward (northeastern) side to Manawainui on the more leeward (southeastern) side of Haleakala (Hawaii Heritage Program (HHP) 1991a1 to 1991a4, 1991b1 to 1991b4; Medeiros and Loope 1989). Currently, *Clermontia samuelii* ssp. *hanaensis* is known from several populations limited to the northeastern side of Haleakala, totaling fewer than 300 individuals. The populations occur on State owned land, within a Natural Area Reserve and a Forest Reserve (FR) (Arthur C. Medeiros, Biological Resources Division, U.S. Geological Survey (BRD), pers. comm. 1995). *Clermontia samuelii* ssp. *samuelii* is known from 5 to 10 populations totaling 50 to 100 individuals. Most of the populations occur on the back walls of Kipahulu Valley, within Haleakala National Park, with two or three of the populations on adjacent State owned land (Robert Hobdy, Hawaii Division of Forestry and Wildlife (DOFAW) and A.C. Medeiros, pers. comms. 1995). *Clermontia samuelii* ssp. *hanaensis* is found at, or below, 915 m (3,000 ft) elevation (A.C. Medeiros, pers. comm. 1995), while *Clermontia samuelii* ssp. *samuelii* is typically found between 1,800 to 2,100 m (6,000 to 6,900 ft) elevation (HHP 1991b1, 1991b2, 1991b4). Both taxa are found in montane wet forest dominated by *Metrosideros polymorpha* (′ohi′a) with an understory of *Cibotium* sp. (hapu u′) and various native shrubs. Associated plant taxa include *Dubautia* sp. (na′ena′e), *Clermontia* sp. (′oha wai), *Hedyotis* sp. (pilo), *Vaccinium* sp. (ohelo), *Carex alligata,* Melicope sp. (alani), and *Cheirodendron trigynum* (′olapa) (HHP 1991a1, 1991a2, 1991b4).

Threats to *Clermontia samuelii* ssp. *hanaensis* include habitat degradation and/or destruction by feral pigs (*Sus scrofa*) and competition with alien plant taxa such as *Tibouchina herbacea* (glorybush) and two species of *Hedychium* (ginger) (A.C. Medeiros, pers. comm. 1995; Fredrick R. Warshauer, BRD, pers. comm. 1995). In addition, two extremely invasive alien plant taxa, *Miconia calvescens* (velvet tree) and *Clidemia hirta* (Koster's curse), are found in nearby areas and may invade this habitat if not controlled (A.C. Medeiros, pers. comm. 1995). The habitat of *Clermontia samuelii* ssp. *samuelii* was extensively damaged by pigs in the past, and pigs are still a major threat to the populations on State owned lands. The populations of *Clermontia samuelii* ssp. *samuelii* within the park have been fenced and pigs have been eradicated. Due to the large populations of pigs in adjacent areas, the park populations must constantly be monitored to prevent further ingress (R. Hobdy and A.C. Medeiros, pers. comms. 1995). Rats (mainly the black rat (*Rattus rattus*)) and slugs (mainly *Milax gagetes*) are known to eat leaves, stems, and fruits of other members of this genus, and therefore are a potential threat to both subspecies (Loyal Mehrhoff, Service, *in litt.* 1995).

Cyanea copelandii Rock ssp. *haleakalaensis* (St. John) Lammers

Cyanea haleakalaensis was first described in 1971 by St. John, from a collection made by G.Y. Kikudome in 1951 (St. John 1971). In 1987, St. John (St. John 1987b) merged the two genera *Cyanea* and *Delissea,* formally recognizing only *Delissea,* the genus with priority. This resulted in the combination *D. haleakalaensis.* Lammers retains both genera in the currently accepted treatment of the Hawaiian members of the family, and in 1988 he recognized *C. haleakalaensis* as a subspecies of *C. copelandii,* publishing the new combination *C. copelandii* ssp. *haleakalaensis* (Lammers 1988, 1990). *Cyanea copelandii* ssp. *copelandii* was previously listed as an endangered species (59 FR 10305).

Cyanea copelandii ssp. *haleakalaensis,* a member of the bellflower family, is a vine-like shrub 0.3 to 2 m (1 to 7 ft) tall, with sprawling stems. The sap of this species is a tan latex. Stems are unbranched or sparingly branched from the base. The leaves are elliptical, 10 to 19 cm (4 to 7 in.) long, and 3.5 to 8.5 cm (1.4 to 3.3 in.) wide. The upper surfaces of the leaves have no hairs, while the lower surfaces are hairy. The margins of the leaves are thickened, with small, widely spaced, sharp teeth. The leaf stalks are 2.5 to 10 cm (1 to 4 in.) long. The inflorescences are 5 to 12-flowered and hairy. The main inflorescence stalks are 20 to 45 mm (0.8 to 1.8 in.) long. The hypanthium is oval and widest at the top, 6 to 10 mm (0.2 to 0.4 in.) long, about 5 mm (0.2 in.) wide, and hairy. The corolla (petals collectively) is yellowish but appears pale rose in color due to a covering of dark red hairs. The corolla is 37 to 42 mm (1.4 to 1.6 in.) long and about 5 mm (0.2 in.) wide. The corolla tube is gently curved and the lobes spread about 0.25 times beyond the tube. The berries are dark orange, oval, and 7 to 15 mm (0.3 to 0.6 in.) long. This subspecies is differentiated from the other subspecies by the elliptical leaves, which are also shorter. This species differs from others in this endemic Hawaiian genus by the vine-like stems and the yellowish flowers that appear red due to the covering of hairs (Lammers 1990).

Cyanea copelandii ssp. *haleakalaensis* was historically reported from six locations on the windward (northeastern) side of Haleakala, East Maui, from Waikamoi to Kipahulu Valley (Chock and Kikudome (299) 1950; Forbes (1680.M) 1919, (1708.M) 1919, (2616.M) 1920, (2675.M) 1920; Hobdy (887) 1980; Kikudome (454) 1951; Lamoureux and DeWreede (3917) 1967; Rock (25660b) 1954; St. John (24732) 1950; Warshauer and Kepler (FRW 2698) 1980; Warshauer and McEldowney (FRW 2769) 1980; Wagner *et al.* (5912) 1988). Currently, this taxon is known from two populations—one population of about 200 individuals in Kipahulu Valley within Haleakala National Park, and one population of 35 individuals on lower Waikamoi flume, which is privately owned. Typical habitat is stream banks and wet scree slopes in montane wet or mesic forest dominated by *Acacia koa* (koa) and/or *Metrosideros polymorpha* (Hobdy (887) 1980; Medeiros and Loope 1989; National Tropical Botanical Garden (NTBG) 1994; Wagner *et al.* (5912) 1988; R. Hobdy and A.C. Medeiros, pers. comms. 1995). *Cyanea copelandii* ssp. *haleakalaensis* is found at elevations between 730 and 1,340 m (2,400 and 4,400 ft) (Hobdy (887) 1980; Wagner *et al.* (5912) 1988; Warshauer and Kepler (FRW 2698) 1980; Warshauer and McEldowney (FRW 2769) 1980; A.C. Medeiros, pers. comm. 1995). Associated species include *Perrottetia sandwicensis* (olomea), *Psychotria hawaiiensis* (kopiko ùla), *Broussaisia arguta* (kanawao), and *Hedyotis acuminata* (au) (Wagner *et al.* (5912) 1988).

The major threats to *Cyanea copelandii* ssp. *haleakalaensis* are habitat degradation and/or destruction by feral pigs and competition with several alien plant taxa (Higashino *et al.* 1988; Hobdy (887) 1980; NTBG 1994; R. Hobdy, A.C. Medeiros, and F.R. Warshauer, pers. comms. 1995). Rats (mainly the black rat) and slugs (mainly *Milax gagetes*) are known to eat leaves, stems, and fruits of other members of this genus, and therefore are a potential threat to this species (L. Mehrhoff, *in litt.* 1995). In addition, *C. copelandii* ssp. *haleakalaensis* is threatened by random environmental events since it is known from only two populations.

Cyanea glabra (F. Wimmer) St. John

Cyanea glabra was first collected on West Maui by Willam Hillebrand who named it *Cyanea holophylla* var. *obovata* (Hillebrand 1888). In 1943, F.E. Wimmer named it *C. knudsenii* var. *glabra*, based on a specimen collected by Forbes on East Maui (Wimmer 1943). In 1981, St. John elevated *C. knudsenii* var. *glabra* to full species status as *C. glabra* (St. John 1981). Lammers, in the most recent treatment of the Hawaiian members of the family, upheld the species name, and included *C. holophylla* var. *obovata* as well as the following synonyms in *C. glabra,* including *C. scabra* var. *variabilis, Delissea glabra, D. holophylla* var. *obovata,* and *D. scabra* var. *variabilis* (Lammers 1990, Rock 1919).

Cyanea glabra, a member of the bellflower family, is a branched shrub. The leaves of juvenile plants are deeply pinnately lobed, while those of the adult plants are more or less entire and elliptical. Adult leaves are 23 to 36 cm (9 to 14 in.) long and 7 to 12 cm (3 to 5 in.) wide. The upper surfaces of the leaves are green and hairless, while the lower surfaces are pale green and hairless to sparsely hairy. The margins of the adult leaves are thickened and shallowly toothed to irregularly lobed. Six to eight flowers are borne in each inflorescence. The main inflorescence stalk is 20 to 55 mm (0.8 to 2.2 in.) long, while the individual flower stalk is 12 to 25 mm (0.5 to 1.0 in.) long. The hypanthium is widest at the top, 7 to 10 mm (0.3 to 0.4 in.) long, and about 5 mm (0.2 in.) wide. The corolla is white, often with a pale lilac tinge, 50 to 60 mm (2 to 2.4 in.) long, and about 8 mm (0.3 in.) wide. The tube of the corolla is curved. The lobes are spreading, 0.25 to 0.33 times as long as the tube, and are covered by small, sharp projections. The berries are yellowish orange, elliptical, and 10 to 15 mm (0.4 to 0.6 in.) long. The calyx (sepals collectively) persist on the berry. This species is differentiated from others in this endemic Hawaiian genus by the size of the flower and the pinnately lobed juvenile leaves (Lammers 1990).

Cyanea glabra has been reported historically from two locations on West Maui (Hillebrand 1888; Steve Perlman, NTBG, pers. comm. 1992) and five locations on Haleakala, East Maui (HHP 1991c1 to 1991c5). This species is currently known from only two populations—one population of 12 individuals in Kauaula Gulch on West Maui on privately owned land (S. Perlman, pers. comm. 1995), and one scattered population of approximately 200 individuals in Kipahulu Valley, within Haleakala National Park (A.C. Medeiros, pers. comm. 1995). Typical habitat is wet forest dominated by *Acacia koa* and/or *Metrosideros polymorpha,* at elevations between 975 to 1,340 m (3,200 to 4,400 ft) (A.C. Medeiros, pers. comm. 1995).

The primary threat to *Cyanea glabra* is slugs (A.C. Medeiros, pers. comm. 1995). Additional threats are habitat degradation and/or destruction by feral pigs, flooding, and competition with several alien plant taxa (R. Hobdy and A.C. Medeiros, pers. comms. 1995). Rats are a potential threat to *C. glabra,* since they are known to eat plant parts of other members of the bellflower family (L. Mehrhoff, *in litt.* 1995; A.C. Medeiros, pers. comm. 1995). Leaf damage in the form of stippling and yellowing by the two spotted leafhopper (*Saphonia rufofascia*) has been observed on other native species within the area of *C. glabra* on West Maui and is a potential threat to this species (Kenneth Wood, NTBG, pers. comm. 1995). Random environmental events are a threat to this species, with only two populations remaining.

Cyanea hamatiflora Rock ssp. *hamatiflora*

Cyanea hamatiflora was first collected by Joseph Rock in 1910 and described in 1913 (Rock 1913). In 1987, St. John (St. John 1987b) merged the two genera *Cyanea* and *Delissea,* formally recognizing only *Delissea,* the genus with priority. This resulted in the

combination *D. hamatiflora*. In 1988, Lammers upheld *Cyanea* as a separate genus and combined *C. carlsonii* with this species, resulting in two subspecies: The federally endangered *C. hamatiflora* ssp. *carlsonii* (59 FR 10305) and the nominative *C. hamatiflora* ssp. *hamatiflora* (Lammers 1988, 1990).

