

## DEPARTMENT OF THE INTERIOR

## Fish and Wildlife Service

## 50 CFR Part 17

RIN 1018-AH02

**Endangered and Threatened Wildlife and Plants; Final Designation and Nondesignation of Critical Habitat for 46 Plant Species From the Island of Hawaii, HI****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Final rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), designate critical habitat pursuant to the Endangered Species Act of 1973, as amended (Act), for 41 of 58 listed plant species known historically from the island of Hawaii. A total of approximately 84,200 hectares (208,063 acres) of land on the island of Hawaii fall within the boundaries of the 99 critical habitat units designated for these 41 species. This critical habitat designation requires the Service to consult under section 7 of the Act with regard to actions carried out, funded, or authorized by a Federal agency. Section 4 of the Act requires us to consider economic and other relevant impacts when specifying any particular area as critical habitat. This rule also determines that designating critical habitat would not be prudent for four species, *Cyanea copelandii* ssp. *copelandii*, *Ochrosia kilaueaensis*, *Pritchardia affinis*, and *Pritchardia schattaueri*. We solicited data and comments from the public on all aspects of the proposed rule, including data on economic and other impacts of the designation.

**DATES:** This rule becomes effective on August 1, 2003.

**ADDRESSES:** Comments and materials received, as well as supporting documentation, used in the preparation of this final rule will be available for public inspection, by appointment, during normal business hours at U.S. Fish and Wildlife Service, Pacific Islands Office, 300 Ala Moana Blvd., Room 3-122, P.O. Box 50088, Honolulu, HI 96850-0001.

**FOR FURTHER INFORMATION CONTACT:** Paul Henson, Field Supervisor, Pacific Islands Office at the above address (telephone 808/541-3441; facsimile 808/541-3470).

**SUPPLEMENTARY INFORMATION:****Designation of Critical Habitat Provides Little Additional Protection to Species**

In 30 years of implementing the ESA, the Service has found that the designation of statutory critical habitat provides little additional protection to most listed species, while consuming significant amounts of available conservation resources. The Service's present system for designating critical habitat has evolved since its original statutory prescription into a process that provides little real conservation benefit, is driven by litigation and the courts rather than biology, limits our ability to fully evaluate the science involved, consumes enormous agency resources, and imposes huge social and economic costs. The Service believes that additional agency discretion would allow our focus to return to those actions that provide the greatest benefit to the species most in need of protection.

**Role of Critical Habitat in Actual Practice of Administering and Implementing the Act**

While attention to and protection of habitat is paramount to successful conservation actions, we have consistently found that, in most circumstances, the designation of critical habitat is of little additional value for most listed species, yet it consumes large amounts of conservation resources. [Sidle (1987) stated, "Because the ESA can protect species with and without critical habitat designation, critical habitat designation may be redundant to the other consultation requirements of section 7."]

Currently, only 306 species or 25% of the 1,211 listed species in the U.S. under the jurisdiction of the Service have designated critical habitat. We address the habitat needs of all 1,211 listed species through conservation mechanisms such as listing, section 7 consultations, the Section 4 recovery planning process, the Section 9 protective prohibitions of unauthorized take, Section 6 funding to the States, and the Section 10 incidental take permit process. The Service believes that it is these measures that may make the difference between extinction and survival for many species.

**Procedural and Resource Difficulties in Designating Critical Habitat**

We have been inundated with lawsuits for our failure to designate critical habitat, and we face a growing number of lawsuits challenging critical habitat determinations once they are made. These lawsuits have subjected the Service to an ever-increasing series of

court orders and court-approved settlement agreements, compliance with which now consumes nearly the entire listing program budget. This leaves the Service with little ability to prioritize its activities to direct scarce listing resources to the listing program actions with the most biologically urgent species conservation needs.

The consequence of the critical habitat litigation activity is that limited listing funds are used to defend active lawsuits, to respond to Notices of Intent (NOIs) to sue relative to critical habitat, and to comply with the growing number of adverse court orders. As a result, listing petition responses, the Service's own proposals to list critically imperiled species, and final listing determinations on existing proposals are all significantly delayed.

The accelerated schedules of court ordered designations have left the Service with almost no ability to provide for adequate public participation or to ensure a defect-free rulemaking process before making decisions on listing and critical habitat proposals due to the risks associated with noncompliance with judicially-imposed deadlines. This in turn fosters a second round of litigation in which those who fear adverse impacts from critical habitat designations challenge those designations. The cycle of litigation appears endless, is very expensive, and in the final analysis provides relatively little additional protection to listed species.

The costs resulting from the designation include legal costs, the cost of preparation and publication of the designation, the analysis of the economic effects and the cost of requesting and responding to public comment, and in some cases the costs of compliance with NEPA, all are part of the cost of critical habitat designation. None of these costs result in any benefit to the species that is not already afforded by the protections of the Act enumerated earlier, and they directly reduce the funds available for direct and tangible conservation actions. Sidle, J.G. 1987. Critical Habitat Designation: Is it Prudent? Environmental Management 11(4):429-437.

**Background**

In the List of Endangered and Threatened Plants (50 CFR 17.12(h)), there are 58 plant species that, at the time of listing, were reported from the island of Hawaii.

Twenty-seven of these species are endemic to the island of Hawaii, while 31 species are reported from the island of Hawaii and one or more other

Hawaiian islands. Each of these species is described in more detail below in the section named, "Discussion of Plant Taxa." Although we considered designating critical habitat on the island of Hawaii for each of the 58 plant species, for reasons described below, the final designation includes critical habitat for 41 of 58 plant species. Species that also occur on other Hawaiian islands may have critical habitat designated on those other islands in previous rulemakings.

#### The Island of Hawaii

This largest island of the Hawaiian archipelago comprises 10,458 square kilometers (sq km) (4,038 sq miles (mi)) or two-thirds of the land area of the

State of Hawaii, giving rise to its common name, the "Big Island." We provided a detailed physical description for the island of Hawaii in the proposed critical habitat designation (67 FR 36970).

#### Species Endemic to Hawaii

These species and their distribution by island are identified in Table 1 in the **Federal Register** notice proposing this critical habitat designation (67 FR 36969). However, it is important to note that in this final rule we are using the word "occurrence" rather than "population" in most cases. This was done to avoid confusion regarding the number of location occurrences for each species, which do not necessarily

represent viable populations, and the number of recovery populations (e.g., 8 to 10 with 100, 300, or 500 reproducing individuals). For those species where we have substantial new or corrected information, including revisions to the number occurrence, we list that information below by species. For all other species and additional species specific background information on the species listed below please refer to the proposed rule (May 28, 2002, 67 FR 36968).

A summary of occurrences and landownership for the 58 plant species on the island of Hawaii appears given in Table 1.

TABLE 1.—SUMMARY OF EXISTING OCCURRENCES ON THE ISLAND OF HAWAII AND OF LANDOWNERSHIP FOR 58 SPECIES REPORTED FROM THE ISLAND OF HAWAII

Species	Number of current occurrences	Landownership/jurisdiction		
		Federal	State	Private
<i>Achyranthes mutica</i> .....	1 .....	.....	.....	X
<i>Adenophorus periers</i> .....	4 .....	X <sup>1</sup>	X	X
<i>Argyroxiphium kauense</i> .....	4 .....	X <sup>1</sup>	X	X
<i>Asplenium fragile</i> var. <i>insulare</i> .....	36 .....	X <sup>1 2</sup>	X	X
<i>Bonamia menziesii</i> .....	2 .....	.....	.....	X
<i>Cenchrus agrimonoides</i> .....	0 .....	.....	.....	.....
<i>Clermontia drepanomorpha</i> .....	2 .....	.....	X	X
<i>Clermontia lindseyana</i> .....	15 .....	X <sup>3</sup>	X	.....
<i>Clermontia peleana</i> .....	0 .....	.....	.....	.....
<i>Clermontia pyralaria</i> .....	2 .....	X <sup>1</sup>	X	.....
<i>Colubrina oppositifolia</i> .....	5 .....	.....	X	X
<i>Cyanea copelandii</i> ssp. <i>copelandii</i> .....	0 .....	.....	.....	.....
<i>Ctenitis squamigera</i> .....	0 .....	.....	.....	.....
<i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> .....	4 .....	X <sup>3</sup>	X	.....
<i>Cyanea platyphylla</i> .....	6 .....	.....	X	X
<i>Cyanea shipmanii</i> .....	3 .....	X <sup>3</sup>	X	X
<i>Cyanea stictophylla</i> .....	6 .....	.....	X	X
<i>Cyrtandra giffardii</i> .....	8 .....	X <sup>1</sup>	X	X
<i>Cyrtandra tintinnabula</i> .....	4 .....	.....	X	X
<i>Delissea undulata</i> .....	2 .....	.....	X	.....
<i>Diellia erecta</i> .....	5 .....	.....	X	.....
<i>Flueggea neowawraea</i> .....	12 .....	.....	X	X
<i>Gouania vitifolia</i> .....	4 .....	.....	X	.....
<i>Hedyotis cookiana</i> .....	0 .....	.....	.....	.....
<i>Hedyotis coriacea</i> .....	41 .....	X <sup>2</sup>	.....	.....
<i>Hibiscadelphus giffardianus</i> .....	1 (planted) .....	X <sup>1</sup>	.....	.....
<i>Hibiscadelphus hualalaiensis</i> .....	2 (planted) .....	.....	X	.....
<i>Hibiscus brackenridgei</i> .....	4 .....	.....	X	X
<i>Ischaemum byrone</i> .....	6 .....	X <sup>1</sup>	X	X
<i>Isodendron hosakae</i> .....	3 .....	.....	.....	X
<i>Isodendron pyrifolium</i> .....	1 .....	.....	X	.....
<i>Mariscus fauriei</i> .....	2 .....	.....	X	X
<i>Mariscus pennatifolius</i> .....	0 .....	.....	.....	.....
<i>Melicope zahlbruckneri</i> .....	3 .....	X <sup>1</sup>	X	.....
<i>Neraudia ovata</i> .....	9 .....	X <sup>1 2</sup>	X	X
<i>Nothocestrum breviflorum</i> .....	66 .....	X <sup>1 3</sup>	X	X
<i>Ochrosia kilaueaensis</i> .....	0 .....	.....	.....	.....
<i>Phlegmariurus mannii</i> .....	0 .....	.....	.....	.....
<i>Phyllostegia parviflora</i> .....	0 .....	.....	.....	.....
<i>Phyllostegia racemosa</i> .....	6 .....	X <sup>1 3</sup>	X	X
<i>Phyllostegia velutina</i> .....	8 .....	X <sup>3</sup>	X	X
<i>Phyllostegia warshaueri</i> .....	7 .....	.....	X	X
<i>Plantago hawaiiensis</i> .....	6 .....	X <sup>1</sup>	X	.....
<i>Plantago princeps</i> .....	0 .....	.....	.....	.....
<i>Pleomele hawaiiensis</i> .....	22 .....	X <sup>1</sup>	X	X
<i>Portulaca sclerocarpa</i> .....	24 .....	X <sup>1 2</sup>	X	X
<i>Pritchardia affinis</i> .....	unknown .....	.....	.....	.....

TABLE 1.—SUMMARY OF EXISTING OCCURRENCES ON THE ISLAND OF HAWAII AND OF LANDOWNERSHIP FOR 58 SPECIES REPORTED FROM THE ISLAND OF HAWAII—Continued

Species	Number of current occurrences	Landownership/jurisdiction		
		Federal	State	Private
<i>Pritchardia schattaueri</i> .....	3 .....	.....	.....	X
<i>Sesbania tomentosa</i> .....	31 .....	X <sup>1 4</sup>	X	.....
<i>Sicyos alba</i> .....	5 .....	X <sup>1</sup>	X	.....
<i>Silene hawaiiensis</i> .....	156 .....	X <sup>1 2</sup>	X	X
<i>Silene lanceolata</i> .....	69 .....	X <sup>2</sup>	.....	.....
<i>Solanum incompletum</i> .....	1 .....	X <sup>2</sup>	.....	.....
<i>Spermolepis hawaiiensis</i> .....	30 .....	X <sup>1 2</sup>	X	.....
<i>Tetramolopium arenarium</i> .....	8 .....	X <sup>2</sup>	.....	.....
<i>Vigna o-wahuensis</i> .....	1 .....	.....	.....	X
<i>Zanthoxylum dipetalum</i> var. <i>tomentosum</i> .....	14 .....	.....	X	.....
<i>Zanthoxylum hawaiiense</i> .....	186 .....	X <sup>2</sup>	X	.....