Cyanea hamatiflora ssp. *hamatiflora*, a member of the bellflower family, is a palm-like tree 3 to 8 m (10 to 26 ft) tall. The latex is tan in color. The leaves are elliptical with the broadest point at the tip, or they may be narrowly oblong. The leaf blades are 50 to 80 cm (20 to 30 in.) long, 8 to 14 cm (3 to 5.5 in.) wide, and have no stem. The upper surface of the leaf is sparsely hairy to hairless and the lower surface is hairy at least along the midrib and veins. The leaf margins are minutely round-toothed. The inflorescence is 5 to 10 flowered with main stalks 15 to 30 mm (0.6 to 1.2 in.) long. The stalks of individuals flowers are 5 to 12 mm (0.2 to 0.5 in.) long. The hypanthium is widest at the top, 12 to 30 mm (0.5 to 1.2 in.) long, and 6 to 12 mm (0.2 to 0.5 in.) wide. The corolla is magenta in color, 60 to 80 mm (2 to 3 in.) long, 6 to 11 mm (0.2 to 0.4 in.) wide, and hairless. The tube of the corolla is slightly curved, with lobes 0.25 to 0.5 times as long as the tube. The corolla lobes all curve downward, making the flower appear one-lipped. The anthers (pollen-bearing structures) are hairless except for the lower two, which have apical tufts of white hairs. The fruit is a purplish red berry 30 to 45 mm (1.2 to 1.8 in.) long and 20 to 27 mm (0.8 to 1.1 in.) wide. The berry is crowned by persistent calyx lobes. This subspecies is differentiated from the previously listed subspecies (*C. hamatiflora* ssp. *carlsonii*) by its longer calyx lobes and shorter individual flower stalks. This species is separated from others in this endemic Hawaiian genus by fewer flowers per inflorescence and narrower leaves (Lammers 1990).

Cyanea hamatiflora ssp. *hamatiflora* was historically known from eight locations on the windward (northeastern) side of Haleakala, on Maui, stretching from Puu o Kakae to Manawainui (Degener (7977) 1927; Forbes (1294.M) 1919, (1654.M) 1919, (2607.M) 1920; Higashino and Haratani (10037) 1983; Higashino and Holt (9398) 1980; Higashino and Mizuro (2850) 1976; Hobdy (2630) 1986; Rock (8514) 1918; St. John (24730) 1951; Skottsberg (870) 1920; Warshauer and McEldowney (FRW 2614) 1980; Warshauer and McEldowney (FRW 2876) 1980). Currently, this taxon is known from two locations. Five or 6 populations totaling 50 to 100 individuals in Kipahulu Valley occur within Haleakala National Park (A.C. Medeiros, pers. comm. 1995), and 5 or 6 populations totalling 20 to 25 widely scattered individuals occur in the Waikamoi-Koolau Gap area on privately owned land (NTBG 1995; R. Hobdy, pers. comm. 1995). Typical habitat for this taxon is montane wet forest dominated by *Metrosideros polymorpha*, with a *Cibotium* sp. and/or native shrub understory, from 975 to 1,500 m (3,200 to 4,920 ft) elevation (NTBG 1995; Warshauer and McEldowney (FRW 2614) 1980; Warshauer and McEldowney (FRW 2876) 1980). Associated native plant taxa include *Dicranopteris linearis* (uluhe), *Cheirodendron trigynum*, *Broussaisia arguta*, *Cyanea solenocalyx* (haha), *Cyanea kunthiana* (haha), *Vaccinium* sp. (‘ohelo), Melicope sp., and *Myrsine* sp. (kolea) (Higashino and Mizuro (2850) 1976; NTBG 1995).

The major threats to *Cyanea hamatiflora* ssp. *hamatiflora* are habitat degradation and/or destruction by feral pigs, landslides, and competition with the alien plant *Ageratina adenophora* (Maui pamakani) (NTBG 1995; R. Hobdy and A.C. Medeiros, pers. comms. 1995). Pig damage in the form of peeled bark has been observed on individuals of *C. hamatiflora* ssp. *hamatiflora* (A.C. Medeiros, pers. comm. 1995). Rats and slugs are potential threats, since other Hawaiian members of this family are known to be eaten by rats and slugs (L. Mehrhoff, *in litt.* 1995). All populations of this taxon are in areas where rats and slugs have been observed (A.C. Medeiros, pers. comm. 1995).

Dubautia plantaginea Gaud. ssp. *humilis* G. Carr

Dubautia plantaginea ssp. *humilis* was first described in 1985, from specimens collected by Gerald Carr, Robert Robichaux, and Rene Sylva in Black Gorge on West Maui (Carr 1985, 1990).

Dubautia plantaginea ssp. *humilis*, a member of the aster family (Asteraceae), is a dwarfed shrub less than 80 cm (30 in.) tall. The stems are hairless or occasionally strigullose (having straight hairs pressed against the stem). The leaves are opposite, narrow, 8 to 15 cm (3 to 6 in.) long, and 0.7 to 4.5 cm (0.3 to 1.8 in.) wide. The leaves usually have five to nine nerves, and are hairless or moderately strigullose. The leaf margins are toothed from the apex to near the middle. Between 20 to 90 flowering heads are found in each inflorescence, which is about 20 cm (8 in.) long and 28 cm (11 in.) wide. Eight to 20 florets (small flower that is part of a dense cluster) are found in each head, borne on a flat receptacle. The bracts on the receptacle are about 5 mm (0.2 in.) long, sharply toothed, and fused together. The corolla is yellow, and may purple with age. The fruit is an achene (a dry, one-celled, indehiscent fruit) 2.5 to 4 mm (0.08 to 0.2 in.) long. The taxon is self-incompatible, meaning flowers must be pollinated by pollen from a different plant. This subspecies differs from the other two subspecies (*D. plantaginea* ssp. *magnifolia* and *D. plantaginea* ssp. *plantaginea*) by having fewer heads per inflorescence but more florets per head. The species differs from other Hawaiian members of the genus by the number of nerves in the leaves and by the close resemblance of the leaves to the genus *Plantago* (Carr 1985, 1990).

Dubautia plantaginea ssp. *humilis* has only been reported from two locations in Iao Valley, on West Maui. Both populations are on privately owned land, and the two populations total fewer than 300 individuals. Typical habitat is wet, barren, wind-blown cliffs, between 350 to 400 m (1,150 to 1,300 ft) elevation. Associated native plant taxa include *Metrosideros polymorpha*, *Pipturus albidus* (mamaki), *Eragrostis variabilis* (kawelu), *Carex* sp., *Hedyotis formosa*, *Lysimachia remyi*, *Bidens* sp. (koòkoòlau), *Pritchardia* sp. (loulu), and the federally endangered *Plantago princeps* (àle) (Hawaii Plant Conservation Center (HPCC) 1990; HHP 1991d1, 1991d2; R. Hobdy, pers. comm. 1995).

Threats to *Dubautia plantaginea* ssp. *humilis* include landslides and several alien plant taxa (HPCC 1990; HHP 1991d1; R. Hobdy, pers. comm. 1995). Random environmental events are also a threat, with only two known populations less than a half mile apart within the same valley.

Hedyotis schlechtendahliana Steud. var. *remyi* (Hillebr.) Fosb.

Hillebrand described a new species, *Kadua remyi*, based on collections on Lanai and East Maui by Reverend John Lydgate (Hillebrand 1888). F. Raymond Fosberg combined the genus *Kadua* with *Hedyotis* in 1943, and combined *K. remyi* with *Hedyotis schlechtendahliana*. Fosberg considered the Lanai plants different enough from the Maui plants to create a separate variety, *H. schlechtendahliana* var. *remyi*. This variety has been upheld in the most recent revision of the Hawaiian members of this genus (Wagner *et al.* 1990).

Hedyotis schlechtendahliana var. *remyi*, a member of the coffee family (Rubiaceae), is a few branched subshrub from 60 to 600 cm (24 to 240 in.) long, with weakly erect or climbing stems that may be somewhat square, smooth, and

glaucous (with a fine waxy coating that imparts a whitish or bluish hue to the stem). The leaves are opposite, glossy, thin or somewhat thickened, egg-shaped or with a heart-shaped base and a very pointed tip, and 3 to 6 cm (1.2 to 2.4 in.) long. The margins of the leaves curl under. The veins of the leaves are impressed on the upper surface with hairs along the veins and raised on the lower surface. The lower surface of the leaves are usually glaucous, like the stems. The leaf stalks are up to 1 cm (0.4 in.) long, slightly fused to the stem, and bear stipules (appendages on the base of the leaf stalks). The inflorescence stalks are 2 to 15 mm (0.1 to 0.6 in.) long, square, usually glaucous, and borne at the ends of the stems. The flowers have either functional male and female parts or only functional female parts. Leaf-like bracts are found at the base of each flower. The hypanthium is top-shaped and 1.5 to 2.2 mm (0.06 to 0.09 in.) wide. The calyx lobes are usually leaf-like and oblong to broadly egg-shaped, 2 to 8 mm (0.08 to 0.3 in.) long, and 1.5 to 2.5 mm (0.08 to 0.09 in.) wide, enlarging somewhat in fruit. The corolla is cream-colored, fleshy, usually glaucous, trumpet-shaped, with a tube 6 to 17 mm (0.2 to 0.7 in.) long and lobes 1.5 to 10 mm (0.06 to 0.4 in.) long when the anthers are ripe. The stamens reach only to 1 to 3 mm (0.04 to 0.1 in.) below the sinuses of the corolla lobes. The styles are woolly on the lower portions, and two to four lobed. The fruits are top-shaped to sub-globose capsules 2 to 4 mm (0.1 to 0.2 in.) long and 3 to 7 mm (0.1 to 0.3 in.) in diameter. The fruits break open along the walls of the cells within the fruit. Seeds are dark brown, irregularly wedge-shaped and angled, and darkly granular. This variety is distinguished from the other variety by the leaf shape, narrow flowering stalks, and flower color. It is distinguished from others in the genus by the distance between leaves and the length of the sprawling or climbing stems (Wagner *et al.* 1990).

Historically, *Hedyotis schlechtendahliana* var. *remyi* was known from five locations on the northwestern portion of Lanaihale on the island of Lanai (Degener *et al.* (24193) 1957; Forbes (33.L) 1913, (315.L) 1917); Fosberg (12463) 1939; HHP 1991e1 to 1991e3; Hillebrand 1888; Hillebrand and Lydgate (s.n.) n.d.; Munro (s.n.) 1913, (s.n.) 1914, (257, 335) 1928, (506) 1930; Nagata and Ganders (2524) 1982; Rock (8116) 1910; St. John and Eames (18738) 1938; Wagner *et al.* 1990). Currently, this species is known from six individuals in three populations on Kaiholeha-Hulupoe ridge, Kapohaku drainage, and Waiapaa drainage on Lanaihale (HHP 1991e1 to 1991e3; R. Hobdy, pers. comm. 1995). *Hedyotis schlechtendahliana* var. *remyi* typically grows in mesic windswept shrubland with a mixture of dominant plant taxa that may include *Metrosideros polymorpha, Dicranopteris linearis,* and/or *Styphelia tameiameiae* (pukiawe) at elevations between 730 and 900 m (2,400 to 3,000 ft). Associated plant taxa include *Dodonaea viscosa* (ààliÌ), *Sadleria* sp. (àmaù), *Dubautia* sp. (naènaè), *Myrsine sp.*, and several others (HHP 1991e1 to 1991e3; Lau (2866) 1986; Nagata and Ganders (2524) 1982).

The primary threats to *Hedyotis schlechtendahliana* var. *remyi* are habitat degradation and/or destruction by axis deer (*Axis axis*); competition with alien plant taxa such as *Psidium cattleianum, Myrica faya* (firetree), *Leptospermum scoparium* (New Zealand tea), and *Schinus terebinthifolius* (Christmas berry); and random environmental events and/or reduced reproductive vigor due to the small number of remaining individuals and populations (HHP 1994e1 to 1991e3; Joel Lau, The Nature Conservancy of Hawaii, pers. comm. 1995).