<sup>1</sup> Hawaii Volcanoes National Park.<sup>2</sup> PTA.<sup>3</sup> Hakalau Forest National Wildlife Refuge.<sup>4</sup> Government Services Administration**Previous Federal Action**

On May 28, 2002, we published the court-ordered proposed critical habitat designations for 58 plant species from the island of Hawaii (67 FR 36968). In that proposed rule (beginning on page

36990), we included a detailed summary of the previous Federal actions completed prior to publication of the proposal. We now provide updated information on the actions that we have completed since the proposed critical habitat designation. In Table 2,

we list the final critical habitat designations or nondesignations previously completed for 46 of the 58 plant species from the island of Hawaii, some of which also occur on other islands.

TABLE 2.—SUMMARY OF CRITICAL HABITAT ACTIONS FOR 58 PLANT SPECIES FROM THE ISLAND OF HAWAII

Species	Final critical habitat	
	Date(s)	Federal Register
<i>Achyranthes mutica</i> .....	NA	NA
<i>Adenophorus periens</i> .....	2/27/2003	68 FR 9116
	3/19/2003	68 FR 12982
	6/17/2003	68 FR 35949
<i>Argyroxiphium kauense</i> .....	NA	NA
<i>Asplenium fragile</i> var. <i>insulare</i> .....	5/14/2003	68 FR 25934
<i>Bonamia menziesii</i> .....	2/27/2003	68 FR 9116
	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Cenchrus agrimonoides</i> .....	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Clermontia drepanomorpha</i> .....	NA	NA
<i>Clermontia lindseyana</i> .....	5/14/2003	68 FR 25934
<i>Clermontia peleana</i> .....	NA	NA
<i>Clermontia pyralaria</i> .....	NA	NA
<i>Colubrina oppositifolia</i> .....	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Ctenitis squamigera</i> .....	2/27/03	68 FR 9116
	3/19/2003	68 FR 12982
	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Cyanea copelandii</i> ssp. <i>copelandii</i> .....	NA	NA
<i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> .....	NA	NA
<i>Cyanea platyphylla</i> .....	NA	NA
<i>Cyanea shipmanii</i> .....	NA	NA
<i>Cyanea stictophylla</i> .....	NA	NA
<i>Cyrtandra giffardii</i> .....	NA	NA
<i>Cyrtandra tintinnabula</i> .....	NA	NA
<i>Delissea undulata</i> .....	2/27/2003	68 FR 9116
<i>Diellia erecta</i> .....	2/27/2003	68 FR 9116
	3/19/2003	68 FR 12982
	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Flueggea neowawraea</i> .....	2/27/2003	68 FR 9116
	3/19/2003	68 FR 12982
	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949

TABLE 2.—SUMMARY OF CRITICAL HABITAT ACTIONS FOR 58 PLANT SPECIES FROM THE ISLAND OF HAWAII—Continued

Species	Final critical habitat	
	Date(s)	Federal Register
<i>Gouania vitifolia</i> .....	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Hedyotis cookiana</i> .....	2/27/2003	68 FR 9116
<i>Hedyotis coriacea</i> .....	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Hibiscadelphus giffardianus</i> .....	NA	NA
<i>Hibiscadelphus hualalaiensis</i> .....	NA	NA
<i>Hibiscus brackenridgei</i> .....	3/19/2003	68 FR 12982
	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Ischaemum byrone</i> .....	2/27/2003	68 FR 9116
	3/19/2003	68 FR 12982
	5/14/2003	68 FR 25934
<i>Isodendron hosakae</i> .....	NA	NA
<i>Isodendron pyrifolium</i> .....	3/19/2003	68 FR 12982
	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Mariscus fauriei</i> .....	3/19/2003	68 FR 12982
<i>Mariscus pennatifolius</i> .....	2/27/2003	68 FR 9116
	5/14/2003	68 FR 25934
	5/22/2003	68 FR 28054
	6/17/2003	68 FR 35949
<i>Melicope zahlbruckneri</i> .....	NA	NA
<i>Neraudia ovata</i> .....	NA	NA
<i>Nothocestrum breviflorum</i> .....	NA	NA
<i>Ochrosia kilaueaensis</i> .....	NA	NA
<i>Phlegmariurus mannii</i> .....	5/14/2003	68 FR 25934
<i>Phyllostegia parviflora</i> .....	6/17/2003	68 FR 35949
<i>Phyllostegia racemosa</i> .....	NA	NA
<i>Phyllostegia velutina</i> .....	NA	NA
<i>Phyllostegia warshaueri</i> .....	NA	NA
<i>Plantago hawaiiensis</i> .....	NA	NA
<i>Plantago princeps</i> .....	2/27/2003	68 FR 9116
	3/19/2003	68 FR 12982
	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Pleomele hawaiiensis</i> .....	NA	NA
<i>Portulaca sclerocarpa</i> .....	1/09/2003	68 FR 1220
<i>Pritchardia affinis</i> .....	NA	NA
<i>Pritchardia schattaueri</i> .....	NA	NA
<i>Sesbania tomentosa</i> .....	2/27/2003	68 FR 9116
	3/19/2003	68 FR 12982
	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Sicyos alba</i> .....	NA	NA
<i>Silene hawaiiensis</i> .....	NA	NA
<i>Silene lanceolata</i> .....	2/27/2003	68 FR 9116
	3/19/2003	68 FR 12982
	6/17/2003	68 FR 35949
<i>Solanum incompletum</i> .....	NA	NA
<i>Spermolepis hawaiiensis</i> .....	2/27/2003	68 FR 9116
	3/19/2003	68 FR 12982
	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Tetramolopium arenarium</i> .....	NA	NA
<i>Vigna o'vahuensis</i> .....	5/14/2003	68 FR 25934
	6/17/2003	68 FR 35949
<i>Zanthoxylum dipetalum</i> var. <i>tomentosum</i> .....	NA	NA
<i>Zanthoxylum hawaiiense</i> .....	2/27/2003	68 FR 9116
	3/19/2003	68 FR 12982
	5/14/2003	68 FR 25934

For many of the 58 plant species from the island of Hawaii, the issue of whether critical habitat would be prudent was discussed in previous proposals and incorporated into the

May 28 proposal (see 65 FR 79192; 65 FR 83158; 67 FR 3939; 67 FR 15856; 67 FR 9806; 67 FR 16492; 67 FR 36968; 67 FR 37108). We also proposed that critical habitat was not prudent for

*Cyanea copelandii* ssp. *copelandii* and *Ochrosia kilaueaensis* because it would be of no benefit to these species. In the May 28 proposal, we proposed that critical habitat was not prudent for two

species of the native palm, *Pritchardia affinis* and *Pritchardia schattaueri*, because it would increase the threat of vandalism or collection of those species on the island of Hawaii. Critical habitat was not proposed for seven species (*Cenchrus agrimonoides*, *Ctenitis squamigera*, *Hedyotis cookiana*, *Mariscus pennatifolius*, *Phlegmariurus mannii*, *Phyllostegia parviflora*, and *Plantago princeps*), which no longer occur on the island of Hawaii, because we were unable to identify any habitat essential to their conservation on the island. Critical habitat for 47 (*Achyranthes mutica*, *Adenophorus periens*, *Argyroxiphium kauense*, *Asplenium fragile* var. *insulare*, *Bonamia menziesii*, *Clermontia drepanomorpha*, *Clermontia lindseyana*, *Clermontia peleana*, *Clermontia pyrularia*, *Colubrina oppositifolia*, *Cyanea hamatiflora* ssp. *carlsonii*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Delissea undulata*, *Diellia erecta*, *Flueggea neowawraea*, *Gouania vitifolia*, *Hedyotis coriacea*, *Hibiscadelphus giffardianus*, *Hibiscadelphus hualalaiensis*, *Hibiscus brackenridgei*, *Ischaemum byrone*, *Isodendron hosakae*, *Isodendron pyrifolium*, *Mariscus fauriei*, *Melicope zahlbruckneri*, *Neraudia ovata*, *Nothocestrum breviflorum*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Phyllostegia warshaueri*, *Plantago hawaiiensis*, *Pleomele hawaiiensis*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, *Sicyos alba*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, *Vigna o-wahuensis*, *Zanthoxylum dipetalum* var. *tomentosum*, and *Zanthoxylum hawaiiense*) of 58 plant species from the island of Hawaii was proposed on approximately 176,968 ha (437,285 ac) of land on the island of Hawaii (67 FR 36968).

The publication of the proposed rule opened a 60-day public comment period, which closed on July 29, 2002. On July 11, 2002, we submitted joint stipulations to the U.S. District Court with Earthjustice requesting extension of the court orders for the final rules to designate critical habitat for plants from Lanai (December 30, 2002), Kauai and Niihau (January 31, 2003), Molokai (February 28, 2003), Maui and Kahoolawe (April 18, 2003), Oahu (April 30, 2003), the Northwestern Hawaiian Islands (April 30, 2003), and the island of Hawaii (May 30, 2003), citing the need conduct additional review of the proposals, address

comments received during the public comment periods, and to conduct a series of public workshops on the proposals. The joint stipulations were approved and ordered by the court on July 12, 2002. On August 26, 2002, we published a notice (67 FR 54766) reopening the public comment period until September 30, 2002, on the proposal to designate critical habitat for plants from the island of Hawaii. On September 24, 2002, we published a notice (67 FR 59811) announcing the reopening of the comment period until November 30, 2002, and a notice of a public hearing. On October 8, 2002, we held a public information meeting at the Hilo State Office Building, Hilo, Hawaii. On October 9, 2002, we held a public information meeting at Waimea Civic Center, Waimea, Hawaii. On October 29, 2002, we held a public hearing at King Kamehameha Hotel, Kailua-Kona, Hawaii. On October 30, 2002, we held a public hearing at Hawaii Naniloa Resort, Hilo, Hawaii. On December 18, 2002, we published a notice (67 FR 77464) announcing the availability of the draft economic analysis on the proposed critical habitat and reopening the comment period until January 17, 2003.

In the final rule for Lanai plants (68 FR 1220), we found that critical habitat was prudent for the following 16 multi-island species that also occur on the island of Hawaii: *Adenophorus periens*, *Bonamia menziesii*, *Cenchrus agrimonoides*, *Ctenitis squamigera*, *Diellia erecta*, *Hedyotis cookiana*, *Hibiscus brackenridgei*, *Isodendron pyrifolium*, *Mariscus fauriei*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Vigna o-wahuensis*, and *Zanthoxylum hawaiiense*. In the final rule for Kauai and Niihau plants (68 FR 9116), we found that critical habitat was prudent for the following seven multi-island species that are also found on the island of Hawaii: *Achyranthes mutica*, *Delissea undulata*, *Flueggea neowawraea*, *Ischaemum byrone*, *Mariscus pennatifolius*, *Phlegmariurus mannii*, and *Plantago princeps*. In the final rule for Maui and Kahoolawe plants (68 FR 25934), we found that critical habitat was prudent for the following eight multi-island species that also occur on the island of Hawaii: *Asplenium fragile* var. *insulare*, *Clermontia lindseyana*, *Clermontia peleana*, *Colubrina oppositifolia*, *Gouania vitifolia*, *Hedyotis coriacea*, *Phyllostegia parviflora*, and *Tetramolopium arenarium*.

## Summary of Comments and Recommendations

In the proposed rule published on May 28, 2002 (67 FR 36968), we requested that all interested parties submit written comments on the proposal. We also contacted all appropriate Federal, State, and local agencies, scientific organizations, and other interested parties and invited them to comment. Two requests for public hearings were received. We announced the date, time, and locations of the public hearings in letters to all interested parties, appropriate State and Federal agencies, county governments, and elected officials, and in notices published in the **Federal Register** (67 FR 59811) on September 24, 2002, and in the *Honolulu Star-Bulletin* on October 11, 2002. Transcripts of the hearings held in Kailua-Kona and Hilo on October 29 and 30, 2002, respectively, are available for inspection (see **ADDRESSES** section).

We received a total of 29 oral and 672 written comments during the three comment periods on the proposal published on May 28, 2002 (67 FR 36968), and the draft economic analysis, including the public information meetings and the public hearings held on October 29 and October 30, 2002. These included responses from 12 State offices, the Department of Defense (7 responses), and 10 designated peer reviewers. Approximately 586 of these written comments were identical letters submitted as part of a mailing campaign in support of the proposed critical habitat designations. Of the 86 parties who did not respond as part of the mailing campaign, 21 supported the proposed designation, 78 were opposed, and 16 provided information or expressed neither opposition nor support for the proposed designation.

We reviewed all comments received for substantive issues and new information regarding critical habitat for *Achyranthes mutica*, *Adenophorus periens*, *Argyroxiphium kauense*, *Asplenium fragile* var. *insulare*, *Bonamia menziesii*, *Clermontia drepanomorpha*, *Clermontia lindseyana*, *Clermontia peleana*, *Clermontia pyrularia*, *Colubrina oppositifolia*, *Cyanea hamatiflora* ssp. *carlsonii*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Delissea undulata*, *Diellia erecta*, *Flueggea neowawraea*, *Gouania vitifolia*, *Hedyotis coriacea*, *Hibiscadelphus giffardianus*, *Hibiscadelphus hualalaiensis*, *Hibiscus brackenridgei*, *Ischaemum byrone*, *Isodendron hosakae*, *Isodendron*

*pyrifolium*, *Mariscus fauriei*, *Melicope zahlbruckneri*, *Neraudia ovata*, *Nothoecetrum breviflorum*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Phyllostegia warshaueri*, *Plantago hawaiiensis*, *Pleomele hawaiiensis*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, *Sicyos alba*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, *Vigna o-wahuensis*, *Zanthoxylum dipetalum* var. *tomentosum*, and *Zanthoxylum hawaiiense*. Similar comments were grouped into general issues and are addressed in the following summary.

#### Peer Review

In accordance with our policy published on July 1, 1994 (59 FR 34270), we solicited independent opinions from 23 knowledgeable individuals ("peer reviewers") with expertise in one or several fields, including familiarity with the species, familiarity with the geographic region that the species occurs in, and familiarity with the principles of conservation biology. We received comments from 10 of these reviewers. All generally supported our methodology and conclusions. Four of the peer reviewers supported the designation of critical habitat on the island of Hawaii and the other six neither specifically supported or opposed the designation. Comments received from the peer reviewers are summarized in the following section and were considered in developing this final rule.

#### Issue 1: Biological Justification and Methodology

(1) *Comment*: A peer reviewer commented on the configuration of the units, stating that with irregular boundaries, the units will be difficult to identify on the ground and that such boundaries will complicate management and increase the risk of fragmentation and edge effects on plant populations within the units. The reviewer also noted that proposed units do not appear to be representative of known geographic and elevation ranges for species and that unit boundaries appear to encompass the minimum area needed to capture known site localities, which may not provide the full spectrum of habitat conditions necessary for long-term survival and recovery.

*Our Response*: The irregular boundaries are a result of attempting to map the primary constituent elements for each species and of the overlapping effect of multiple species' critical habitat. Universal Transverse Mercator coordinates are given to help locate

these properties on the ground. We concur with the peer reviewer on the importance of protecting the ecosystems on which these species depend, as stated in the purpose of the Act (section 2(b)), and of conserving areas large enough to maintain and expand populations. We considered the importance of this, as well as the location of primary constituent elements, when delineating the boundaries of critical habitat for these final designations. While we acknowledge the potential negative impacts of edge effects on small habitat fragments, we only included areas that provide the biological and other processes that are essential for the conservation of the species.

(2) *Comment*: We received several comments regarding the incorporation of unoccupied habitat with critical habitat. A peer reviewer commented on the incorporation of unoccupied habitat to allow for the recovery of species that have been reduced to an unsustainable number of populations and said that it is unclear whether sufficient habitat is protected to provide the minimum populations needed for recovery. Another commenter raised the issue that more acreage of unoccupied habitat than occupied habitat was being proposed as critical habitat. This commenter felt that critical habitat should encompass the best populations of each species unless this is entirely impractical. One peer reviewer stated that the Service relied too heavily on currently occupied habitat and did not address potential habitat that currently lacks rare species.

*Our Response*: The recovery plans for these species identify the need to expand existing populations and re-establish wild populations within the historical range of each species. Due to the extremely limited extant range of many of these species, designation of only occupied areas would not allow us to achieve the recovery goals developed for the species. Occupied areas, as well as similar contiguous or nearby habitat that occurs within the designated units of critical habitat that may be occupied in the future, provide the essential life cycle needs of the species and provide some or all of the habitat components essential for the conservation (*i.e.*, primary constituent elements) of these species.

The protection of additional unoccupied critical habitat is essential to ensure the recovery of these species through reintroduction. Although propagation and reintroduction are difficult for some species, both are vitally important to their recovery. Many recovery plans therefore include research into best methods of

propagation and reintroduction as important tasks prior to attempting reintroduction. Areas of unoccupied habitat are essential to the conservation of the species because they provide habitat for the establishment of new populations.

(3) *Comment*: Several commenters, including one peer reviewer, expressed concern regarding the Service's decision to not propose critical habitat for *Pritchardia* species. One reviewer concurred with our finding that designation was not prudent, citing their knowledge of theft and over-collection of the species; however, nine did not agree with the Service's finding that critical habitat was not prudent (particularly for *P. affinis* and *P. schattaueri*). Several commenters disagreed with the Service's decision to not propose critical habitat for *P. affinis* and *P. schattaueri*, stating that they felt the claim that designation would increase threats to these species was speculative.

*Our Response*: In this final rule to designate or not designate critical habitat for 58 plants from the island of Hawaii, we have incorporated new information, and we have addressed comments and new information received during the comment periods. However, no additional information was provided during the comment periods that demonstrates that the threats to *Pritchardia affinis* and *Pritchardia schattaueri* from vandalism or collection would not increase if critical habitat were designated for these species on the island of Hawaii. We believe that designation of critical habitat would likely increase the threat from vandalism to or collection of these species of *Pritchardia* on the island of Hawaii. First, they are easy to identify, and second, they may be attractive to collectors of rare palms either for their personal use or to trade or sell for personal gain (Johnson 1996). We believe that the evidence shows that species of *Pritchardia* may be attractive to such collectors. Several nurseries advertise and sell *Pritchardia* palms, including these and other federally listed *Pritchardia* species.

(4) *Comment*: The majority of the peer reviewers supported the multi-population approach and the Service's definition of a population for purposes of recovery; however, several peer reviewers commented on the recovery strategy of 8 to 10 populations for each species. Two peer reviewers commented that it might be difficult to achieve recovery plan goals of 8 to 10 populations for each species as some of these species are rare, localized island endemics that likely never had 8 to 10

populations throughout their evolutionary history and that the Service assumes that each population will be viable in the future when there is no guarantee of this.

*Our Response:* The recovery objectives found in recovery plans for these species state that 8 to 10 viable populations are required for recovery of most of these species. Establishing and conserving 8 to 10 viable populations on one or more islands within the historic range of the species will provide each species with a reasonable expectation of persistence and eventual recovery, even with the high potential that one or more of these populations will be eliminated by normal or random adverse events, such as fires and nonnative plant invasions. There are some specific exceptions to this general recovery goal of 8 to 10 populations for species that are believed to be very narrowly distributed on a single island (e.g., *Argyroxiphium kauense*, for which the recovery goal is 10 or more large, widespread populations of at least 2,000 individuals each), and designation of critical habitat reflects these exceptions. For the majority of the species, however, designation of adequate suitable habitat for 8 to 10 populations as critical habitat is essential to give the species a reasonable likelihood of long-term survival and recovery, based on currently available information. Each recovery plan stated that these recovery goals will be revised as more specific information becomes available for each species.

(5) *Comment:* Several peer reviewers raised the issue of genetic drift and the difficulty of measuring this phenomenon in terms of the 8 to 10 populations. One reviewer recommended that we consider the consequences of this proposed population structuring on genetic drift or inbreeding, and how this potential problem might be alleviated. One peer reviewer commented that he did not believe that defining a population on the basis of low/no gene flow would benefit the species. One reviewer cautioned that for clonal species, the number (100, 300, 500) needs to reflect genetic individuals, not ramets. Another stated that, ideally, every population should be genetically isolated from all other conspecific populations.

*Our Response:* Many of the species have been reduced to such low numbers that the recovery plans identify propagation and reintroduction as a key step. While we do not have direct evidence for most species to indicate that reduced reproductive vigor or inbreeding are problems, we believe they should be considered, based on

current conservation biology theory and practice. This is particularly important to consider when developing a propagation and reintroduction program, to ensure that recovery efforts do not cause or exacerbate genetic issues. While measures of genetic diversity do not directly measure relative fitness, it is reasonable to assume that the two are correlated. The issue of gene flow and genetic drift will be addressed through research actions identified as needed in the recovery plans.

(6) *Comment:* One peer reviewer stated that the 8 to 10 population approach should not preclude the high priority of building large populations both through population growth and the merger of multiple small populations (which will require a breeding plan to conserve and increase the genetic diversity of remnant populations).

*Our Response:* The areas designated as critical habitat in this rule allow for merging of multiple, small populations (where they exist) and the increase of population numbers as outlined in our recovery plans. Because the general use of the word "population" in the proposed rule caused some confusion, we replaced it with "occurrence" in this rule when referring to existing locations of plants, and we use "population" only in the context of recovery guidelines.

(7) *Comment:* Several commenters, including two peer reviewers, stated that the species' need for pollinators is important to consider. One peer reviewer stated that designation of critical habitat needs to consider the presence of appropriate pollinators for species that do not self-pollinate or feasible, sustainable alternatives to key pollinators that may be absent. The Service's consideration of this issue did not appear to be explicitly listed in the proposed rule.

*Our Response:* Very little is known about the life histories of many of these plant species. The species' accounts provided in the proposed rule acknowledged that loss of pollinators, through habitat loss or predation by nonnative insects, could be a factor in lack of species' regeneration. As such, we created critical habitat units that were of sufficient size to provide habitat for at least one population of the target species in which the individuals could be regularly cross-pollinated. We also recommend, as a management action, maintenance (to the extent we have data) of natural pollinators and pollination systems.

(8) *Comment:* Two commenters stated that the Service failed to demonstrate that proposed critical habitat is essential to species conservation.

*Our Response:* In order to be included in a critical habitat designation, if within range occupied by the species at time of listing, habitat must contain the biological or physical features essential to the conservation of the species and may require management. If outside the range at time of listing, it must be essential to the conservation of the species.

(9) *Comment:* Several peer reviewers and other commenters, including the Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, expressed concern over the inclusion of degraded habitat within critical habitat. Several peer reviewers stated that as much habitat as possible, even degraded habitat, should be protected as it has potential for reintroduction. One commenter noted that while they felt that focusing conservation efforts on the most pristine, least degraded sites is a logical, efficient, and cost-effective strategy when possible, for many of the listed plant species there is not enough suitable habitat remaining, and, as a result, it is essential to include degraded areas for future restoration. One commenter specifically requested that excessively degraded areas and those dominated by nonnative plants be excluded from critical habitat as these areas would not, or only have nominal value to, support the taxa for which critical habitat is proposed.

*Our Response:* We agree that recovery of a species is more likely in designated critical habitat in the least degraded areas containing primary constituent elements. However, for some species, especially those only known from low elevation areas, only degraded habitat remains. Therefore, some units contain essential habitat that, while currently degraded, is essential to the conservation of the species. Management for the restoration of these habitats is addressed in the species' recovery plans. However, we have excluded manmade features that do not contain the primary constituent elements, and we have revised this list based on information received during the public comment periods.

(10) *Comment:* One peer reviewer commented on the omission of large areas of high quality dry forest that contain key populations of *Nerudia ovata*, *Nothocestrum brevifolium*, and *Pleomele hawaiiensis* from critical habitat. The commenter noted that hundreds of acres of the best dry forest were not proposed to be included as critical habitat; however, degraded shrublands (as low quality dry forest) were proposed for inclusion. One peer reviewer commented that some lowland

populations do not appear to have been included in the proposal. This reviewer recommended that suitable areas in lowlands that still support semi-natural plant communities and that have the potential to be restored should be considered.