Kanaloa kahoolawensis Lorence and K.R. Wood

Kanaloa kahoolawensis was previously unknown to science until its discovery by Steve Perlman and Ken Wood in 1992 on a steep rocky spire on the coast of Kahoolawe. David Lorence and Wood have determined that this plant represents a new genus, and have named the species *Kanaloa kahoolawensis* (Lorence and Wood 1994).

Kanaloa kahoolawensis, a member of the legume family (Fabaceae), is a densely branched shrub 0.75 to 1 m (2.5 to 3.5 ft) tall. The branches are sprawling and 0.75 to 1.5 m (2.5 to 5 ft) long. New growth is densely covered with brown and white hairs. The twigs are brown, ribbed or angled, and become whitish gray with corky fissures. The leaves are clustered near twig tips and have two persistent stipules. The leaf stalk is 6 to 24 mm (0.2 to 0.9 in.) long. The leaves are divided into three pairs of leaflets, with a leaf nectary (nectar-bearing gland) at the joint between each pair of leaflets. The leaflet pairs are 22 to 55 mm (0.8 to 2 in.) long. The main stalk of the leaf terminates in a short, brown appendage. The leaflets are egg-shaped, unequal-sided, 1.4 to 4.2 cm (0.6 to 1.7 in.) long, and 0.9 to 3.2 cm (0.4 to 1.3 in.) wide. One to three inflorescences are found in the leaf axils (joint between leaf and stem), developing with the flush of new leaves. The main stalk of the inflorescence is 8 to 30 mm (0.3 to 1.2 in.) long. The inflorescence is a globose head 6 to 8 mm (0.3 to 0.3 in.) in diameter, with small bracts 1 to 1.5 mm (0.04 to 0.06 in.) long at the base. Each inflorescence has 20 to 54 white flowers. The calyx of the male flowers has limbs that are wider at the tip; densely covered with long, white hairs; and have lobes that overlap when the flower is in bud. The corolla lobes also overlap when the flower is in bud, and the petals are 1.5 to 1.8 mm (0.06 to 0.07 in.) long. The petals are hairy on the outside at the tip, and are not fused at the base. Ten stamens are found in the male flowers, fused at the base. Male flowers have only vestigial female parts. Female flowers have not been observed. The fruit is borne on a stalk about 5 mm (0.2 in.) long. Up to four fruit develop in each flowering head. The fruit is egg-shaped to subcircular, compressed, hairy at the base, and open along two sides. One slender, brown seed, about 2 mm (0.08 in.) long, is found in each fruit. There is no other species of legume in Hawaii that bears any resemblance to this species or genus (Lorence and Wood 1994).

The only known location of *Kanaloa kahoolawensis* is a rocky stack on the southern coast of the island of Kahoolawe, which is owned by the State of Hawaii (Lorence and Wood 1994). While there are no previous records of the plant, pollen core studies on the island of Oahu revealed a legume pollen that could not be identified until this species was discovered. The pollen cores indicate that *K. kahoolawensis* was a codominant with *Dodonaea viscosa* and *Pritchardia* sp. from before 1210 B.C. to 1565 A.D., at which point *K. kahoolawensis* disappeared from the pollen record and *D. viscosa* and *Pritchardia* sp. declined dramatically (Athens *et al.* 1992, Athens and Ward 1993, Lorence and Wood 1994). Only two living individuals and 10 to 12 dead individuals are known (D. Lorence, NTBG, pers. comm. 1995). The only known habitat is mixed coastal shrubland on steep rocky talus slopes at 45 to 60 m (150 to 200 ft) elevation. Associated native plant taxa include *Sida fallax* (ìlima), *Senna gaudichaudii* (kolomona), *Bidens mauiensis* (koòkoòlau), *Lipochaeta lavarum* (nehe), *Portulaca molokinensis* (ìhi), and *Capparis sandwichiana* (pua pilo). In addition, the area is also a nesting site for Bulwer's petrel (*Bulweria bulwerii*) and wedge-tailed shearwater (*Puffinus pacificus*) (Lorence and Wood 1994).

The major threats to *Kanaloa kahoolawensis* are landslides and the alien plant taxa *Emelia fosbergii*, *Chloris barbata* (swollen finger grass), and *Nicotiana glauca* (tobacco tree) (Lorence and Wood 1994). Goats (*Capra hircus*) played a major role in the destruction of vegetation on Kahoolawe before they were removed (Cuddihy and Stone 1990), and *K. kahoolawensis* probably survived only because the rocky stack is almost completely separated from the island and inaccessible to goats (Lorence and Wood 1994). Rats are a potential threat to this species, since it has seeds similar in appearance and presentation to the federally endangered *Caesalpinia kavaiensis*, which is eaten by rats. Rats may have been the cause of the decline of this species 800 years ago (L. Mehrhoff, *in litt.* 1995). Random environmental events and/or reduced reproductive vigor are also a threat to this species, because only two individuals are known.

Labordia tinifolia A. Gray var. *lanaiensis* Sherff

Hillebrand determined, but did not name, a new variety of *Labordia tinifolia* based on specimens he collected on the islands of Kauai, West Maui, Lanai, and Hawaii. E.E. Sherff named the variety *L. tinifolia* var. *lanaiensis* in 1938 (Sherff 1938). In the revision of the Hawaiian members of this family, Wagner *et al.* (1990), retained the nomenclature, but included only those plants from Lanai and Mapulehu on Molokai (previously considered *L. triflora*) as *L. tinifolia* var. *lanaiensis*. This endemic Hawaiian genus has been revised, and only the Lanai populations are included in *L. tinifolia* var. *lanaiensis*, while L. triflora has been resurrected for the Molokai population (see discussion of the next taxon, below) (Motley 1995).

Labordia tinifolia var. *lanaiensis*, a member of the logan family (Loganiaceae), is an erect shrub or small tree 1.2 to 15 m (4 to 49 ft) tall. The stems branch regularly into two forks of nearly equal size. The leaves are medium to dark green, oval to narrowly oval, 3.8 to 21 cm (1.5 to 8.3 in.) long, and 1.4 to 7.3 cm (0.6 to 2.9 in.) wide. The leaf stalks are 2.2 to 4 cm (0.9 to 1.6 in.) long. The stipules are fused together, forming a sheath around the stem that is 1 to 4 mm (0.04 to 0.2 in.) long. Three to 19 flowers are found in each inflorescence, and the entire inflorescence is pendulous and has a stalk 9 to 22 mm (0.4 to 0.8 in.) long. The flowers are borne on stalks 8 to 11 mm (0.3 to 0.4 in.) long. The corolla is pale yellowish green or greenish yellow, narrowly urn-shaped, and 6.5 to 19 mm (0.2 to 0.7 in.) long. The fruit is broadly oval, 8 to 17 mm (0.3 to 0.7 in.) long, 2 to 3 valved, and has a beak 0.5 to 1.5 mm (0.02 to 0.06 in.) long. The seeds are brown and about 1.8 mm (0.06 in.) long. This subspecies differs from the other two subspecies and other species in this endemic Hawaiian genus by having larger capsules and smaller corollas (Motley 1995; Wagner *et al.* 1990).

Labordia tinifolia var. *lanaiensis* was historically known from the entire length of the summit ridge of Lanaihale, on the island of Lanai (HHP 1991f1 to 1991f12; Motley 1995; Sherff 1938). Currently, *L. tinifolia* var. *lanaiensis* is known from only one population at the southeastern end of the summit ridge of Lanaihale. This population is on privately owned land and totals 300 to 1,000 scattered individuals. The typical habitat of *L. tinifolia* var. *lanaiensis* is lowland mesic forest, associated with such native species as *Dicranopteris linearis* and *Scaevola chamissoniana* (naupaka kuahiwi), at elevations between 760 and 915 m (2,500 and 3,000 ft) (HHP 1991f3; Motley 1995; R. Hobdy and J. Lau, pers. comms. 1995).

Labordia tinifolia var. *lanaiensis* is threatened by axis deer and several alien plant taxa (R. Hobdy, pers. comm. 1994; J. Lau, pers. comm. 1995). The single population is also threatened by random environmental factors.

Labordia triflora Hillebr.

Hillebrand named *Labordia triflora* based on a specimen he collected on Molokai in the early 1800s (Hillebrand 1888). Wagner *et al.* considered this species to be synonymous with *L. tinifolia* var. *lanaiensis* (Wagner *et al.* 1990). Timothy Motley of the University of Hawaii (UH) recently revised this endemic Hawaiian genus, and has resurrected *L. triflora* as a valid species (Motley 1995).

Labordia triflora, a member of the logan family, is very similar to *L. tinifolia* var. *lanaiensis*, described above, except in the following characteristics. Stems of *L. triflora* are climbing. The leaf stalks are only 1 to 3 mm (0.04 to 0.1 in.) long. The inflorescence stalks are 40 to 50 mm (1.6 to 2 in.) long. Each flower stalk is 10 to 25 mm (0.4 to 1 in.) long (Motley 1995).

Until 1990, *Labordia triflora* was known only from the type collection at Mapulehu, on the island of Molokai. This collection was made by Hillebrand in 1870 (Motley 1995). In 1990, Joel Lau of The Nature Conservancy of Hawaii, rediscovered the species in Kua Gulch on Molokai (Motley 1995; J. Lau, pers. comm. 1995). Only 10 individuals are known, all occurring on privately owned land (J. Lau, pers. comm. 1995). Of these individuals, only two are male plants (Timothy Motley, University of Hawaii, pers. comm. 1993). This species occurs in mixed lowland mesic forest, at an elevation of 800 m (2,600 ft). Associated species include *Pouteria sandwicensis* (àlaà), the federally endangered *Cyanea mannii* (haha), and *Tetraplasandra* sp. (òhe) (Motley 1995).

The threats to *Labordia triflora* include habitat degradation and/or destruction by pigs and goats, rats that eat seeds, and competition with the alien plant species *Schinus terebinthifolius* (Motley 1995; T. Motley, pers. comm. 1993). Random environmental events and reduced reproductive vigor also threaten this species, as only 10 individuals remain in one population.

Melicope munroi (St. John) B. Stone

In 1944, St. John described *Pelea munroi*, based on a collection by George C. Munro in 1915 (St. John 1944). The genus *Pelea* has since been submerged with *Melicope*, creating the combination *M. munroi* (Hartley and Stone 1989).

Melicope munroi, a member of the citrus family (Rutaceae), is a sprawling shrub up to 3 m (10 ft) tall. The new growth of this species is minutely hairy. The leaves are opposite, broadly elliptical, 6 to 11 cm (2.4 to 4.3 in.) long, and 3.5 to 7.5 cm (1.4 to 3.0 in.) wide. The veins of the leaf are parallel, in 8 to 12 pairs, and are connected by arched veins near the margin of the leaf. The margins of the leaves are sometimes rolled under. The leaf stalks are 4 to 12 mm (0.2 to 0.5 in.) long. The inflorescence is found in the axil of the leaf and contains one to three flowers. The inflorescence stalk is 10 to 15 mm (0.4 to 0.5 in.) long, and the individual flower stalk is 15 to 35 mm (0.6 to 1.4 in.) long. Male flowers have not been reported. Female flowers have ovoid sepals about 2.5 mm (0.1 in.) long and deltate petals about 8 mm (0.3 in.) long. The fruit is about 18 mm (0.7 in.) wide, and the 4 carpels (egg-bearing structures) are fused about one-third of their length. This species differs from other Hawaiian members of the genus in the shape of the leaf and the length of the inflorescence stalk (Stone *et al.* 1990).

Historically known from the Lanaihale summit ridge of Lanai and above Kamalo on Molokai, *Melicope munroi* is currently known from only the Lanaihale summit ridge (HHP 1991g1 to 1991g10). The one widely scattered population totals an estimated 300 to 500 individuals (J. Lau, pers. comm. 1995). *Melicope munroi* is typically found in lowland mat fern shrubland, at elevations of 790 to 1020 m (2,600 to 3,350 ft). Associated native

plant taxa include *Diplopterygium pinnatum*, *Dicranopteris linearis*, *Metrosideros polymorpha*, *Cheirodendron trigynum*, *Coprosma* sp. (pilo), *Broussaisia arguta*, *Melicope* sp., and *Machaerina angustifolia* ('uki) (HHP 1991g3 to 1991g10).