**Our Response:** This rule designates four critical habitat units for *Neraudia ovata* for a total of six populations. In addition, four populations of *N. ovata* occur on the excluded lands at PTA. Three critical habitat units for *Nothoecstrum breviflorum* are designated in this rule for a total of nine populations. Four critical habitat units for *Pleomele hawaiiensis* are designated in this rule for a total of nine populations. In addition, excluded Kamehameha Schools land provides habitat for one population of *Pleomele hawaiiensis*. Thus, we have designated habitat for 8 to 10 populations for each of these species as outlined in our recovery plans. We evaluated all suitable habitat identified for each species under consideration in this rule, but are designating only those areas deemed essential for the conservation of these species. Nevertheless, the habitat outside of these areas may contribute to the conservation of these species and are subject to other provisions of the Act.

(11) **Comment:** One peer reviewer did not agree that critical habitat should not be proposed for the seven plant species believed to be extirpated on the island of Hawaii, stating that even if they are believed extirpated, it is possible that some species may be found during future surveys. Even if this is not the case, future restoration efforts for these seven species may be more effective if currently unoccupied habitat on the island of Hawaii is included in designated critical habitat.

**Our Response:** Critical habitat is not designated for *Cenchrus agrimonoides*, *Ctenitis squamigera*, *Hedyotis cookiana*, *Mariscus pennatiformis*, *Phlegmariurus mannii*, *Phyllostegia parviflora*, and *Plantago princeps* on the island of Hawaii because these species no longer occur on this island, and we are unable to determine habitat essential to their conservation. There is an undocumented report of *Cenchrus agrimonoides* on the island of Hawaii made in 1800. *Ctenitis squamigera* was last collected on the island of Hawaii in 1909, at "Kalua," an indeterminable place name. *Hedyotis cookiana* was last collected on the island of Hawaii in 1816. *Mariscus pennatiformis* has not been seen on the island of Hawaii since the middle of the 1800s. *Phlegmariurus mannii* was last collected on the island of Hawaii in 1949. *Phyllostegia*

*parviflora* has not been observed on the island of Hawaii since the 1800s. *Plantago princeps* has not been seen on the island of Hawaii since the 1860s. Until these species are rediscovered, we are unable to identify habitat essential to their conservation due to lack of information in the historical record. We chose not to speculate on the needs of these species on the island of Hawaii. Therefore, no change is made to our not prudent determinations here. If these species are rediscovered on the island of Hawaii, we may propose critical habitat for these species at that time.

(12) **Comment:** Several commenters expressed concern over the Service's failure to propose critical habitat for *Cyanea copelandii* ssp. *copelandii* and *Ochrosia kilaeaeensis* "because they have not been seen recently in the wild and no viable genetic material is known to exist." One commenter considered this finding to be the first step in delisting the species.

**Our Response:** Historically, *Cyanea copelandii* ssp. *copelandii* was found at two sites on the southeastern slope of Mauna Loa, near Glenwood. *Ochrosia kilaeaeensis* is known historically only from Puuwaawaa and at Kipuka Puuulu in Hawaii Volcanoes National Park. Neither of these species have been seen in the wild since 1957 and 1927, respectively. No viable genetic material is known to exist for either species, so there is no possibility of propagation materials for use in restoration efforts. For these reasons, critical habitat is not designated, as it would be of no benefit.

(13) **Comment:** One peer reviewer commented that in order to fully assess the validity of proposed critical habitat, an indication of the uncertainties in the data used in its identification should be included. This would include things such as whether expert opinion, data from surrogate species, or direct quantitative assessments were used and the relative reliability of those data sources. This type of information could then serve as a guide for further data collection and to highlight which critical habitat areas were likely to be modified once new data become available.

**Our Response:** All data and information on species' status received in preparation of this rule were equally weighted and considered to come from reliable sources. Where discrepancies existed between different data sources, the most current data were used. Changes in this final rule that decrease the boundaries of many units are based on additional information received during the public comment period and in meetings with additional species experts and land managers.

(14) **Comment:** Several commenters stated that they did not concur that the Service used the best available scientific information.

**Our Response:** In accordance with sections 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, we are required to base critical habitat determinations on the best scientific and commercial data available. The use of information gathered from reliable sources determined which lands were proposed as critical habitat. Based upon newly available information, coordination with landowners and stakeholders, and input received during the public comment period, we have made revisions to the areas designated as critical habitat, which are reflected in this final rule. We are not aware of any reliable information that is currently available to us that was not considered in this designation process.

(15) **Comment:** One commenter noted that there are several listed plants historically known from the Hawaiian Islands that are not included in the proposals; they suggested that the proposals for critical habitat should clearly state that only plants listed from 1990 to 1996 are included. Another commenter expressed concern over the Service's failure to propose critical habitat for *Cyrtandra crenata*. One peer reviewer commented that it was unclear why critical habitat was not proposed for designation on the island of Hawaii for *Caesalpinia kavaensis*, *Abutilon menziesii*, *Argyroxiphium sandwicense* ssp. *sandwicense*, *Lipochaeta venosa*, and *Gardenia brighamii*, especially when *A. sandwicense* ssp. *sandwicense* and *L. venosa* are only known from the island of Hawaii, and the recovery plan for *Gardenia brighamii* calls for the establishment and maintenance of three populations on this island. The same reviewer recommended that the Service discuss why the above species are not included in the action and provide notice of the subsequent action in which critical habitat for these species will be addressed. The reviewer also noted that a discussion of the relationship of other designated critical habitat (e.g., for *Kokia drynarioides*) to the critical habitat proposed in this rule should have been included.

**Our Response:** The species named by the commenters were not included in the court order in *Conservation Council for Hawaii v. Babbitt*, 2F. Supp. 2d 1280 (D. Haw. 1998) and subsequent stipulations, and therefore were not included in this rulemaking. We may consider critical habitat for these species in the future if warranted and if funding and resources are available.



(16) *Comment*: One commenter stated that the Service should consider recovering threatened and endangered plant species in areas that are already protected and managed (e.g., Hawaii Volcanoes National Park and Hakalau National Wildlife Refuge) as these areas are pristine and free of threats and are locations where native species have made a dramatic recovery.

*Our Response*: We agree that these managed areas should be a focus for recovery actions. We have included several such areas in critical habitat on the island of Hawaii that contain the appropriate primary constituent elements for each species. However, these areas alone do not include all of the habitat essential for the conservation of the species for which critical habitat is designated on the island of Hawaii.

(17) *Comment*: The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, stated that the proposal did not provide information on the critical habitat proposed on other islands, did not separately map or identify how much acreage is needed for each of the populations, and did not specify how many separate populations are within each unit. As such, it did not contain enough information to evaluate the adequacy of the proposal.

*Our Response*: While the proposed rule for critical habitat on the island of Hawaii did not repeat the information contained in the critical habitat designations for the other islands, we made the data available upon request. In this rule, we have mapped each species' critical habitat and provide separate maps, acreage, and population numbers. For multiple-island species, we have included information on whether critical habitat has been designated on other islands and the number of populations allowed for, both in critical habitat and in excluded lands.

(18) *Comment*: One commenter stated that while the Navy will manage endangered species found on its property, they would not agree to the introduction of an endangered species to an area where it does not occur.

*Our Response*: No Navy lands are included in critical habitat on the island of Hawaii.

#### Issue 2: Site-Specific Biological Comments

(19) *Comment*: The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, asked why units Hawaii A1 and Hawaii A2 are separated.

*Our Response*: Hawaii A1 provides habitat for *Pleomele hawaiiensis*. Three other critical habitat units for this

species are designated in this rule for a total of nine populations, and excluded Kamehameha Schools lands provide habitat for one additional population (see "Analysis of Impacts Under Section 4(b)(2)"). Unit Hawaii A2 was proposed as critical habitat for one species, *Nothocestrum breviflorum*. There is habitat designated elsewhere on the island of Hawaii for this species, providing habitat for nine populations. The area between the two units is not considered essential for the conservation of either of these species.

(20) *Comment*: One commenter stated that proposed critical habitat areas for *Achyranthes mutica* (unit Hawaii B) should be plotted using a global positioning system and identified on the critical habitat maps, with the subsequent removal of any other areas.

*Our Response*: We have revised the unit to include only the gulches in this area. Ten critical habitat units, encompassing a total of 603 ha (1,491 ac), have been designated for this multi-island species. The remaining area outside of the gulches has been removed.

(21) *Comment*: The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, stated that unit Hawaii C contains only planted individuals of *Sesbania tomentosa* and is not considered to be critical habitat for this species. However, Lapakahi State Park in North Kohala should be considered for critical habitat.

*Our Response*: The entire area proposed for *Sesbania tomentosa* in this unit was excluded, as it is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species. There is critical habitat designated elsewhere on the island of Hawaii for this species that provides habitat for two populations. We have not included Lapakahi State Park in the critical habitat designation for *Sesbania tomentosa* because it was not deemed essential to the conservation of the species. There are other locations that have been designated as critical habitat in order to meet the recovery goal of 8 to 10 populations throughout its historical range on this and other islands.

(22) *Comment*: The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, recommended that the boundary for unit Hawaii B follow the Puu O Umi NAR boundary on the northeast side, noting that the Kohala Forest Reserve is very degraded and does not merit status as critical habitat. Another commenter

noted that unit Hawaii B contains prime and other important agricultural lands along both sides of Kohala Mountain Road.

*Our Response*: Unit Hawaii B provides habitat for six populations of *Clermontia drepanomorpha* and three populations of *Phyllostegia warshaueri* within their historical ranges. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species.

(23) *Comment*: One commenter suggested that unit Hawaii D be expanded to include more endangered plant species and that perhaps this could be accomplished by transferring some of the acreage allocated to unoccupied habitat in unit Hawaii D3 to occupied habitat in unit Hawaii D7. Several commenters provided information on species present within unit Hawaii D, including: *Portulaca sclerocarpa* in unit Hawaii D1; *Lipochaeta venosa* in unit Hawaii D2; *Acacia koaia* in unit Hawaii D4; the largest known population of *Lipochaeta venosa* and unoccupied habitat for *Tetramolopium arenarium* in unit Hawaii D4, and a very extensive population of *Portulaca sclerocarpa* and two populations of *Isodendron hosakae* and *Silene hawaiiensis* in unit Hawaii D7.

*Our Response*: Unit Hawaii D1 through Hawaii D8 were proposed as critical habitat for *Isodendron hosakae*, *Portulaca sclerocarpa*, and *Vigna o-wahuensis*. Habitat is provided for two populations of *Isodendron hosakae* and one population of *Vigna o-wahuensis* on the excluded lands at PTA. Modifications were made to these units to exclude areas that do not contain the primary constituent elements for these species or were considered not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least eight other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout their historical ranges on this and other islands. Other endangered species in this area are not part of this rulemaking.

(24) *Comment*: The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, suggested removing the northeast corner of unit Hawaii E that extends into Hawaiian Home Lands property as it is degraded pasture land. If the unit followed the Laupahoehoe section of the Hilo Forest Reserve boundary, it would be more accurate.

*Our Response:* This unit was proposed as critical habitat for three species: *Clermontia lindseyana*, *Clermontia pyrrularia*, and *Phyllostegia racemosa*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species. The unit now lies only in the Hakalau Forest National Wildlife Refuge and the Hilo Forest Reserve.

(25) *Comment:* One commenter provided information for unit Hawaii F regarding two populations of *Cyrtandra tintinnabula* (at Nauhi in the Honohina Tract and in the Maulua Tract) occurring at the highest elevation cutoff in this unit and in unit Hawaii E at about 5,000 feet elevation.

*Our Response:* Unit Hawaii E was proposed as critical habitat for three species: *Clermontia lindseyana*, *Clermontia pyrrularia*, and *Phyllostegia racemosa*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species. Unit Hawaii F was proposed as critical habitat for seven species: *Clermontia peleana*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Phyllostegia racemosa*, and *Phyllostegia warschaueri*. Two critical habitat units are designated in this rule with habitat for a total of nine populations of *Cyrtandra tintinnabula*. Although the habitat in unit Hawaii E may be important for the conservation of this species, we do not believe that it is essential at this time.