The major threats to *Melicope munroi* are axis deer and the alien plant taxa *Leptospermum scoparium* and *Psidium cattleianum* (HHP 1991g3 to 1991g10; J. Lau, pers. comm. 1995). Random environmental events also threaten the one remaining population.

Previous Federal Action

Federal action on some of these plants began as a result of section 12 of the Act (16 U.S.C. 1533), which directed the Secretary of the Smithsonian Institution to prepare a report on plants considered to be endangered or threatened in the United States. This report, designated as House Document No. 94–51, was presented to Congress on January 9, 1975. One of the 10 taxa, *Cyanea glabra* (as *C. scabra* var. *variabilis*), was considered to be endangered in that document. One taxon, *Labordia tinifolia* var. *lanaiensis*, was considered to be threatened and two taxa, *L. triflora* and *Melicope munroi* (as *Pelea munroi*), were considered to be extinct. On July 1, 1975, we published a notice in the **Federal Register** (40 FR 27823) of our 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 our intent to review the status of the plant taxa named therein. As a result of that review, on June 16, 1976, we 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. Two of the 10 taxa, *Labordia triflora* and *Melicope munroi*, were proposed for endangered status in this document. The list of 1,700 plant taxa was assembled on the basis of comments and data received by the Smithsonian Institution and us 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 two years old be withdrawn. A one-year grace period was given to proposals already over two years old. On December 10, 1979, we published a notice in the **Federal Register** (44 FR 70796) withdrawing the portion of the June 16, 1976, proposal that had not been made final, including the proposals to list *Labordia triflora* and *Melicope munroi*, along with four other proposals that had expired. We published an updated notice of review for plants on December 15, 1980 (45 FR 82479), September 27, 1985 (50 FR 39525), February 21, 1990 (55 FR 6183), and September 30, 1993 (58 FR 51144). Six of the species in this final rule (including synonymous taxa) were at one time or another considered category 1 or category 2 candidates for Federal listing. Category 1 species were those for which we had on file substantial information on biological vulnerability and threats to support preparation of listing proposals but for which listing proposals had not yet been published because they were precluded by other listing activities. Certain species were considered Category 1 but if designated by an asterisk (*), were considered possibly extinct. Category 2 species were those for which listing as endangered or threatened was possibly appropriate, but for which sufficient data on biological vulnerability and threats were not currently available to support proposed rules. Two taxa, *Labordia tinifolia* var. *lanaiensis* and *L. triflora*, were considered category 2 species in the 1980 and 1985 notices of review. *Melicope munroi* (as *Pelea munroi*) was considered a category 1* in the 1980 and 1985 notices.

In the 1990 and 1993 notices, *Dubautia plantaginea* ssp. *humilis*, *Hedyotis schlechtendahliana* var. *remyi*, and *Melicope munroi* were considered category 2 species. *Labordia tinifolia* var. *lanaiensis* was considered more abundant than previously thought and moved to category 3C in the 1990 notice. Category 3C species were those that had proven to be more abundant or widespread than previously believed and/or were not subject to any identifiable threat. *Labordia triflora* was considered a synonym of *L. tinifolia* var. *lanaiensis* in the 1990 notice. As published in the **Federal Register** (61 FR 7596) on February 28, 1996, we discontinued the designation of categories for candidate species.

Since the last notice, new information suggests that the numbers and distribution are sufficiently restricted and the taxa are imminently threatened for the previously designated category 1, category 2, and category 3C candidate species mentioned above, as well as six additional taxa (*Clermontia samuelii*, *Cyanea copelandii* ssp. *haleakalaensis*, *Cyanea glabra*, *Cyanea hamatiflora* ssp. *hamatiflora*, the newly discovered *Kanaloa kahoolawensis*, and the resurrected *Labordia triflora*), to warrant listing. A proposed rule was published on May 15, 1997, (62 FR 26757) to list these 10 plant taxa as endangered and the September 19, 1997 (62 FR 49398), notice of review listed these species as proposed for endangered status.

We now determine 10 taxa from Maui Nui, Hawaii, to be endangered with the publication of this final rule.

Summary of Comments and Recommendations

In the May 15, 1997, proposed rule and associated notifications, we requested all interested parties to submit factual reports or information that might contribute to the development of a final rule. The public comment period ended on July 14, 1997. Appropriate Federal and State agencies, county governments, scientific organizations, and other interested parties were contacted and requested to comment. A newspaper notice inviting public comment was published in the ''Maui News'' on May 29, 1997. No comments were received.

In accordance with our peer review policy (59 FR 34270; July 1, 1994), we also solicited the expert opinions of three appropriate and independent specialists regarding pertinent scientific or commercial data and assumptions relating to the taxonomy, population models, and supportive biological and ecological information substantive to the listing determination for these 10 taxa. The independent specialists did not respond to our request.

Summary of Factors Affecting the Species

After a thorough review and consideration of all available information, we have determined that *Clermontia samuelii*, *Cyanea copelandii* ssp. *haleakalaensis*, *Cyanea glabra*, *Cyanea hamatiflora* ssp. *hamatiflora*, *Dubautia plantaginea* ssp. *humilis*, *Hedyotis schlechtendahliana* var. *remyi*, *Kanaloa kahoolawensis*, *Labordia triflora*, *Melicope munroi*, and *Labordia tinifolia* var. *lanaiensis* should be classified as endangered species. We followed the procedures found at section 4(a)(1) of the Act and regulations implementing the listing provisions of the Act (50 CFR part 424). 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 *Clermontia samuelii* ('oha wai), *Cyanea copelandii* ssp. *haleakalaensis* (haha), *Cyanea glabra* (haha), *Cyanea hamatiflora* ssp. *hamatiflora* (haha), *Dubautia plantaginea* ssp. *humilis* (na'na'e), *Hedyotis schlechtendahliana* var. *remyi* (kopa), *Kanaloa kahoolawensis* (kohe

malama malama o Kanaloa), *Labordia tinifolia* var. *lanaiensis* (kamakahala), *Labordia triflora* (kamakahala), and *Melicope munroi* (alani) follow. The primary threats facing the 10 taxa in this final rule are summarized in Table 2.

TABLE 2.—SUMMARY OF PRIMARY THREATS

Species	Alien mammals				Alien plants	Inverte-brates	Substrate loss	Overcol-lecting vandalism	Limited numbers*
	Pigs	Goats	Deer	Rats					
Clermontia samuelii	X	.....	.....	P	X	P	.....	P	
Cyanea copelandii ssp. *haleakalaensis*	X	.....	.....	P	P	P	.....	P	X
Cyanea glabra	X	.....	.....	P	X	X	X	P	X
Cyanea hamatiflora ssp. *hamatiflora*	X	.....	.....	P	X	P	X	P	
Dubautia plantaginea ssp. *humilis*	.....	.....	.....	.....	X	.....	X	P	X
Hedyotis schlechtendahliana var. *remyi*	.....	.....	X	.....	X	.....	.....	P	X1
Kanaloa kahoolawensis	.....	.....	.....	P	X	.....	X	P	X1
Labordia tinifolia var. *lanaiensis*	.....	.....	X	.....	X	.....	.....	P	X
Labordia triflora	X	X	.....	X	X	.....	.....	P	X1
Melicope munroi	.....	.....	X	.....	X	.....	.....	P	X

X = Immediate and significant threat.
P = Potential threat.
* = No more than 5 populations; 1= No more than 10 individuals total.

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

Native vegetation on all of the main Hawaiian Islands has undergone extreme alteration because of past and present land management practices including ranching, agricultural development, and deliberate introductions of alien animals and plants (Cuddihy and Stone 1990, Wagner *et al.* 1985). The primary threats facing the 10 plant taxa included in this final rule are ongoing and threatened destruction and adverse modification of habitat by feral animals and competition with alien plants (see Factor E for discussion about alien plants).

Eight of the 10 taxa in this rule are variously threatened by feral animals (see Table 2). Animals such as pigs, goats, axis deer, and cattle were introduced either by the early Hawaiians or more recently by European settlers for food and/or commercial ranching activities. Over the 200 years following their introduction, their numbers increased and the adverse impacts of feral ungulates on native vegetation have become increasingly apparent. Beyond the direct effect of trampling and grazing native plants, feral ungulates have contributed significantly to the heavy erosion still taking place on most of the main Hawaiian islands (Cuddihy and Stone 1990).

Pigs, originally native to Europe, Africa, and Asia, were introduced to Hawaii by the Polynesian ancestors of Hawaiians, and later by western immigrants. The pigs escaped domestication and invaded primarily wet and mesic forests of Kauai, Oahu, Molokai, Maui, and Hawaii. Pigs pose an immediate threat to one or more populations of five of the taxa in wet and mesic habitats. While foraging, pigs root and trample the forest floor, encouraging the establishment of alien plants in the newly disturbed soil. Pigs also disseminate alien plant seeds through their feces and on their bodies, accelerating the spread of alien plants through native forests (Cuddihy and Stone 1990, Stone 1985). Pigs facilitate the spread of *Psidium cattleianum* (strawberry guava) and *Schinus terebinthifolius* (Christmas berry), which threaten several of the taxa (Cuddihy and Stone 1990, Smith 1985, Stone 1985). On Maui, pigs threaten both subspecies of *Clermontia samuelii*, *Cyanea copelandii* ssp. *haleakalaensis*, the only known populations of *Cyanea glabra* and *Cyanea hamatiflora* ssp. *hamatiflora*, and the only known population of *Labordia triflora* (NTBG 1994; A.C. Medeiros, R. Hobdy, and J. Lau, pers. comms. 1995; F.R. Warshauer, pers. comm. 1995).

Goats, native to the Middle East and India, were first successfully introduced to the Hawaiian Islands in 1792. Feral goats now occupy a wide variety of habitats from lowland dry forests to montane grasslands on Kauai, Oahu, Molokai, Maui, and Hawaii, where they consume native vegetation, trample roots and seedlings, accelerate erosion, and promote the invasion of alien plants (Scott *et al.* 1986, Stone 1985, van Riper and van Riper 1982). On Molokai, goats threaten the only known population of *Labordia triflora* (T. Motley, pers. comm. 1993).

In 1920, a group of 12 axis deer was introduced to the island of Lanai and about 60 years later the population was estimated at 2,800 (Tomich 1986). Axis deer degrade habitat by trampling and overgrazing vegetation, which removes ground cover and exposes the soil to erosion. Extensive red erosional scars caused by decades of deer activity are evident on Lanai (Cuddihy and Stone 1990). Activity of axis deer threatens all populations of *Hedyotis schlechtendahliana* var. *remyi*, *Labordia tinifolia* var. *lanaiensis*, and *Melicope munroi* on Lanai (HHP 1991g8 to 1991g10; J. Lau, pers. comm. 1995).

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

Unrestricted collecting for scientific or horticultural purposes or excessive visits by individuals interested in seeing rare plants is a potential threat to any species identified as an imperiled. This is the case with all of the taxa in this final rule, but would seriously impact the eight taxa whose low numbers and/or few populations make them especially vulnerable to disturbances (*Cyanea copelandii* ssp. *haleakalaensis*, *Cyanea glabra*, *Dubautia plantaginea* ssp. *humilis*, *Hedyotis schlechtendahliana* var. *remyi*, *Kanaloa kahoolawensis*, *Labordia tinifolia* var. *lanaiensis*, *Labordia triflora*, and *Melicope munroi*).

C. Disease and Predation

Disease is not known to be a significant threat to any of the taxa. None of the 10 taxa are known to be unpalatable to pigs, deer, or goats. Feral pigs not only destroy native vegetation through their rooting activities and dispersal of alien plant seeds (see Factor A), but they also feed on plants, preferring the pithy interior of large tree ferns and fleshy-stemmed plants from the bellflower family (Stone 1985, Stone and Loope 1987). There is direct evidence of pigs eating bark off individuals of *Cyanea hamatiflora* ssp.

hamatiflora (A.C. Medeiros, pers. comm. 1995), and predation is a possible threat to other members of the bellflower family (*Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis,* and *Cyanea glabra*). Predation is also a possible threat to the one other taxon, *Labordia triflora,* known from areas where pigs have been reported (A.C. Medeiros and R. Hobdy, pers. comms. 1995; F.R. Warshauer, pers. comm. 1995).