(26) *Comment:* One commenter stated that he had not been provided with specific information on how the decision to propose critical habitat in unit Hawaii G was made. The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, stated that in unit Hawaii G, the area north of Stainback Highway that is above 3,200 feet elevation should be added to this unit and the area around Kulani, south of the highway, should be omitted, as it is dominated by timber plantations.

*Our Response:* This unit was proposed as critical habitat for 12 species: *Argyroxiphium kauense*, *Asplenium fragile* var. *insulare*, *Clermontia lindseyana*, *Clermontia peleana*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Cyrtandra giffardii*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Plantago hawaiiensis*, and *Sicyos alba*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species or were considered not essential to the conservation of these species.

Some portions excluded were not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least eight other locations that have been designated or proposed to meet the recovery goal of 8 to 10 populations throughout these species' historical ranges on this and other islands. We excluded the proposed critical habitat for the multi-island species *Asplenium fragile* var. *insulare* in unit Hawaii G because it is not essential to the conservation of this species. *Asplenium fragile* var. *insulare* is historically known from Maui, and we designated critical habitat for two populations of this species on that island. There is also habitat for seven populations on lands excluded from this final rule on the island of Hawaii in PTA (see "Analysis of Impacts Under Section 4(b)(2)"), and this rule designates critical habitat for one population elsewhere on the island. We excluded the proposed critical habitat on Kamehameha Schools lands in this area because the benefits of excluding these lands outweighed the benefits of including them in critical habitat (see "Analysis of Impacts Under Section 4(b)(2)"). Those excluded lands provide habitat for recovery populations of *Phyllostegia racemosa* and *Phyllostegia velutina*.

(27) *Comment:* One commenter stated that the lone justification for unit Hawaii J is the presence of *Adenophorus periens*, which is currently found on Kauai, Molokai, and Hawaii. Within this unit, that species is threatened by volcanic emissions and acid precipitation, feral pigs and goats, and competition from nonnative plants.

*Our Response:* Unit Hawaii J (now called unit Hawaii 28—*Adenophorus periens*—a) is designated as critical habitat for *Adenophorus periens* and provides habitat within its historical range for one population of this multi-island species. This unit, along with designated critical habitat for this species on Kauai (four populations), Oahu (one population), and Molokai (four populations), is needed to help achieve the recovery goal of 8 to 10 populations of this multi-island species.

(28) *Comment:* One peer reviewer suggested that unit Hawaii J should be extended toward the coast to provide an elevation corridor with unit Hawaii M5. This reviewer also asked why units Hawaii K and Hawaii H or Hawaii J and Hawaii L were not linked and why unit Hawaii AA does not include areas to the south. The Department of Land and Natural Resources, Division of Forestry

and Wildlife, a State agency, recommended that the boundary of Hawaii K should exclude the plantations in the Waihaka Gulch area. Also, the commenter questioned why a large section of the Waihaka and Kaalaala drainages is omitted from this unit.

*Our Response:* The Act requires us to use the best available scientific and commercial information in undertaking species listing and recovery actions, including the designation of critical habitat as set forth in this rule. In the proposed rule, we concluded that many areas were not essential for the conservation of plant species on the island of Hawaii, based on available information concerning status of the species in specific areas and level of habitat degradation. Several areas of the island were not included in the proposed rule, or are excluded from this final rule, because they are not essential for the conservation of the species. We determined them to be nonessential due to their lacking primary constituent elements or lacking the primary constituent elements and being more degraded when compared to other areas.

(29) *Comment:* One commenter stated that they did not understand how the Service could propose critical habitat in unit Hawaii L that is used by the Volcano Wilderness Run (an annual sports event).

*Our Response:* Operation, use, and maintenance of existing manmade features and structures adjacent to critical habitat, or where primary constituent elements are absent, are not subject to consultation pursuant to section 7 of the Act. The Volcano Wilderness Run uses existing manmade structures and thus would not be affected by a critical habitat designation in Hawaii Volcanoes National Park, which contains proposed unit Hawaii L unless there are impacts on adjacent critical habitat.

(30) *Comment:* The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, suggested that the boundaries for units Hawaii N1 and Hawaii N2 should be closer to the coast and include the coastline itself.

*Our Response:* Unit Hawaii N1 is situated along the coast and includes the coastline from Keoneokanuku Bay to Kamilo Point. Unit Hawaii N2 is also situated along the coast and includes the coastline from Mahana Bay to Pohakea.

(31) *Comment:* The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, stated that unit Hawaii P should include the Hawaiian Ranchos subdivision and

be extended toward the ocean. Another commenter stated that this unit was proposed due to the presence of one occurrence of *Pleomele hawaiiensis*.

*Our Response:* Unit Hawaii P was proposed as critical habitat for one species, *Pleomele hawaiiensis*; however, the entire area proposed for this species has been removed. This change was made because we determined that this unit is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species and because there are 10 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout its historical range on this island.

(32) *Comment:* The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, stated that unit Hawaii Q should be extended to match the Manuka NAR boundary, with the southern boundary moved to the south-southeast (to the 200-meter elevation contour) and concurrent with the Manuka NAR southeastern boundary.

*Our Response:* This unit was proposed as critical habitat for six species: *Colubrina oppositifolia*, *Diellia erecta*, *Flueggea neowawraea*, *Gouania vitifolia*, *Neraudia ovata*, and *Pleomele hawaiiensis*. Modifications were made to this unit to remove areas that do not contain the primary constituent elements for these species. The portions not included were not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least eight other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout their historical ranges. We did not add any area to this unit because there is enough habitat to provide 10 populations throughout the historical ranges of each of these species.

(33) *Comment:* The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, stated that the boundary of unit Hawaii R should be moved south to match up the with the boundary of State lands at Honomalino.

*Our Response:* The northern boundary of unit Hawaii R was moved south to include only the South Kona Forest Reserve.

(34) *Comment:* The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, provided information that unit Hawaii T contains habitat for *Clermontia*

*lindseyana*, so critical habitat for this species should be added the unit.

*Our Response:* *Clermontia lindseyana* is currently found on Maui and the island of Hawaii. Critical habitat for two populations was designated on Maui and habitat for eight populations is designated for this species on the island of Hawaii in this rule. Therefore, additional populations were not deemed essential.

(35) *Comment:* The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, provided information that unit Hawaii W is not currently occupied by wild individuals of *Delissea undulata* but does contain historical habitat for this species and for *Zanthoxylum hawaiiense*.

*Our Response:* Unit Hawaii W was proposed as critical habitat for one species, *Delissea undulata*. The entire area proposed for this species was excluded. Portions of this unit are not essential to the conservation of this species. We excluded the proposed critical habitat on Kamehameha Schools lands in this area because the benefits of excluding these lands outweighed the benefits of including them in critical habitat (see “Analysis of Impacts Under Section 4(b)(2)”). These excluded lands are still essential and provide habitat for three populations of *Delissea undulata*. There is habitat designated elsewhere on the island of Hawaii for this species, providing habitat for two populations. *Delissea undulata* is known historically on Maui and is currently found on Kauai and the island of Hawaii. In addition to the designation in this rule, we have also designated critical habitat on Kauai (habitat for three populations). *Zanthoxylum hawaiiense* is known historically on Lanai and is currently found on Kauai, Molokai, Maui, and the island of Hawaii. We designated critical habitat for this species on Kauai (habitat for two populations), Molokai (habitat for one population), and Maui (habitat for one population). There is additional habitat for six populations of *Zanthoxylum hawaiiense* on the island of Hawaii in the excluded PTA lands (see “Analysis of Impacts Under Section 4(b)(2)”).

(36) *Comment:* The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, provided information that unit Hawaii X contains *Phyllostegia velutina* (in Honuauula Forest Reserve).

*Our Response:* Two critical habitat units for *Phyllostegia velutina* are designated in this rule for a total of 10 populations. Although the habitat in the Honuauula Forest Reserve may be important for the conservation of this

species, it is not considered to be essential.

(37) *Comment:* The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, suggested that *Pleomele hawaiiensis* be added to unit Hawaii Y1 and *Caesalpinia kavaensis* added to unit Hawaii Y2.

*Our Response:* *Caesalpinia kavaensis* is not included in the court order, and therefore was not included in this rulemaking. There is habitat designated elsewhere on the island of Hawaii for *Pleomele hawaiiensis* for 10 populations. Although the habitat in the Honuauula Forest Reserve may be important for the conservation of this species, it is not essential.

(38) *Comment:* The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, stated that much of unit Hawaii Z contains badly degraded areas, and these areas should be excluded from designation, as they are currently being managed for hunting, ranching, and other multiple use programs that may not be compatible with plant critical habitat management.

*Our Response:* Unit Hawaii Z was proposed as critical habitat for 12 species: *Bonamia menziesii*, *Colubrina oppositifolia*, *Cyanea stictophylla*, *Delissea undulata*, *Flueggea neowawraea*, *Hibiscadelphus hualalaiensis*, *Hibiscus brackenridgei*, *Nothocestrum breviflorum*, *Phyllostegia velutina*, *Plantago hawaiiensis*, *Pleomele hawaiiensis*, and *Zanthoxylum dipetalum* var. *tomentosum*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species or are not essential to the conservation of these species. Some portions removed are not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least 8 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout their historical ranges on this and other islands.

(39) *Comment:* The Department of Land and Natural Resources, Division of Forestry and Wildlife, a State agency, stated that much of unit Hawaii AA is badly degraded; dominated by weedy, fire-prone vegetation; and is currently being managed for hunting, which may not be compatible with plant critical habitat management. The commenter also suggested that the lower boundary of this unit be at the 3,500-foot elevation level and configured in accordance with

the Service's map of the upper Puu Anahulu area in order to omit the central portion, which is dominated by *Pennisetum setaceum*.

**Our Response:** This unit was proposed as critical habitat for 10 species: *Asplenium fragile* var. *insulare*, *Hedyotis coriacea*, *Neraudia ovata*, *Portulaca sclerocarpa*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense*. The entire area proposed for these species was excluded (see "Analysis of Impacts Under Section 4(b)(2)").

(40) **Comment:** One peer reviewer suggested that the northern and eastern portion of PTA be removed from critical habitat, even though this area has numerous populations of *Silene hawaiiensis*, since there are large populations of this species in other critical habitat units.

**Our Response:** All of PTA lands are being excluded from critical habitat in this rule (see "Analysis of Impacts Under Section 4(b)(2)").

(41) **Comment:** One commenter stated that critical habitat units Hawaii B, D2, N, O, Z, and AA affect grazing lands; units M2 and M3 affect papaya orchards in mauka areas of Puna; and unit Q affects macadamia nut orchards and livestock grazing.

**Our Response:** Modifications were made to units Hawaii B, D2, O, Q, and Z to remove areas that do not contain the primary constituent elements. Units Hawaii N1, N2, M2, and M3 were all removed, as these areas are not essential to the conservation of *Sesbania tomentosa* and *Ischaemum byrrone*. They are not essential because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least 10 other locations that have been designated for each of these species. In addition, Unit Hawaii AA was excluded (see "Analysis of Impacts Under Section 4(b)(2)").

### Issue 3: Species-Specific Biological Comments

(42) **Comment:** One peer reviewer commented that the following should be included in critical habitat: Cinder cone habitats in the Waimea area for *Isodendron hosakae* and *Lipochaeta venosa*; eastern Mauna Kea wet forests, especially the areas downslope from Hakalau National Wildlife Refuge; dry forests north of Kona (for *Neraudia ovata*, *Isodendron pyrifolium*, and *Nothocestrum brevifolium*); and dry and mesic forests in south Kona.

**Our Response:** *Lipochaeta venosa* is not one of the species at issue in the

court order in *Conservation Council of Hawaii v. Babbitt* (D. Hawaii 1998) and subsequent stipulations and therefore was not included in this rulemaking. Critical habitat is designated elsewhere on the island of Hawaii for *Isodendron hosakae* (for eight populations). Four other critical habitat units for *Neraudia ovata* are designated on the island of Hawaii for a total of six populations, and habitat is provided for four populations on the excluded lands at PTA (see "Analysis of Impacts Under Section 4(b)(2)"). *Isodendron pyrifolium* is known historically on Oahu, Molokai, Lanai, and Maui and is currently found on the island of Hawaii. We designated critical habitat for this species on Oahu (habitat for three populations), Molokai (habitat for one population), and Maui (habitat for two populations). Habitat for two additional populations is in the lands excluded from critical habitat on Lanai. Three critical habitat units for *Nothocestrum breviflorum* are designated in this rule for a total of nine populations. Although the habitat outside of these areas may be important for the conservation of these species, it is not essential.