Two rat species, the black rat and the Polynesian rat (*Rattus exulans*), and to a lesser extent other introduced rodents, eat large fleshy fruits and strip the bark of some native plants, particularly fruits of the native plants in the bellflower family (Cuddihy and Stone 1990, Tomich 1986, Wagner *et al.* 1985). It is possible that rats eat the fruits of *Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, Cyanea glabra,* and *Cyanea hamatiflora* ssp. *hamatiflora,* which produce fleshy fruits and stems, and grow in areas where rats occur (A.C. Medeiros, pers. comm. 1995; L. Mehrhoff, *in litt.* 1995). Rats also eat the seeds of *Labordia triflora* (T. Motley, pers. comm. 1993). Rats are a potential threat to *Kanaloa kahoolawensis,* which has seeds of a type preferred by rats (L. Mehrhoff, *in litt.* 1995).

Slugs are widespread in Hawaii and a serious threat to many native plant taxa, in addition to possibly being an attractant to pigs (Howarth 1985). Slugs feed preferentially on plants with fleshy leaves, stems, and fruits, including all taxa in the family Campanulaceae in Hawaii (L. Mehrhoff, *in litt.* 1995). Slugs are the primary threat to *Cyanea glabra.* All recent observations of this species have shown slug damage on both juveniles and adults (A.C. Medeiros, pers. comm. 1995). Slugs are also a potential threat to the following taxa with fleshy tissues, including *Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis,* and *Cyanea hamatiflora* ssp. *hamatiflora* (A.C. Medeiros, pers. comm. 1995; L. Mehrhoff, *in litt.* 1995).

Two spotted leafhopper is a recently introduced insect that feeds on leaves, causing physical damage. In addition to mechanical feeding damage, this insect may be a vector of a plant virus and is suspected of causing severe dieback of the native fern *Dicranopteris linearis* (uluhe), and economic damage to crops and ornamental plants in Hawaii. The two spotted leafhopper is a potential threat to all native taxa, since it has shown no host preference. It is a particularly grave threat to *Cyanea glabra,* since biologists have observed leafhoppers near the West Maui population (Adam Asquith, Service, pers. comm. 1994; K. Wood, pers. comm. 1995).

D. The Inadequacy of Existing Regulatory Mechanisms

Of the 10 taxa in this final rule, 8 have populations located on private land, 2 on State land, and 4 on Federal land within Haleakala National Park. While four of the taxa occur in more than one of those three ownership categories, five are known only from private land, and *Kanaloa kahoolawensis* is found only on State land.

While four of these taxa are found in Haleakala National Park, which is managed to protect native ecosystems, one or more populations of each taxa are found on State or private land as well. One of the taxa, *Clermontia samuelii,* also occurs in a State Natural Area Reserve, which is managed to perpetuate native resources (HRS, sect. 195–5). Furthermore, although Hawaii has a strong State Endangered Species law (HRS, sect. 195-D), these plants are currently not protected under that law. The other three taxa are found on private lands. However, there are no State laws or existing regulatory mechanisms at the present time to protect or prevent further decline of these plants on private land, except for minimal protection offered to those that occur on land classified as a conservation district.

Sections 2(c) (1) and 7 of the Act direct Federal agencies to seek to conserve listed endangered and threatened species and to avoid jeopardizing listed species, but require no such activities if the plants are not federally listed.

The majority of the populations of the 10 taxa are located on land classified within conservation districts and owned by the State of Hawaii or private companies or individuals. *Clermontia samuelii* occurs within Haleakala National Park, and on State Forest Reserve or State Natural Area Reserve lands—both are within conservation districts. *Kanaloa kahoolawensis* occurs only on the island of Kahoolawe, which is owned by the State of Hawaii. In 1993, Kahoolawe was transferred to native Hawaiian control. The Kahoolawe Island Reserve Commission (KIRC), which is under the Hawaii Department of Land and Natural Resources' Historic Preservation section, was established to oversee the cleanup of the island, including the removal of unexploded military ordnance and the restoration of native ecosystems and traditional cultural uses. Funding for the cleanup was authorized by the U.S. Congress, and the U.S. Navy is responsible for performing the cleanup. Although it does not lease the island, the Navy controls access to the island because of the danger of unexploded ordnance. The island is not a State Forest Reserve, Natural Area Reserve, or within a conservation district.

Regardless of the owner, lands in these districts are regarded as necessary for the protection of endemic biological resources and the maintenance or enhancement of the conservation of natural resources. Activities permitted in conservation districts are chosen by considering how best to make multiple use of the land (HRS, sect. 205–2). Some uses, such as maintaining animals for hunting, are based on policy decisions, while others, such as preservation of endangered species, are mandated by State laws. Requests for amendments to district boundaries or variances within existing classifications can be made by government agencies and any person with a property interest in the land (HRS, sect. 205–4). Before decisions about these requests are made, the impact of the final reclassification on ''preservation or maintenance of important natural systems or habitat'' (HRS, sects. 205–4, 205–17), as well as the maintenance of natural resources is required to be taken into account (HRS, sects. 205–2, 205–4).

Hawaii Revised Statutes (chapt. 343) require an environmental assessment to determine whether or not the environment will be significantly affected before any final land use—(1) occurs on State land, or (2) is funded in part or whole by county or State funds, or (3) will occur within land classified as conservation district. If it is found that an action will have a significant effect, preparation of a full Environmental Impact Statement is required. Hawaii's Environmental Policy Act, adopted in 1974 to encourage the conservation of natural resources and the enhancement of the quality of life, requires the safeguarding of ''. . . the State's unique natural environmental characteristics . . .'' (HRS, sect. 344–3(1)) and includes guidelines to protect endangered species of individual plants and animals (HRS, sect. 344–4(3)(A)). However, unless the species are protected under the State endangered species law (i.e., State listed as endangered or threatened), there is no mechanism to ensure that the species will be protected, regardless of what State ''guidelines'' are in place. Even though all of these species, except *Kanaloa kahoolawensis,* occur on conservation district lands, the designation of a conservation district does not provide adequate protection to these species.

Federal listing of these 10 plant species will automatically invoke State listing under Hawaii's Endangered Species law and supplement the protection available under other State laws. The Federal Endangered Species Act will, therefore, offer additional protection to these species.

State laws relating to the conservation of biological resources, including indigenous aquatic life, wildlife and land plants, and endangered species and their associated ecosystems, allow for the acquisition of land as well as the development and implementation of programs for the conservation, management, and protection of biological resources (HRS, sect. 195D–5(a)). However, according to HRS, sect. 195D–5(d), ''in carrying out programs authorized by this section, priority shall be given to the conservation and protection of those endangered . . .'', (i.e., Federal and State listed),'' . . . aquatic life, wildlife, and land plant species whose extinction within the State would imperil or terminate, respectively, their existence in the world.'' Therefore, the State will always give priority to protection and conservation efforts to species that are federally and State listed as endangered or threatened. Without Federal listing, these 10 species receive no protection or management by the State.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

All 10 of the taxa in this final rule are threatened or potentially threatened by competition with one or more alien plant taxa (see Table 2). The most significant of these appear to be *Psidium cattleianum* (strawberry guava), *Schinus terebinthifolius* (Christmas berry), *Rubus rosifolius* (thimbleberry), *Clidemia hirta* (Koster's curse), *Miconia calvescens* (velvet tree), *Myrica faya* (firetree), *Paspalum conjugatum* (Hilo grass), *Psidium guajava* (common guava), *Casuarina equisetifolia* (ironwood tree), *Leptospermum scoparium* (New Zealand tea), and *Ageratina adenophora* (Maui pamakani). There are a number of other alien plant taxa that pose a significant threat to populations of these plants.

Psidium cattleianum (strawberry guava), an invasive shrub or small tree native to tropical America, has become widely naturalized on all of the main islands, forming dense stands that exclude other plant species in disturbed areas (Cuddihy and Stone 1990). This alien plant grows primarily in mesic and wet habitats and is dispersed mainly by feral pigs and fruit-eating birds (Smith 1985, Wagner *et al.* 1990). *Psidium cattleianum* is considered to be one of the greatest alien plant threats to Hawaiian rain forests and is a threat on Maui to one of two known populations of *Cyanea copelandii* ssp. *haleakalaensis* and *Cyanea glabra* (Higashino *et al.* 1988; A.C. Medeiros, pers. comm. 1995). On Lanai, this invasive alien plant threatens all populations of *Hedyotis schlechtendahliana* var. *remyi*, the only known population of *Labordia tinifolia* var. *lanaiensis*, and the only known population of *Melicope munroi* (HHP 1991e1 to 1991e3; R. Hobdy, pers. comm. 1994; J. Lau, pers. comm. 1995).

Schinus terebinthifolius (Christmas berry), introduced to Hawaii before 1911, is a fast-growing tree or shrub invading most mesic to wet lowland areas of the major Hawaiian Islands (Wagner *et al.* 1990). *Schinus terebinthifolius* is distributed mainly by feral pigs and fruit-eating birds and forms dense thickets that shade out and displace other plants (Cuddihy and Stone 1990, Smith 1985, Stone 1985). This species is a threat to one population of *Hedyotis schlechtendahliana* var. *remyi*, and the only known populations of *Labordia tinifolia* var. *lanaiensis* and *Labordia triflora* (HHP 1991e2; R. Hobdy, pers. comm. 1994; J. Lau, pers. comm. 1995).

Rubus rosifolius (thimbleberry), native to Asia, is naturalized in disturbed mesic to wet forest on all of the main Hawaiian Islands and is perhaps the most widespread of all species of *Rubus* introduced to Hawaii (Cuddihy and Stone 1990). On Maui, this species threatens one of the two populations of *Cyanea copelandii* ssp. *haleakalaensis* as well as *Cyanea glabra* (NTBG 1994; A.C. Medeiros, pers. comm. 1995).

Clidemia hirta (Koster's curse), a noxious shrub native to tropical America, is found in mesic to wet forests on at least six islands in Hawaii (Almeda 1990, Hawaii Department of Agriculture 1981, Smith 1992). *Clidemia hirta* was first reported on Oahu in 1941 and had spread through much of the Koolau Mountains by the early 1960s. This noxious plant forms a dense understory, shading out other plants and hindering plant regeneration (Cuddihy and Stone 1990). This prolific alien plant has recently spread to five other islands and, on Maui is a potential threat to *Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis* and *Cyanea glabra* (A.C. Medeiros, pers. comm. 1995).

Miconia calvescens (velvet tree) is a recently naturalized species native to tropical America. This species has become invasive in the Hamakua coast and Pahoa areas of the island of Hawaii, the island of Oahu, and has become established on East Maui. This species has the potential to be very disruptive, as it has become an understory dominate where introduced to similar habitat in Tahiti (Almeda 1990, Cuddihy and Stone 1990). This species occurs on Maui near populations of *Clermontia samuelii* and poses a potential threat (A.C. Medeiros, pers. comm. 1995).

Myrica faya (firetree), native to the Azores, Madeira, and the Canary Islands, was introduced to Hawaii before 1900 for wine-making, firewood, or an ornamental. Trees were planted in forest reserves in the 1920s. By the mid-1980s *M. faya* had infested over 34,000 hectares (83,980 acres) throughout the State, with the largest infestations on the island of Hawaii. It is now considered a noxious weed (Cuddihy and Stone 1990, DOA 1981). *Myrica faya* can form a dense stand with no ground cover beneath the canopy. This lack of ground cover may be due to dense shading or to chemicals released by the tree that prevent other species from growing. *Myrica faya* also fixes nitrogen and increases nitrogen levels in Hawaii's typically nitrogen-poor volcanic soils. This may encourage the invasion of alien plants that would not normally be able to grow as well as native species in the low-nitrogen soils of Hawaii (Cuddihy and Stone 1990). On Lanai, this species threatens *Hedyotis schlechtendahliana* var. *remyi* and *Labordia tinifolia* var. *lanaiensis* (HHP 1991e3; R. Hobdy, pers. comm. 1994).

Paspalum conjugatum (Hilo grass) is naturalized in moist to wet disturbed areas on all of the main Hawaiian Islands except Niihau and Kahoolawe, and produces a dense ground cover (Cuddihy and Stone 1990). In Maui's Kipahulu Valley, this grass threatens one of the two populations of *Cyanea copelandii* ssp. *haleakalaensis*, as well as *Cyanea glabra* (NTBG 1994; A.C. Medeiros, pers. comm. 1995). On West Maui, *P. conjugatum* threatens *Dubautia plantaginea* ssp. *humilis* (HPCC 1990).

Psidium guajava (common guava), a shrub or small tree native to the New World tropics, is naturalized on all of the main islands, except, perhaps, Niihau and Kahoolawe (Wagner *et al.* 1990). *Psidium guajava* is a serious weed that invades disturbed sites, forming dense thickets in dry as well as mesic and wet forests (Smith 1985, Wagner *et al.* 1990). On Maui, this species threatens one of the two known populations of *Cyanea copelandii* ssp. *haleakalaensis*, as well as *Cyanea glabra* and *Dubautia plantaginea* ssp. *humilis*

(HPCC 1990; Higashino *et al.* 1988; A.C. Medeiros, pers. comm. 1995).

Casuarina equisetifolia (ironwood) is a large, fast-growing tree that reaches up to 20 m (65 ft) in height (Wagner *et al.* 1990). This large tree shades out other plants, takes up much of the available nutrients, and possibly releases a chemical agent that prevents other plants from growing beneath it (Neal 1965, Smith 1985). *Casuarina equisetifolia* is invading the wet cliffs of Iao Valley and is a threat to *Dubautia plantaginea* ssp. *humilis* (HPCC 1990; HHP 1991d1; R. Hobdy, pers. comm. 1995).

Leptospermum scoparium (New Zealand tea), brought to Hawaii as an ornamental plant and now naturalized in disturbed mesic to wet forest on three islands, threatens *Hedyotis schlechtendahliana* var. *remyi*, and the only known populations of *Labordia tinifolia* var. *lanaiensis* and *Melicope munroi* (Wagner *et al.* 1990; J. Lau, pers. comm. 1995).

Ageratina adenophora (Maui pamakani), native to tropical America, has become naturalized in dry areas to wet forest on Oahu, Molokai, Lanai, Maui, and Hawaii (Wagner *et al.* 1990). This noxious weed forms dense mats with other alien plants and prevents regeneration of native plants (Anderson *et al.* 1992). On Maui, one of the two known populations of *Cyanea copelandii* ssp. *haleakalaensis*, as well as *Cyanea glabra* and *Cyanea hamatiflora* ssp. *hamatiflora* are threatened by this species (NTBG 1995; R. Hobdy, pers. comm. 1995).

Rubus argutus (prickly Florida blackberry) was introduced to the Hawaiian Islands in the late 1800s from the continental U.S. (Haselwood and Motter 1983). The fruits are easily spread by birds to open areas such as disturbed mesic or wet forests, where the species forms dense, impenetrable thickets (Smith 1985). One of two known populations of *Cyanea copelandii* ssp. *haleakalaensis*, as well as *Cyanea glabra* are threatened by this species (A.C. Medeiros, pers. comm. 1995).

Hedychium coronarium (white ginger) was introduced to Hawaii in the late 1800s, probably by Chinese immigrants. It escaped from cultivation and is found in wet and mesic forests on most of the main Hawaiian islands. The large, vigorous herbs mainly reproduce vegetatively, forming very dense stands that exclude all other growth. *Hedychium gardnerianum* (kahili ginger) was introduced to Hawaii before 1940 from the Himalayas, and now has major infestations on the islands of Hawaii, Maui, and Kauai. This species is considered a more serious threat to native forests because it produces abundant fruit (Cuddihy and Stone 1990, Wagner *et al.* 1990). Both species of *Hedychium* threaten *Clermontia samuelii* (A.C. Medeiros, pers. comm. 1995), and *H. gardnerianum* is a threat to *Labordia tinifolia* var. *lanaiensis* (R. Hobdy, pers. comm. 1994).

Tibouchina herbacea (glorybush), a relative of Koster's curse, first became established on the island of Hawaii in the late 1970s and, by 1982, was collected in Lanilili on West Maui (Almeda 1990). Although the disruptive potential of this alien plant is not fully known, *T. herbacea* appears to be invading mesic and wet forests of Hawaii and Maui (Cuddihy and Stone 1990), and is considered a threat to *Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis*, and *Cyanea glabra* (R. Hobdy and A.C. Medeiros, pers. comms. 1995).

Sporobolus africanus (smutgrass) was introduced from Africa and has become naturalized on all the main islands of Hawaii except Niihau and Kahoolawe. It is typically found in disturbed areas such as road sides and pastures (O'Connor 1990), and on Maui is a threat to *Dubautia plantaginea* ssp. *humilis* (HPCC 1990).

Pluchea symphytifolia (sourbush) is native to Mexico, the West Indies, and northern South America. This species is naturalized in dry forests and ranges into mesic and wet forests on all the main Hawaiian islands (Wagner *et al.* 1990). It is a fast growing shrub and can form dense thickets (Smith 1985). *Pluchea symphytifolia* is a threat to *Dubautia plantaginea* ssp. *humilis* on West Maui (HPCC 1990).

Emelia fosbergii is a pantropical weed of unknown origin. In Hawaii it is a common weed in disturbed lowland dry habitats on all the main islands (Wagner *et al.* 1990). *Emelia fosbergii* is a threat to the only known population of *Kanaloa kahoolawensis* (Lorence and Wood 1994).

Nicotiana glauca (tree tobacco) was brought to Oahu as an ornamental from Argentina in the 1860s. It is now naturalized in all warm temperate regions of the world. On Oahu, Lanai, Maui, and Kahoolawe, this species is naturalized in disturbed open, dry habitats (Symon 1990). *Nicotiana glauca* is a threat to the only known population of *Kanaloa kahoolawensis* (Lorence and Wood 1994).

Chloris barbata (swollen finger grass) is native to Central America, the West Indies, and South America. In Hawaii it is naturalized in disturbed dry areas on all the main islands, and is a threat to the only known population of *Kanaloa kahoolawensis* (Lorence and Wood 1994, O'Connor 1990).

Erosion, landslides, rockslides, and flooding due to natural weathering result in the death of individual plants as well as habitat destruction. This especially affects the continued existence of taxa or populations found on cliffs, steep slopes, and stream banks that have limited numbers and/or narrow ranges such as the West Maui population of *Cyanea glabra, Cyanea hamatiflora* ssp. *hamatiflora, Dubautia plantaginea* ssp. *humilis*, and *Kanaloa kahoolawensis* (Lorence and Wood 1994; R. Hobdy, pers. comm. 1995).

The small number of populations and individuals of many of these taxa increases the potential for extinction from a single human-caused or natural environmental disturbance. In addition, the small gene pool may depress reproductive vigor. Four of the plants, *Kanaloa kahoolawensis, Labordia tinifolia* var. *lanaiensis, Labordia triflora*, and *Melicope munroi*, are each known from a single population. Four additional taxa have five or fewer populations (*Cyanea copelandii* ssp. *haleakalaensis, Cyanea glabra, Dubautia plantaginea* ssp. *humilis*, and *Hedyotis schlechtendahliana* var. *remyi*), and three of the taxa are estimated to number no more than 10 individuals (*Hedyotis schlechtendahliana* var. *remyi, Kanaloa kahoolawensis*, and *Labordia triflora*). All of the taxa in this final rule either number fewer than 15 populations or total fewer than 1,000 individuals (see Table 2).

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by these taxa in determining to make this rule final. Based on this evaluation, we find that these 10 species should be listed as endangered—*Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, Cyanea glabra, Cyanea hamatiflora* ssp. *hamatiflora, Dubautia plantaginea* ssp. *humilis, Hedyotis schlechtendahliana* var. *remyi, Kanaloa kahoolawensis, Labordia tinifolia* var. *lanaiensis, Labordia triflora*, and *Melicope munroi*. All of these taxa are threatened by one or more of the following—habitat degradation and/or predation by pigs, goats, deer, rats, and invertebrates; competition with alien plant taxa for space, light, water, and nutrients; and, substrate loss. Eight of the taxa have five or fewer populations, and three of these taxa are estimated to number no more than 10 individuals. Small population size and limited distribution make eight of these taxa particularly vulnerable to extinction from reduced reproductive

vigor or from random environmental events. Because all of the 10 taxa 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. Therefore, the determination of endangered status for these 10 taxa is warranted.

Critical Habitat

Critical habitat is defined in section 3 of the Act as: (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management consideration or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. ''Conservation'' means the use of all methods and procedures needed to bring the species to the point at which listing under the Act is no longer necessary.

Prudency Determination

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. Critical habitat is not prudent when one or both of the following situations exist—(i) the species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of such threat; (ii) designation of critical habitat would not be beneficial to the species.

In the proposed rule, we indicated that designation of critical habitat was not prudent for the six taxa (*Dubautia plantaginea* ssp. *humilis, Hedyotis schlechtendahliana* var. *remyi, Kanaloa kahoolawensis, Labordia tinifolia* var. *lanaiensis, Labordia triflora,* and *Melicope munroi*) that are located primarily on non-Federal lands with limited Federal activities because of a concern that publication of precise maps and descriptions of critical habitat in the **Federal Register** could increase the vulnerability of these plant species to incidents of collection and general vandalism. In the case of plants, increased visits to the sites where rare species are found could contribute to the decline of existing populations through overcollection or vandalism. We also indicated that designation of critical habitat was not prudent for the other four taxa (*Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, Cyanea glabra,* and *Cyanea hamatiflora* ssp. *hamatiflora*) located primarily on Federal lands within Haleakala National Park. National Parks are managed for the protection of native ecosystems, which should promote protection, conservation, and recovery of plants that are part of those ecosystems, suggesting no significant benefit from a designation of critical habitat.

In light of recent court decisions (e.g., *Natural Resources Defense Council* v. *U.S. Department of the Interior* 113 F. 3d 1121 (9th Cir. 1997); *Conservation Council for Hawaii* v. *Babbitt,* 2 F. Supp. 2d 1280 (D. Hawaii 1998)) issued since the proposed rule was published we have reconsidered the prudency finding under the Act. In the *Natural Resources Defense Council* case (hereafter *NRDC*), the Ninth Circuit held, first, that a not prudent finding premised on increased threats was justified only if the Service weighs, based on facts in the record, the benefits of designation against the risks of designation. Second, it held that the Service erred in finding no benefit to critical habitat simply because critical habitat would not control the majority of land-use activities within critical habitat, and that to do so was inconsistent with Congressional intent that the not prudent exception to designation should apply ''only in rare circumstances.'' With regard to non-Federal lands, the court found that they would be subject to section 7 requirements in the future if their use involved any form of Federal agency authorization or action. Third, the court found that the existence of another type of protection, even if potentially greater than that provided by designating critical habitat, does not justify a not prudent finding.

The Service continues to be concerned that designation of critical habitat could potentially increase the threats to these species. Due to low numbers of individuals or populations and their inherent immobility, these plants are vulnerable to unrestricted collection, vandalism or other disturbance. We also remain concerned that these threats may be exacerbated by the publication of critical habitat maps and further dissemination of locational information. However, we have examined the evidence available for each of these ten taxa and have not, at this time, found specific evidence of taking, vandalism, collection or trade of any of them or of similarly situated species. Consequently, consistent with applicable regulations (50 CFR 424.12(a)(1)(i)), we do not find that any of these species are currently threatened by taking or other human activity, which threats would be exacerbated by the designation of critical habitat.