(43) **Comment:** Several commenters suggested that we update the distribution of *Cyrtandra tintinnabula* by contacting a local expert; another provided information that *Hibiscus brackenridgei* had recently been located on Puuwaawaa.

**Our Response:** We have revised the designated critical habitat in the final rule to incorporate new information and to address comments and new information received during the comment periods, including information on species occurrences and areas of potentially suitable unoccupied habitat for some of these species.

(44) **Comment:** One commenter stated that the subdivisions of Kona Coastview, Kona Wonderview, and Kona Highlands are not appropriate for propagation of *Pleomele hawaiiensis*, as they are residential areas that are covered with roads, driveways, houses, and lawns.

**Our Response:** The subdivisions of Kona Coastview, Kona Wonderview, and Kona Highlands are not included in the proposed or final critical habitat for *Pleomele hawaiiensis*.

### Issue 4: Mapping and Primary Constituent Elements

(45) **Comment:** One peer reviewer suggested that it would be informative to show State and Federal property boundaries as well as roads and elevation contours.

**Our Response:** Depending on the scale of the map (which is dependent on unit

size), major roads, geographical landmarks, and elevation contours were included in the maps. It would be cost-prohibitive and make the rule unnecessarily large to include all the information available. Specific maps, such as landownership and land use maps, are available upon request.

(46) **Comment:** One commenter stated that most of the primary constituent elements put forth by the Service are non-specific plant community associations or general physical locations and lack a clear and quantifiable relationship to the species, but this information will be essential for future consultations with the Service.

**Our Response:** As described in the discussions for each of the 47 species for which critical habitat was proposed, very little is known about the specific physical and biological requirements of these species. As such, we defined the primary constituent elements on the basis of the habitat features of the areas from which the plant species are reported, such as the type of plant community, associated native plant species, locale information (e.g., steep rocky cliffs, talus slopes, stream banks), and elevation. The habitat features represent the ecological components required by the plant. The type of plant community and associated native plant species represent on specific microclimate conditions, retention and availability of water in the soil, soil microorganism community, and nutrient cycling and availability. The locale indicates soil type, elevation, rainfall regime, and temperature. Elevation indicates information on daily and seasonal temperature and sun intensity. Therefore, the descriptions of the physical elements of the locations of each of these species and the plant communities associated with the species represent the primary constituent elements for these species.

(47) **Comment:** One commenter remarked that only a rudimentary map was provided with no indication of the boundaries of the proposed areas, acreage involved, nor any indication of how the Service determined what lands were in or out of proposed critical habitat.

**Our Response:** The maps in the **Federal Register** provide the general location and shape of critical habitat and are provided for reference purposes to guide Federal agencies and other interested parties in locating the general boundaries of the critical habitat (50 CFR 17.94). The legal descriptions are readily plotted and transferable to a variety of mapping formats and were made available electronically upon request for use with GIS programs. Unit

boundaries were defined by giving the coordinates in UTM Zone 5 with units in meters using North American Datum of 1983 (NAD83). These coordinates can be used to determine boundaries with some accuracy. At the public hearing, the maps were expanded to wall-size to assist the public in better understanding the proposed critical habitat. These larger scale maps were also provided to individuals upon request. Furthermore, we provided direct assistance in response to written or telephone questions with regard to mapping and landownership within the proposed critical habitat. Designated critical habitat in this final rule consists of units separately mapped for each species and is more true to the elevation contours, the distribution of habitat, and other natural features while excluding, to the extent feasible, areas where primary consistent elements are absent.

(48) *Comment:* The Department of Transportation, a State agency, stated that designation of critical habitat would significantly increase the costs of planning, design, construction, and maintenance of a number of State highways and recommended that the buffer zones on each side of the State highway right-of-way (minimum 100 feet), along with all planned roads, be excluded from designation of critical habitat.

*Our Response:* Operation and maintenance of existing manmade features and structures adjacent to critical habitat would not be subject to consultation pursuant to section 7 of the Act because such features or structures do not contain the PCEs, unless there are effects to adjacent critical habitat. If regular maintenance of the roads extends 100 feet from the road base, it is excluded from critical habitat. Otherwise, areas that contain primary constituent elements and which have been determined to be essential to the conservation of a number of the plant species on the island of Hawaii are designated as critical habitat.

#### *Issue 5: Effects of Designation*

(49) *Comment:* Several commenters, including the Department of Land and Natural Resources, Land Division, a State agency, remarked on the need for consultation, pursuant to section 7 of the Act, which would be triggered by designation of critical habitat, and the potentially adverse effect such consultation could have on flexibility of land management and activities such as water diversion projects, manipulation of vegetation, grazing, applications for Federal loans or grants (e.g., the NRCS), conservation district use applications,

property maintenance, and construction projects.

*Our Response:* Under section 7 of the Act, all Federal agencies must consult with us to insure that any action that they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat. If we find that the proposed actions are likely to jeopardize the continued existence of an endangered or threatened species or result in destruction or adverse modification of critical habitat, we suggest reasonable and prudent alternatives that would allow the Federal agency to implement their proposed action without such adverse consequences. Every consultation is unique, and it is impossible to comment on what the results of a future consultation would be without details of the proposed activity and the status of the species and its critical habitat at the time of the consultation.

(50) *Comment:* Several commenters stated that designation of critical habitat would unnecessarily adversely affect military training (some of which cannot be duplicated elsewhere) and may delay construction of required training facilities.

*Our Response:* The potential direct and indirect costs to the Army are discussed in detail in Chapter 3, section 3f, of the Draft Economic Analysis (DEA) and in sections 3h and 4f of the Addendum. We have had numerous discussions with the Army regarding these areas, and, as a result, we have removed PTA, based on either the lack of primary constituent elements or other reasons (see “*Analysis of Impacts Under Section 4(b)(2)*”).

(51) *Comment:* One commenter stated that all species should be offered protection, but they cannot support protection for some and not for others. They are concerned about the nonnative animals, whose fate would be decided by agencies that consider them invasive and kill them. The current interpretation of critical habitat in effect allows the Federal government and its partners to utilize any methodology they wish in dealing with feral animals with impunity, although such methods may be cruel and environmentally unsound.

*Our Response:* The designation of critical habitat does not give the Federal government or its partners the authority to manage feral animals. Any potential animal management program would be subject to all applicable State, Federal, and local laws.

(52) *Comment:* Several commenters expressed concern over the effect that

designation of critical habitat would have on subsistence hunting and gathering, particularly that the control of feral pigs and ungulates would result in adverse economical and cultural effects to Native Hawaiian people and the State's economy. Others stated that the removal of ungulates from the forest would result in an increased threat and frequency of fire.

*Our Response:* A critical habitat designation has no regulatory effect on access to State or private lands. Recreational, commercial, and subsistence activities, including hunting on non-Federal lands, are not regulated by this critical habitat designation and may be affected only where there is Federal involvement in the action and when the action is likely to destroy or adversely modify critical habitat. Such designation also does not require the State or a private landowner to fence the designated area and/or remove game mammals. We also recognize that under certain circumstances, removal of ungulates can result in an increase in weedy growth and associated fire risk, and we recommend that ungulate management programs assess and address this issue.

(53) *Comment:* The Department of Hawaiian Homelands, a State agency, stated that Hawaiian home lands in the area of the Waimea and South Point parcels have already been subdivided into individual lots. The Department of Hawaiian Home Lands does not have the authority to retroactively impose management plans on individual lessees. Therefore, any regulatory impact will fall on these lessees.

*Our Response:* A critical habitat designation does not constitute a land management plan, does not mandate a management plan, and does not mandate particular management actions. On State or private lands, there is no direct Federal regulatory impact from a critical habitat designation unless some sort of Federal permit, license, or funding is involved. If there is a Federal nexus, the Federal agency granting or issuing the permit, license, or funding, not an individual lessee, is required to consult with the Service to ensure that the activity being permitted, licensed, or funded is not likely to destroy or adversely modify critical habitat. By consulting with the Service, the Federal agency can usually minimize or avoid potential conflicts with listed species and their critical habitat, and the proposed activity may be undertaken.

(54) *Comment:* One commenter raised the issue of the number of fires currently burning in the landfill at Keahuolu that have the potential to explode and raised concerns that

designation of critical habitat could adversely affect plans for remediation.

*Our Response:* The burning landfill is not within the final critical habitat designation. Operation and maintenance of existing manmade features and structures adjacent to critical habitat are not subject to section 7 consultation. Unless a Federal action related to landfill remediation activities directly or indirectly affects nearby habitat containing the primary constituent elements, these activities would not be affected by the designation of critical habitat.

#### Issue 6: Legal Issues

(55) *Comment:* One commenter stated that the Service cannot lawfully exclude areas from critical habitat based on a finding that they currently are adequately managed or protected. To do so would violate the mandatory duty to designate critical habitat to the maximum extent prudent and determinable. The commenter urges the Service not to exclude any areas from designation on this basis (*i.e.*, lands already managed or protected), since doing so would violate the mandatory duty to designate critical habitat “to the maximum extent prudent and determinable.”

*Our Response:* In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to propose as critical habitat, we are required to base critical habitat determinations on the best scientific and commercial data available and to consider those physical and biological features (primary constituent elements) that are essential to the conservation of the species and that may require special management considerations or protection. If an area is covered by a plan that meets our management criteria, we believe it does not constitute critical habitat as defined by the Act because the primary constituent elements found there are not considered to be in need of special management or protection. For a detailed explanation of this evaluation see the “*Analysis of Managed Lands Under Section 3(5)(A)*” section below. However, to the extent that special management considerations and protection may be required for any of these areas and they, therefore, would meet the definition of critical habitat according to section 3(5)(A)(i), they are also properly excluded from designation under section 4(b)(2) of the Act (*see* “*Analysis of Impacts under Section 4(b)(2)*” section below).

(56) *Comment:* Several commenters, including the Department of Land and Natural Resources, Land Division, a

State agency, stated that the proposal appeared to not recognize the interplay in Hawaii between Federal and State laws, particularly environmental laws. They stated that harming endangered and threatened plants, even on private property, is already prohibited under State law and that designation of critical habitat duplicates existing regulations, zoning laws, and land use laws, creating an additional unnecessary regulatory burden and decrease in land values, thus resulting in “taking.”

*Our Response:* The designation of critical habitat requires all Federal agencies to ensure, in consultation with the Service, that any action authorized, funded, or carried out by the agency is not likely to result in the destruction or adverse modification of designated critical habitat. If, after consultation, our biological opinion concludes that a proposed action is likely to result in the destruction or adverse modification of critical habitat, we are required to suggest reasonable and prudent alternatives to the action that would avoid the destruction or adverse modification of the critical habitat (16 U.S.C. 1536(b)(3)(A)). If we cannot suggest acceptable reasonable and prudent alternatives, the agency (or the applicant) may apply for an exemption from the Endangered Species Committee under section 7(e) through (p) of the Act. Possible effects resulting from interplay of the Federal Endangered Species Act and Hawaii State law are also discussed in the DEA and Addendum under indirect costs.

However, the mere promulgation of a regulation, like the enactment of a statute, does not take private property unless the regulation on its face denies the property owners all economically beneficial or productive use of their land (*Agins v. City of Tiburon*, 447 U.S. 255, 260–263 (1980); *Hodel v. Virginia Surface Mining and Reclamation Ass’n*, 452 U.S. 264, 195 (1981); *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1014 (1992)). The Act does not automatically restrict all uses of critical habitat, but only imposes restrictions under section 7(a)(2) on Federal agency actions that may result in destruction or adverse modification of designated critical habitat. Furthermore, as discussed above, if a biological opinion concludes that a proposed action is likely to result in destruction or modification of critical habitat, we are required to suggest reasonable and prudent alternatives. Finally, habitat value is only one factor among many that State and local governments consider in making decisions on allowable property uses, (*See, e.g.* HRS

205–17) and would not necessarily be solely attributable to critical habitat.