In the absence of a finding that critical habitat would increase threats to a species, if there are any benefits to critical habitat designation, then a prudent finding is warranted pursuant to the *NRDC* decision. In the case of these taxa, there may be some benefits to critical habitat. The primary regulatory effect of critical habitat is the section 7 requirement that Federal agencies refrain from taking any action that destroys or adversely modifies critical habitat. Four of these species (*Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, Cyanea glabra,* and *Cyanea hamatiflora* ssp. *hamatiflora*) occur in part on Federal land that would be subject to section 7. The fact that this is land administered by the National Park Service does not, in itself, justify a not prudent finding in the Ninth Circuit. However, we will determine at the time of designation whether National Park Service lands meet the statutory definition of critical habitat. While the other taxa (*Dubautia plantaginea* ssp. *humilis, Hedyotis schlechtendahliana* var. *remyi, Kanaloa kahoolawensis, Labordia tinifolia* var. *lanaiensis, Labordia triflora,* and *Melicope munroi*) are located exclusively on non-Federal lands with limited Federal activities, there may be Federal actions affecting these lands in the future. While a critical habitat designation for habitat currently occupied by these species would not be likely to change the section 7 consultation outcome because an action that destroys or adversely modifies such critical habitat would also be likely to result in jeopardy to the species, there may be instances where section 7 consultation would be triggered only if critical habitat is designated. Examples could include unoccupied habitat or occupied habitat that may become unoccupied in the future. There may also be some educational or informational benefits to critical habitat. Therefore, we find that critical habitat is prudent for the 10 Maui Nui plant taxa, *Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, Cyanea glabra, Cyanea hamatiflora* ssp. *hamatiflora, Dubautia plantaginea* ssp. *humilis, Hedyotis schlechtendahliana* var. *remyi, Kanaloa kahoolawensis, Labordia tinifolia* var. *lanaiensis, Labordia triflora,* and *Melicope munroi.*

Proposed Critical Habitat Designations Will Be Consistent With The Service's Listing Priority Guidance

As a Tier 2 activity, the processing of this final rule conforms with our current

listing priority guidance (LPG) for fiscal years 1998 and 1999, published in the **Federal Register** on May 8, 1998 (63 FR 25502). However, at this time, designation of critical habitat is a Tier 3 activity under the current LPG. While we allocated about 17 percent of the total listing budget for critical habitat actions this fiscal year, all of Region 1's allocation will be spent complying with court-ordered designations. Completion of any other Tier 3 activity in Region 1 this fiscal year is precluded by higher priority listing actions. Future work on proposed critical habitat designations for these taxa will be scheduled based on future listing appropriations, the LPG in effect at that time, and their relative priority compared to other pending critical habitat proposals.

The Act imposes more listing duties than we currently are able to meet due to lack of adequate funding. To deal with this difficult situation, we have developed a series of LPGs to prioritize our various listing activities in such a way as to secure the most protection for the greatest number of the most imperiled species in the least time.

The Listing Priority Guidance

The **Federal Register** notices for the LPGs describe the fiscal constraints imposed over the past four years in detail. 63 FR 25502 (May 8, 1998) (FY 1998/1999 LPG); 61 FR 64475 (Dec. 5, 1996) (FY 1997 LPG); 61 FR 24722 (May 16, 1996) (FY 1996 LPG). In brief, Congress originally appropriated $7.999 million for listing in FY 1995. On April 10, 1995, Congress enacted a moratorium on final listing determinations and critical habitat designations, and rescinded $1.5 million (nearly twenty percent) of the listing budget. The severe funding shortages and the listing moratorium continued in FY 1996. From October 1, 1995, until April 26, 1996, the Department of the Interior operated without a regularly enacted full-year appropriations bill. Instead, funding for most of the Department's programs, including the endangered species listing program, was governed by a series of thirteen ''continuing resolutions'' (CRs) that severely reduced or eliminated funding for the Service's listing program. Their net effect was essentially to shut down the listing program.

After more than six months of continuing resolutions, Congress allowed the President to lift the listing moratorium and appropriated $4.0 million for listing in FY 1996, far short of the funds necessary to process the backlog of 243 final listing determinations that required action. In FY 1997, although the President requested approximately $7.5 million for listing, Congress appropriated only $5.0 million. The President requested and received $5.19 million for listing in FY 1998, and Congress expressly prohibited the expenditure of any additional funds for listing. This reduced listing budget request was based on a realistic assessment of the level of funding that might be obtained and reflected a need to address other endangered species program activities such as conducting section 7 consultations, processing section 10 incidental take permit applications, and developing and implementing recovery plans. Although the Department also requested that Congress include the amount of the budget that could be allocated to listing on the face of the appropriations bill, it did so only to clarify Congress' intent, previously expressed in Congressional committee reports, that we not divert funding to listings from other programs. In FY 1999, the President requested significant increases for all Endangered Species programs, including an increase of $1.5 million for listing. However, Congress appropriated only an additional $566,000, for a total listing budget of $5.756 million, again with an express cap on the listing budget.

To address the backlog that has resulted from the listing moratorium and subsequent funding constraints, and to meet litigation deadlines, we employed the LPGs to prioritize listing actions. The 1996, 1997, and 1998/99 LPGs use categories or ''tiers'' of Act listing actions to guide the expenditure of limited listing funds. Each year, the content and number of tiers has changed somewhat, reflecting the progress that the Service has made in reducing the listing backlog. In the current guidance, the highest priority (Tier 1) is assigned to emergency listings of species facing an imminent risk of extinction. The second highest priority (Tier 2) includes processing final determinations on proposed additions to the lists of endangered and threatened species, processing new proposals to add species to the lists, and processing petition findings to add species to the lists. Preparing proposed and final rules to designate critical habitat is assigned the lowest priority (Tier 3).

It is essential during periods of limited listing funds to maximize the conservation benefit of listing appropriations. Designation of critical habitat is very resource-intensive, and in most cases provides little additional protection. As explained previously, the primary regulatory effect of critical habitat is the section 7 requirement that Federal agencies refrain from taking any action that destroys or adversely modifies critical habitat. While in some cases critical habitat may result in some additional section 7 coverage, for example in unoccupied habitat, the prohibition on destroying critical habitat generally overlaps the jeopardy prohibition of section 7. There may also be other benefits of critical habitat, such as increased awareness by the general public and State and government agencies of the importance of certain habitat areas. Nevertheless, compared with the benefits of listing as endangered or threatened, those species that presently have no protection under the Act, designating critical habitat for species already receiving its full protection provides relatively fewer conservation benefits.

Furthermore, designation of critical habitat is expensive and time-consuming. It entails the detailed identification of all areas containing the physical or biological features essential to the conservation of each species (16 U.S.C. 1532(5)(A)). Then, we must determine which of these areas may require special management considerations or protection. Maps and written legal descriptions must be prepared for each area to be proposed for critical habitat (50 CFR 424.12(c)). We must also consider the economic and other impacts of designating areas as critical habitat (16 U.S.C. 1533(b)(2)). This requires the preparation of an economic analysis and consideration of any additional available information concerning other impacts. Then we must determine whether the benefits of excluding any particular area outweigh the benefits of including that area as part of the critical habitat. To insure that the affected public and State and local governments have an adequate opportunity to comment, we must also publish each critical habitat proposal in the **Federal Register** for public comment; provide actual notice of the proposed regulation to appropriate State and local government agencies where the taxon is believed to occur; publish a summary of each proposal in a newspaper of general circulation in each area where the taxon is believed to occur; and hold public hearings if requested (16 U.S.C. 1533(b)(5)).

It is very difficult to estimate precisely the time and cost to develop critical habitat designations for the plants at issue here and we intend to streamline the process to the extent possible consistent with our statutory obligations. For example, for the Mexican spotted owl, the actual designation cost over $341,000. Obviously, the greater the number of species, the greater the cost. Because of

the marginal additional protection critical habitat provides, and the cost of designating it, critical habitat designations have been accorded a lower priority under the LPG.

Adherence to the LPG has allowed us to make great strides in eliminating the backlog of pending listing proposals, thus allowing the implementation of a more balanced listing program. When the moratorium was lifted, final decisions for 243 proposed listings were pending. In the four calendar years prior to the moratorium, we made final listing decisions for an average of 88 species per year. In comparison, in the twelve months after the moratorium was lifted on April 26, 1996, we made final listing determinations for 131 species. Since that time, we further reduced the backlog of pending proposals to list domestic species, so that 68 such proposals remain pending (as of June 24, 1999), only 1 of which was published prior to the moratorium.

However, at present we still face the dilemma that we cannot complete all of our statutory listing duties within the time frames mandated by Congress, given the insufficient funds appropriated by Congress for this purpose. The LPG is the most efficient way, consistent with the purposes of the Act, for us to pursue the goal of reestablishing full compliance with the Act.

The progress we have made in reducing the listing backlog by employing the LPG has allowed us to slowly expand the activities we undertake. Resuming work on critical habitat designations, where prudent, is the next step in this process. In fact, we set aside $979,000 from the 1999 listing budget to undertake critical habitat actions. However, current budget levels are clearly insufficient for us to undertake all of our outstanding critical habitat designations in addition to meeting our other mandatory listing duties under the Act. Therefore, we plan to employ a priority system for deciding which ones should be addressed first. We will focus our efforts on those designations that will provide the most conservation benefit, taking into consideration the efficacy of critical habitat designation in addressing the threats to the species, the magnitude and immediacy of those threats, and the amount of resources necessary to complete the designation. We are also in the process of re-examining procedures and requirements for critical habitat designation, in order to streamline and expedite such actions to the maximum extent permitted under law (64 FR 31871, June 14, 1999) (notice of intent to clarify the role of habitat in endangered species conservation).

Region 1's Workload

Administratively, the Service is divided into seven geographic regions, which report to our headquarters in Washington, DC. Each region has a regional office and a number of field offices that report to the regional office. These ten species are under the jurisdiction of Region 1, which includes California, Oregon, Washington, Idaho, Nevada, Hawaii, and various Pacific Islands. Within Region 1, these species are the responsibility of the Pacific Islands Fish and Wildlife Office in Honolulu, Hawaii.

Region 1 has by far the heaviest endangered species workload of the Service's seven regions. About one-half of all species listed under the Act fall within Region 1's jurisdiction. Since the listing moratorium was lifted in April 1996, Region 1 has expended much of its limited listing resources on the completion of final determinations on proposed rules to list species. From April 1996 through June 24, 1999, we made 210 final determinations for Region 1 species (81 percent of the nationwide total of 260). In that time frame, Region 1 also proposed rules for 49 species (56 percent of the nationwide total of 88), and completed 9 petition findings (20 percent of the nationwide total of 44).

Region 1 likewise has a heavy listing workload for the remainder of FY 1999. Region 1 has the lead on forty-six species proposed for listing for which final determinations must be made. Region 1 must also complete 12-month findings for an additional five species. Moreover, Region 1 has primary responsibility for about 100 candidate species, many of which face imminent, high-magnitude threats to their existence. Finally, Region 1 has 5 listing petitions awaiting 90-day findings. Under the LPG, these are all Tier 2 activities that should be given priority to ensure that species in need of the fundamental protections of the Act are addressed. Currently, there is one draft final delisting package awaiting revision by the Pacific Islands Fish and Wildlife Office listing staff and, seven draft proposed listing packages covering 39 species awaiting revision by either the Regional Office listing staff or the Pacific Islands Fish and Wildlife Office. In addition, preparation of proposed listing rules for 28 Hawaiian plant species and 2 species of butterflies from the Northern Marianas Islands have been put on hold indefinitely due to the increased workload associated with the determination and designation of critical habitat for the listed species under litigation.

Region 1 must also expend its listing resources to comply with existing court orders or settlement agreements. In fact, this fiscal year, all of the Region's allocation for critical habitat actions will be expended to comply with these court orders. For example, we have been ordered to propose critical habitat for the tidewater goby by August 3, 1999, and to complete final critical habitat designation for the western snowy plover by December 1, 1999. In addition, Region 1 had to comply with a court order to reanalyze a previous not prudent finding for critical habitat for the coastal California gnatcatcher. This reanalysis was completed this fiscal year, and we are beginning the analysis on specific sites to identify any areas that may be appropriate for proposed critical habitat designation. Complying with these orders will require a significant commitment of resources.

By far the greatest litigation-driven commitment of listing resources will be required to comply with the order in Conservation Council of Hawaii v. Babbitt. There, the district court remanded to the Service its ''not prudent'' findings on critical habitat designation for 245 species of Hawaiian plants. The court ordered us not only to reconsider these findings but also to designate critical habitat for any species for which we determine on remand that critical habitat designation is prudent. This order essentially requires a single field office to draft critical habitat determinations for over one-fifth of all the species that have ever been listed in the history of the Act, and encompasses more than one-third of all listed plants. Compliance with this court order, set on a schedule to run through 2003, will require an enormous commitment of listing resources that may delay other Region 1 listing activity for years. Because of this tremendous court ordered workload, the Pacific Islands Fish and Wildlife Office is only working on emergency listing actions (Tier 1) in addition to lawsuit driven listing activities; all remaining Tier 2 activities remaining in the office will not be completed. While we cannot predict the outcome of the Congressional appropriation process for FY 2000 it is very unlikely that it will see a significant increase in its listing budget and it is more reasonable to expect that the budget will be at a slightly lower level than FY 1999. If this is the case, it is likely that the Pacific Islands Fish and Wildlife Office will continue to have the ability to work only on court ordered and emergency listing actions.