(57) *Comment:* Several commenters, including the Department of Land and Natural Resources, Land Division, a State agency, raised concerns over the temporal relationship of the economic analysis relative to designation of critical habitat. One commenter stated that economic impacts should be considered concurrent with all other information and objected to the disjointed process. Another commenter wanted to ensure that the economic analysis be completed prior to the designation of critical habitat to ensure the Service meets the “prudent and determinable” standard for such designation.

*Our Response:* An economic analysis of the impact of critical habitat cannot be performed without knowing the location of the critical habitat. This fact is easily realized by considering the difference of proposed critical habitat on land zoned for protective conservation versus land zoned for urban development. These types of zoning issues, as well as other issues, will greatly affect any economic analysis of critical habitat and cannot be taken into consideration until a proposal of critical habitat is put forth. The proposed prudency finding is not a final prudency finding since it has not considered the economic issues. The fact that the proposed critical habitat is published in a proposed rule emphasizes that no final decision has been made on location or extent of critical habitat. The final designation of critical habitat occurs after public comments have been taken into consideration and the economic analysis on the proposed critical habitat has been completed. The effects of the public comments and the economic analysis are then reflected in the final rulemaking.

(58) *Comment:* Several commenters stated that designation of critical habitat could have an adverse affect on the voluntary cooperation for species conservation between the private sector and the Federal government and may actually result in less species recovery. Several commenters suggested the use of alternatives to critical habitat designation that would result in greater net benefits to the species and recommended that the Service and landowners focus their resources towards proactive cooperation between the Federal and State agencies and private landowners, including the development of monetary and other incentives to engage in species protection and recovery.

*Our Response:* We are required under section 4 of the Act to designate critical habitat based on the best available information we have at the time of designation. In addition, we are directed by the Act to recover the species and the ecosystems on which they depend, not just preserve them in a horticultural facility. We realize that designation of critical habitat alone will not achieve recovery. Many threatened and endangered species occur on private lands, and we recognize the importance of conservation actions by private landowners. Cooperation from private landowners is an important element of our conservation efforts, and we have had considerable success in developing partnerships with large and small landowners, government agencies, and nongovernmental organizations for conservation activities on the island of Hawaii, in the State of Hawaii, and throughout the nation.

We administer several programs aimed at providing incentives to landowners to conserve endangered and threatened species on their lands. One of these programs is the Endangered Species Landowner Incentive Program, which was first funded by Congress in fiscal year 1999. Under this program, we provide technical assistance and funding to landowners for carrying out conservation actions on their lands. In the first year alone, 145 proposals totaling \$21.1 million competed for \$5 million in grant money. Additional information on landowner incentive programs that we administer may be found on our Web site (<http://endangered.fws.gov/landowner/index.html>).

(59) *Comment:* Several commenters raised concerns about the nature of the public hearings. Several commenters requested that there be a process that would reach the more rural areas, and others requested that more public hearings be held, particularly after the economic analysis was completed, to make the conclusions available to the general public.

*Our Response:* Section 4(b)(5)(E) of the Act requires that a public hearing be held if it is requested within 45 days of the publication of a proposed rule. In response to two requests from recreational hunting organizations, we published a notice of two public hearings on the proposed critical habitat designations for 47 plants from the island of Hawaii, and we reopened the comment period, which originally closed on July 29, 2002. The two public hearings were held on the island of Hawaii in Kailua-Kona and Hilo on October 29 and October 30, 2002, respectively. These notices were

advertised in the *Honolulu Star-Bulletin*. We also held several informal meetings to discuss critical habitat with a variety of groups, including trade organizations, community associations, and hunting clubs. Although we did not have a public hearing on the economic analysis, notice of its availability was published in the **Federal Register** and comments were solicited.

(60) *Comment:* One commenter asked how long it would take to undo designation of critical habitat if necessary to correct or adjust for future conditions.

*Our Response:* If provided with new information, we may revise the critical habitat designation at any time in the future. The time it takes to produce a proposed rule, receive peer review and public comment, and to publish a final rule varies with the situation.

(61) *Comment:* One commenter stated that, should current public use of any area that is designated as critical habitat be reduced or removed, the Service should provide in-kind mitigation.

*Our Response:* Possible effects resulting from interplay of the Federal Endangered Species Act and Hawaii State law are discussed in the DEA and Addendum under indirect costs (e.g., possible conservation management mandate for the private landowner and reduction in game mammals' population). Further, the DEA and Addendum discuss the indirect impacts resulting from the possible redistricting of private land into the Conservation District, noting that, under a most extreme scenario, areas designated as critical habitat could be placed in the Protective Subzone with the most severe restrictions, which could restrict development or a new agricultural use, or interfere with irrigation water development. As indicated in the Addendum, the likelihood of mandated redistricting is undetermined but is expected to be small.

(62) *Comment:* One commenter stated that the newly elected governor and her staff be allowed time to comment, as she will need to deal with any economic or social fallout from the designation of critical habitat on the island of Hawaii. Another commenter stated that as more than 50 percent of the lands proposed for designation are State lands, the Hawaii State legislature should have significant input into the designation.

*Our Response:* All persons were invited to comment on the proposed rule. Four public comment periods were open for this rule. The first opened upon publication of the rule on May 28, 2002, for initial comments on the rule, and remained open until July 29, 2002 (67 FR 36968). The second was open

from August 26, 2002, until September 30, 2002 (67 FR 54766). The third was open from September 24, 2002, until November 30, 2002 (67 FR 59811). The fourth opened on December 18, 2002, to allow comments on the DEA and closed on January 17, 2003 (67 FR 77464). Comments were received from representatives of various State agencies.

(63) *Comment:* Several commenters stated that the designation of critical habitat will result in a flood of lawsuits. One commenter was concerned that if it is found that more critical habitat was designated than is needed, it will be impossible to rescind the designation for these areas.

*Our Response:* The Act does not obligate landowners to manage their land to protect critical habitat, nor would landowners and managers be obligated under the Act to participate in projects to recover a species for which critical habitat has been designated. However, the DEA does discuss the potential impacts pursuant to the interplay with State law, including the possibility of litigation. Specifically, adverse impacts on development, including delays for additional studies and agency reviews, increased costs for environmental studies, increased risk of project denials, increased risk of costly mitigation measures, and increased risk of litigation over approvals, are not expected.

(64) *Comment:* One commenter stated that proposed critical habitat on lands owned by the Queen Liliuokalani Trust at Keahuolu are surrounded by urban development and have been designated for future urban development by the State and County of Hawaii.

*Our Response:* We have excluded Queen Liliuokalani Trust lands and other lands in this area (see "*Analysis of Impacts Under Section 4(b)(2)*"). We met with owners of land in the proposed critical habitat in the Keahuolu area and have revised unit Hawaii Y2 based on new information received during the public comment period.

(65) *Comment:* We received a comment letter on February 21, 2003 (after the close of the comment period), requesting additional time to work with us to implement interim conservation measures believed to be more beneficial to *Nerodia ovata* (and Blackburn's sphinx moth (*Manduca blackburni*)) and their respective habitats on lands owned by TSA and MID corporations. The landowner offered to: (1) Set aside 100 to 130 contiguous areas located in the proposed critical habitat unit Hawaii Y1 (and proposed Blackburn's sphinx moth proposed critical habitat); (2) Enter into



good faith negotiations with Federal, State, or county entities for acquisition of the area; (3) Agree to enter into a Safe Harbor Agreement with us to ensure the protection and management of a baseline level of *Neraudia ovata* (and Blackburn's sphinx moth); and (4) Enter into a memorandum of understanding or cooperative agreement that addresses habitat protection, land access, and monitoring and management actions.

*Our Response:* Unit Hawaii Y1 was proposed as critical habitat for two species: *Isodendron pyrifolium* and *Neraudia ovata*. We have excluded lands in this area (see "Analysis of Impacts Under Section 4(b)(2)").

#### Issue 7: Economic Issues

(66) *Comment:* One commenter expressed concern over the potential for designation of critical habitat to have significant adverse effects on private lands, both Agricultural and Urban Districts, due to increased State regulatory implications.

*Our Response:* The potential adverse effect on private lands in both the Agricultural and Urban Districts are discussed in the Indirect Costs sections of the DEA and in the Addendum. The effects include redistricting, conservation management, State and county development approvals, reductions in property values, etc. The DEA and Addendum estimate the costs of such impacts. For certain parcels, a reduction in certain property values is reasonably foreseeable, but the magnitude and duration of the loss is not known. As such, the Addendum estimates these impacts to be some undetermined fraction of \$71.2 million to \$124.4 million over 10 years.

(67) *Comment:* One commenter expressed concern that the designation of critical habitat would result in a lawsuit to remove game animals, which would cause a tremendous financial burden on the State and destroy traditional and cultural practices of its people.

*Our Response:* Chapter VI, Section 4.b.(3) of the DEA acknowledges that, if it were to occur, the removal of game animals would result in a loss in hunting activity, economic activity, hunter benefits, consumption of hunting meat, and social and cultural value of hunting, and it would increase State expenditures. However, the concern about the removal of game animals is based in part on the premise that critical habitat will require the State to undertake steps to avoid the taking of a listed species. As stated in the Conservation Management section of the Addendum, while critical habitat may provide information to help a

landowner identify where take may occur, take prohibitions—to the extent they apply to listed plants—are triggered by the listing of a species and would apply whether or not critical habitat is designated. As such, designating critical habitat is not anticipated to result in the removal of game animals.

(68) *Comment:* Several commenters expressed concern that the designation of critical habitat would constrain community and infrastructure growth, business growth, and development of affordable housing.

*Our Response:* We have excluded lands in this area (see "Analysis of Impacts Under Section 4(b)(2)").

(69) *Comment:* Several commenters expressed concern that the designation of critical habitat would constrain outdoor recreation and subsistence hunting and gathering.

*Our Response:* The impacts to outdoor recreation and subsistence hunting and gathering are discussed in the DEA and the Addendum. Specifically, the Direct Costs section of the DEA, as amended by the Addendum, discusses impacts to State-managed hunting, National Parks and Wildlife Refuges, State-managed areas, and the State trail and access system. The Indirect Costs section of the DEA, as amended by the Addendum, discusses the impacts to management of game mammals and hunting lands, and subsistence and Native Hawaiian practices. Potential benefits to ecotourism and outdoor recreation are discussed in the Benefits Section of the DEA. The impacts, if any, for each of these activities are summarized below.

In summary, our final economic analysis estimates that the probability of a major State-initiated change in game mammal management, *i.e.*, that the State would adopt a policy to substantially reduce game mammal populations in critical habitat units that overlap with State hunting units, is small. The probability that restriction of access and prohibition of subsistence activities in all critical habitat areas is undetermined but unlikely. It is more likely that subsistence activities would be consistent with conservation restrictions, should any be imposed. Thus it is anticipated that the impact of critical habitat on subsistence activities will be minimal. Ecotourism could benefit from project modifications, that may result from critical habitat designation, that enhance the quality of the ecosystem and expand the geographic scope of high-quality ecosystems, thereby increasing the appeal of ecotourism tours to visitors.

(70) *Comment:* Some commenters raised concerns over the ability of

wildlife and other projects to receive Pittman-Robertson or other Federal funding or grants.

*Our Response:* Chapter VI, Section 3.a. of the DEA discusses Pittman-Robertson funding for wildlife projects. The State Department of Land and Natural Resources (DLNR) already consults with the Service regarding projects that receive Pittman-Robertson funding. As stated in the DEA, the designation of critical habitat may increase the level of effort required to analyze the effects of feral ungulates, especially in areas that are unoccupied by the listed plants. However, Hawaii currently receives the minimum amount of Pittman-Robertson funds, so the critical habitat designation would not impact the amount of Pittman-Robertson funds the State receives.

Impacts to other projects that receive Federal funding or grants, or have Federal involvement, are discussed in the Direct Costs section of the DEA, as amended by the Addendum. As shown in Table Add-3, the total direct costs range from \$46.6 million to \$62.7 million over 10 years.