Of the $5.756 million appropriated in FY 1999 for listing actions, Region 1 was allocated $2.964 million (over 50 percent). Of the $979,000 allocated to critical habitat, Region 1 received $460,000, or 47 percent. These funds are insufficient to fulfill all of its section 4 listing duties during FY 1999 as well as to comply with existing court orders regarding critical habitat. Therefore, designating critical habitat for these 10 taxa at this time (Tier 3 activities) would come at the expense of providing basic protection under the Act to species not yet listed (Tier 2 activities).

We will develop critical habitat designations for these ten taxa as soon as feasible. At the present time, we expect that the most expeditious way of processing these designations will be to process them with the 245 Hawaiian plant species for which critical habitat determinations have been remanded to us in *Conservation Council of Hawaii v. Babbitt*. As a result, we currently anticipate that the proposed critical habitat designation will be completed by April 20, 2002, and the final rules will be completed by April 20, 2003.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. Recognition through listing can encourage and result in conservation actions by Federal, State, and local agencies, private organizations, and individuals. The Act provides for possible land acquisition and cooperation with the State and requires that recovery plans be developed for 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 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. Populations of four of the endangered taxa occur on National Park Service land. The National Park Service monitors and manages rare and endangered species populations within Haleakala National Park (S. Anderson, pers. comm. 1998).

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered plants. With respect to the 10 species in this final rule, all prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, would apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export any endangered plant species to/from the United States; transport such species in interstate or foreign commerce in the course of a commercial activity; sell or offer for sale such a species in interstate or foreign commerce; remove and reduce such a species to possession from areas under Federal jurisdiction; maliciously damage or destroy any such species from areas under Federal jurisdiction; or remove, cut, dig up, or damage or destroy any such species in knowing violation of any State law or regulation, including State criminal trespass law. Certain exceptions to the prohibitions apply to agents of the Service and State conservation agencies.

The Act and 50 CFR 17.62 provide for the issuance of permits to carry out otherwise prohibited activities involving endangered plant species under certain circumstances. Such permits are available for scientific purposes and to enhance the propagation or survival of the species. It is anticipated that few permits would ever be sought or issued because these 10 species are not common in cultivation or in the wild.

It is our policy, published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of this listing on proposed and ongoing activities within the species' range. Four of the species occur on Federal lands under the jurisdiction of the National Park Service. Collection, damage, or destruction of these species on Federal lands is prohibited without a Federal endangered species permit. Such activities on non-Federal lands would constitute a violation of section 9 if conducted in knowing violation of Hawaii State law or regulations or in violation of a State criminal trespass law (see Hawaii State Law section below). We are not aware of any trade in these species.

We believe that, based on the best available information at this time, the following actions will not result in a violation of section 9 on private land provided that they do not violate State trespass or other laws—hunting, bird watching, and hiking. Activities for which a Federal endangered species permit is issued to allow collection for scientific or recovery purposes would also not result in a violation of section 9. We are not aware of any otherwise lawful activities being conducted or proposed by the public that will be affected by this listing and result in a violation of section 9. General prohibitions and exceptions that apply to all endangered plants in section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply as discussed earlier in this section.

Questions regarding whether specific activities will constitute a violation of section 9 of the Act should be directed to the Pacific Islands Ecoregion Manager (see **ADDRESSES** section). Requests for copies of the regulations concerning listed plants and inquiries regarding prohibitions and permits may be addressed to the Fish and Wildlife Service, Ecological Services, Permits Branch, 911 N.E. 11th Avenue, Portland, Oregon 97232–4181 (telephone 503–231–2063; facsimile 503–231–6243).

Hawaii State Law

Federal listing will automatically invoke listing under the State's endangered species law. Hawaii's endangered species law 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 shall be deemed to be an endangered species under the provisions of this chapter * * *'' (HRS, sect. 195D–4(a)). Therefore, Federal listing will accord the species listed status under Hawaii State law. State law prohibits cutting, collecting, uprooting, destroying, injuring, or possessing any listed species of plant on State or private land, or attempting to engage in any such conduct. The State law encourages conservation of such species by State agencies and triggers other State regulations to protect the species (HRS, sect. 195AD–4 and 5).

Paperwork Reduction Act

This rule does not contain any new collections of information other than those already approved under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, and assigned Office of Management and Budget clearance

number 1018–0094. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid control number. For additional information concerning permit and associated requirements for endangered species, see 50 CFR 17.62.

National Environmental Policy Act

We have determined that Environmental Assessments and Environmental Impact Statements, 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. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

A complete list of all references cited herein is available upon request from the Pacific Islands Fish and Wildlife Office (see **ADDRESSES** section).

Author

The authors of this final rule are Karen ''Kitti'' Jensen and Christa Russell, telephone 808–541–3441 or facsimile 808–541–3470 (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

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

Final Regulation Promulgation

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

PART 17—[AMENDED]

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 section 17.12(h) by adding the following, in alphabetical order under FLOWERING PLANTS, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
Flowering Plants							
*	*	*	*	*	*		*
Clermontia samuelii	Oha wai	U.S.A (HI)	Campanulaceae—Bellflower.	E	666	NA	NA
*	*	*	*	*	*		*
Cyanea copelandii ssp. *haleakalaensis.*	Haha	U.S.A. (HI)	Campanulaceae—Bellflower.	E	666	NA	NA
*	*	*	*	*	*		*
Cyanea glabra	Haha	U.S.A. (HI)	Campanulaceae—Bellflower.	E	666	NA	NA
*	*	*	*	*	*		*
Cyanea hamatiflora ssp. *hamatiflora.*	Haha	U.S.A. (HI)	Campanulaceae—Bellflower.	E	666	NA	NA
*	*	*	*	*	*		*
Dubautia plantaginea ssp. *humilis.*	Nàenàe	U.S.A. (HI)	Asteraceae—Sunflower	E	666	NA	NA
*	*	*	*	*	*		*
Hedyotis schlechtendahliana var. *remyi.*	Kopa	U.S.A. (HI)	Rubiaceae—Coffee	E	666	NA	NA
*	*	*	*	*	*		*
Kanaloa kahoolawensis.	None	U.S.A. (HI)	Fabaceae—Legume	E	666	NA	NA
*	*	*	*	*	*		*
Labordia tinifolia var. *lanaiensis.*	Kamakahala	U.S.A. (HI)	Loganiaceae—Logan	E	666	NA	NA
*	*	*	*	*	*		*
Labordia triflora	Kamakahala	U.S.A. (HI)	Loganiaceae—Logan	E	666	NA	NA
*	*	*	*	*	*		*
Melicope munroi	Alani	U.S.A. (HI) Rutaceae—Citrus.		E	666	NA	NA
*	*	*	*	*	*		*

Dated: August 24, 1999.

John G. Rogers,

Acting Director, Fish and Wildlife Service.

[FR Doc. 99–22969 Filed 9–2–99; 8:45 am]

BILLING CODE 4310–55–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 622

[Docket No. 990823235–9235–01; I.D. 061699F]

RIN 0648-AM55

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Snapper-Grouper Fishery Off the Southern Atlantic States; Closure of the Red Porgy Fishery

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Emergency interim rule; request for comments.

SUMMARY: This emergency interim rule prohibits the harvest and possession of red porgy in or from the exclusive economic zone off the southern Atlantic states. Closure of the fishery is intended to protect the red porgy resource, which is currently overfished.

DATES: This rule is effective September 8, 1999, through March 1, 2000. Comments must be received no later than October 4, 1999.

ADDRESSES: Comments on this emergency interim rule must be mailed to, and copies of documents supporting this action, such as NMFS' economic analysis and environmental assessment, may be obtained from, the Southeast Regional Office, NMFS, 9721 Executive Center Drive N., St. Petersburg, FL 33702. Requests for copies of a minority report submitted by a member of the South Atlantic Fishery Management Council (Council) should be sent to the South Atlantic Fishery Management Council, One Southpark Circle, Suite 306, Charleston, SC 29407-4699; phone: 843-571-4366; fax: 843-769-4520.

FOR FURTHER INFORMATION CONTACT: Peter J. Eldridge, 727-570-5305, fax: 727-570-5583.

SUPPLEMENTARY INFORMATION: The snapper-grouper fishery off the southern Atlantic states is managed under the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region (FMP). The FMP was prepared by the Council and is implemented under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) by regulations at 50 CFR part 622.

Background

Fishing pressure on red porgy increased substantially from the early 1970's to the present. In 1992, an assessment revealed that red porgy were overfished with a spawning potential ratio (SPR) of 13 percent. Also, in 1992 the Council established a rebuilding timeframe of 10 years for red porgy. The Council used SPR as a proxy for maximum sustainable yield (MSY) and as a criterion to judge whether or not a stock was overfished.

Amendment 9 to the FMP, which was submitted to NMFS in February 1998 for review and implementation, recognized that red porgy were overfished and contained management measures to address that issue. Amendment 9 increased the minimum size limit from 12 to 14 inches (30.5 to 35.6 cm) total length, established a recreational bag limit of 5 fish, prohibited harvest and possession in excess of the bag limit during March and April, and prohibited purchase and sale during March and April. Based on the best scientific information available at that time, the Council believed that the proposed red porgy management measures in Amendment 9 would prevent overfishing.

Also, in October 1998, based upon the same information used to develop Amendment 9, the Council selected a 10-year rebuilding timeframe for red porgy in the Comprehensive Amendment Addressing Sustainable Fishery Act Definitions and Other Required Provisions in Fishery Management Plans of the South Atlantic Region. NMFS partially approved the Comprehensive Amendment on May 19, 1999, and specifically approved the rebuilding schedule for red porgy.

In March 1999, a new red porgy assessment revealed the condition of the red porgy resource was substantially worse than previously thought. Specifically, for the first time in the management of this fishery, biomass-based estimates for MSY, minimum stock size threshold (MSST), maximum fishing mortality threshold (MFMT), and estimates of actual recruitment to the fishery for the 1973 through 1997 period were available. This information revealed that the red porgy resource is suffering recruitment failure. Recruitment failure means that the number of recruits is insufficient to maintain the spawning biomass of the population. If such a condition is allowed to persist, the fishery will collapse. In addition, the 1999 assessment noted that the SPR estimate is useful to describe the fishing mortality rate, but the SPR estimate is not a valid proxy for MSY in this fishery because it does not provide information on the actual level of spawning biomass that is providing recruitment.

The 1999 red porgy assessment revealed that recruitment of age–1 red porgy had declined 99.85 percent from 1973 to 1997 (7.6 million to 0.012 million age–1 fish) and that total spawning biomass has declined 97.24 percent from 1978 to 1997 (11,700 metric tons (mt) to 323 mt). The MSST to achieve an SPR of 30 percent (MSY) is 2,845 mt; the comparable figure for optimum yield is 3,805 mt. The MFMT is 0.45; whereas, the current fishing mortality is 0.64, which is 42 percent over the MFMT. In addition, commercial and recreational landings have declined substantially, and the size of red porgy at maturity and size at transition from females to males have occurred at progressively smaller sizes.

The FMP specifies the overfishing threshold for red porgy at an SPR of 30 percent. The 1999 assessment estimated the SPR at 24 percent. Thus, overfishing is occurring.

The 1999 assessment clearly shows that the spawning biomass has been substantially below the MSST since 1992. Concomitant with the depressed level of spawning stock has been a depressed level of recruitment. Given the seriously overfished condition of the red porgy resource, as well as the original intent of the Council to rebuild this resource by the year 2001, the Council concluded that it is prudent and necessary under the Magnuson-Stevens Act to close the fishery to rebuild this species.

The Council will request NMFS to develop potential management options for the red porgy fishery in time for the September Council meeting. The Council intends to develop permanent management measures to replace the emergency interim rule for red porgy at the September Council meeting.

This action will require the discard of red porgy that inevitably will be caught incidentally when fishing for other snapper-grouper species. Some of these discarded fish will not survive. Nevertheless, the overall reduction in mortality of red porgy is necessary to return the biomass to levels that will allow harvests approximating the MSY for the species.

Minority Report

A Council member submitted a minority report that objects to the