(71) *Comment:* Two commenters had concerns regarding funding and assistance to farmers and ranchers in the form of U.S. Department of Agriculture (USDA) loans, grants, subsidy payments, etc., or other Federal funding such as Veterans Administration (VA) loans, Federal Housing Administration (FHA) loans, NMHA loans or similar Housing and Urban Development (HUD) programs.

*Our Response:* The impacts associated with USDA and HUD programs are discussed in the Ranching Operations and Residential Development sections of the Addendum. Potential impacts to ranching operations include \$38,800 to \$82,400 in costs to ranchers, NRCS, and the Service in section 7 consultation costs with no project modifications. The Addendum anticipates no impacts to residential development because areas planned for development are removed from the final designation and other planned developments have no reasonably foreseeable Federal involvement.

(72) *Comment:* One commenter was concerned that the designation of critical habitat would adversely affect their sale of conservation easements to the U.S. Forest Service.

*Our Response:* The commenter's land was not included in the proposed designation and is also not included in the critical habitat designation, so this analysis anticipates that the designation of critical habitat will not impact the sale of conservation easements on these parcels.



(73) *Comment:* One commenter had specific concerns about the effect the designation of critical habitat would have relative to the Department of Hawaiian Homelands (DHHL) homesteading program.

*Our Response:* As discussed in the Residential Development section in the Addendum, there is no DHHL land within the critical habitat designation that is planned to be developed within the next 20 years. As such, any potential impacts to the DHHL homestead program are well beyond the 10-year timeframe of this analysis.

(74) *Comment:* Several commenters commented that the economic analysis did not thoroughly consider the nexus between the State of Hawaii's environmental laws and the Federal Endangered Species Act and other Federal laws (such as the Coastal Zone Management Act). At least two commenters commented that these plant species are already protected under State of Hawaii law, which virtually assures that a violation of the Federal Endangered Species Act will also be a violation of the State law prohibition on harm to federally listed and State-listed plants.

*Our Response:* The nexus between the State of Hawaii's environmental laws and Federal laws is discussed in detail in the Indirect Costs section of the DEA, as amended by the Addendum. Specifically, impacts associated with State redistricting, mandated conservation management, State and county development approvals, and State and county environmental review are considered.

The DEA and Addendum examine any indirect costs of critical habitat designation, such as when critical habitat designation triggers the applicability of a State or local statute. Prohibition of "harm" is associated with State laws regarding the take of listed plants. Take prohibitions are attributable to a listing decision and they are not coextensive costs of critical habitat designations. There are no take prohibitions associated with critical habitat. Other possible indirect impacts, such as loss in property values due to State redistricting of land from agricultural or rural to conservation were analyzed (see also our response to Comment 81). However, there is considerable uncertainty as to whether any or all of these indirect impacts may occur since they depend on actions and decisions other than those required under the ESA, and there is only limited history to serve as guidance.

The commenters' reference to the Coastal Zone Management Act discusses the possibility of delays or denials of

county Special Management Area (SMA) Use Permits for development projects in critical habitat. None of the planned development projects in the critical habitat designation are located in the SMA, so this analysis anticipates no impacts associated with SMA Use Permits.

(75) *Comment:* Several commenters, including the Department of Land and Natural Resources, Land Division, a State agency, commented that the economic analysis needs to take into consideration all economic impacts, including those in addition to "indirect" effects, those effects in the "reasonably foreseeable" future, or for those projects that are expected to occur within the next 10 years. Several commenters, including the Department of Agriculture, a State agency, commented that the scope of the economic analysis was too narrow and needed to go beyond those direct economic impacts associated with project compliance with section 7 of the Act.

*Our Response:* Both direct and indirect impacts are analyzed in Chapter VI of the DEA and in the Addendum, and both are summarized in Table Add-3. Information is limited and unreliable for projects, land uses, and activities that may occur at some time beyond the reasonably foreseeable future, so in general, these projects, land uses, and activities are not considered in the DEA or in the Addendum. A 10-year time horizon is used because many landowners and managers do not have specific plans for projects beyond 10 years. In addition, the forecasts in the analysis of future economic activity are based on current socioeconomic trends and the current level of technology, both of which are likely to change over the long term.

(76) *Comment:* Several commenters commented that the economic analyses should also include those significant beneficial economic benefits that are provided by the designation of critical habitat, particularly since the economic analysis provides text to this effect. These benefits include, but are not necessarily limited to, things such as groundwater recharge, maintenance of surface water quality, erosion control, funding for research, development of nursery and landscape products, volunteer conservation work, careers in biology, and ecotourism. One commenter commented that protecting critical habitat is essential not only for the recovery of threatened and endangered plants but also to protect the ecosystems upon which they rely for long-term survival and recovery.

*Our Response:* The Benefits sections of the DEA and the Addendum discuss the benefits mentioned above. It is not feasible, however, to fully describe and accurately quantify these benefits in the specific context of the critical habitat designation because of the scarcity of available studies and information relating to the size and value of beneficial changes that are likely to occur as a result of designating critical habitat. In particular, the following information is not currently available: (1) Scientific studies on the magnitude of the recovery and ecosystem changes resulting from the critical habitat designation, and (2) economic studies on the per-unit value of many of the changes.

(77) *Comment:* One commenter commented that the only benefit that would arise from designation of critical habitat would be the availability of funding for the DLNR that would be used for the implementation of management plans prepared by The Nature Conservancy to fence and eradicate all game mammals within these areas.

*Our Response:* As mentioned in the Indirect Costs section of the DEA, the designation of critical habitat is not expected to change the nature of the ongoing debate regarding the management of the game mammal population in Hawaii, although it may expand or refine the geographic focus. However, even with critical habitat, the DEA assumes that the probability is small that the State DLNR would adopt a policy to substantially reduce game mammal populations in critical habitat units that overlap with State Hunting Units, even if critical habitat caused an increase in funding. This judgment is based on discussions with DLNR, others familiar with the subject, and a decade of public testimony by hunters.

(78) *Comment:* One commenter stated that to avoid legal liability (*i.e.*, "taking"), a landowner may have to incur substantial costs associated with conservation management actions (*e.g.*, fencing and exotics control) on their lands that contain designated critical habitat. Another commenter raised concerns over the amount of funds necessary to manage all the lands proposed for critical habitat, citing costs associated with a 15-acre restoration project in North Kona (Kaupulehu) that was initiated in 1990, has used over \$600,000, and still continues to require management actions.

*Our Response:* Although the costs of conservation management were presented in the DEA for the purposes of illustration, this analysis assumes that these costs are not reasonably

foreseeable for the reasons explained in Section 4.b. of the Addendum.

(79) *Comment:* One commenter commented that the designation of critical habitat on the majority of Hawaiian Home Lands at South Point and Waimea, which would require beneficiaries to conduct environmental assessments and consultations under section 7 of the Act in order to build homes or commence farming, would represent a substantial economic impact.

*Our Response:* Much of the DHHL land at South Point and Waimea is not included in the final designation. North of Waimea, only gulches that are not suitable for housing development are included in Hawaii Unit 9. Near South Point, we have reduced the amount of DHHL land from 603 ha (1,490 ac) in the proposed designation to 126 ha (313 ac) in the critical habitat designation. The 126 ha (313 ac) in Hawaii Unit 19 are part of the Kamaoa-Puueo tract. As stated in the DEA, the 2002 DHHL *Hawaii Island Plan* identifies the Kamaoa-Puueo tract as a non-priority development, which means that its development is not likely in the next 20 years. There is no more DHHL land included in the critical habitat designation. As such, this analysis estimates no impacts associated with DHHL land within the 10-year timeframe of this analysis.

(80) *Comment:* One commenter commented that there are 23,000 hunters in Hawaii who contribute an estimated \$31 million annually to State revenue. A disproportionately large percentage of these hunters live on the Island of Hawaii, so, designation of critical habitat will have a correspondingly adverse effect on the island's economic condition.

*Our Response:* For illustrative purposes, the loss in direct sales, indirect sales, employment, and income associated with a loss of hunting activity in critical habitat is presented in Chapter VI, Section 4.b.(3) of the DEA. However, the DEA assumes that the probability that the State will adopt a policy to remove game animals from critical habitat is low. The Addendum makes no changes to this conclusion.

(81) *Comment:* Several comments commented on how designation of critical habitat would trigger the DLNR initiation of review, and potential reclassification, of lands to the Conservation District pursuant to Hawaii Revised Statutes (HRS) 195D–5.1. Costs associated with this review were pointed out by another commenter who stated that they needed to be factored into the economic analysis along with reductions in tax revenues to

Hawaii County, which would result from these actions.

*Our Response:* HRS section 195D–5.1 states that the Department of Land and Natural Resources (DLNR) “shall initiate amendments to the conservation district boundaries consistent with section 205–4 in order to include high quality native forests and the habitat of rare native species of flora and fauna within the conservation district.” HRS section 205–2(e) specifies that “conservation districts shall include areas necessary for \* \* \* conserving indigenous or endemic plants, fish and wildlife, including those which are threatened or endangered \* \* \*.” Unlike the automatic conferral of State law protection for all federally listed species (see HRS 195D–4(a)), these provisions do not explicitly reference federally designated critical habitat and, to our knowledge, DLNR has not proposed amendments in the past to include all designated critical habitat in the Conservation District. Nevertheless, according to the Land Division of DLNR, DLNR is required by HRS 195D–5.1 to initiate amendments to reclassify critical habitat lands to the Conservation District (Deirdre Mamiya, Administrator, Land Division, in litt. 2002).

State law only permits other State departments or agencies, the county in which the land is situated, and any person with a property interest in the land to petition the State Land Use Commission (LUC) for a change in the boundary of a district. HRS section 205–4. The Hawaii Department of Business, Economic Development & Tourism's (DBEDT) Office of Planning also conducts a periodic review of district boundaries taking into account current land uses, environmental concerns and other factors and may propose changes to the LUC.

The State Land Use Commission determines whether changes proposed by DLNR, DBEDT, other state agencies, counties or landowners should be enacted. In doing so, State law requires LUC to take into account specific criteria, set forth at HRS 205–17. While the LUC is specifically directed to consider the impact of the proposed reclassification on “the preservation or maintenance of important natural systems or habitats,” it is also specifically directed to consider five other impacts in its decision: (1) “Maintenance of valued cultural, historical, or natural resources;” (2) “maintenance of other natural resources relevant to Hawaii's economy, including, but not limited to, agricultural resources;” (3) “commitment of state funds and

resources;” (4) “provision for employment opportunities and economic development;” and (5) “provision for housing opportunities for all income groups, particularly the low, low-moderate, and gap groups.” HRS 205.17. Approval of redistricting requires six affirmative votes from the nine commissioners, with the decision based on a “clear preponderance of the evidence that the proposed boundary is reasonable.” HRS 205–4.

The costs associated with redistricting are discussed in detail in the Indirect Costs sections of the DEA and the Addendum. As stated in the Addendum, this analysis assumes that the probability is low that land currently planned for development in Hawaii Units 12 and 13 will be redistricted to the Conservation District, especially if landowners agree to certain conditions to protect portions of the critical habitat designation. This determination is the result of the requirements for redistricting, including the requirement that the LUC consider “provision for employment opportunities and economic development;” “commitment of State funds and resources;” the “provision for housing opportunities for all income groups, particularly the low, low-moderate, and gap groups;” and “preservation or maintenance of important natural systems or habitats” when considering a petition for redistricting (HRS 205–17).

However, it is reasonably foreseeable that certain other privately owned parcels in the Agricultural District in the critical habitat designation may be redistricted. Redistricting is more likely for these parcels because there are no current plans for economic or community development and they are not prime agricultural land. This redistricting could be completed by State agencies or mandated as a result of a third-party lawsuit. The economic costs associated with redistricting these unplanned parcels are expressed in terms of a loss in property values and a loss in agricultural activity as discussed in the Indirect Costs section of the Addendum.

This analysis assumes that the impacts on county tax revenues as a result of redistricting are expected to be small. Much of the land that is at risk of redistricting is already assessed at a low agricultural value. In many cases, the agricultural value is lower than the assessed value for land in the Conservation District. This counter-intuitive result reflects the tax break the State gives to encourage agriculture. If the land is redistricted to a subzone other than the Protective Subzone,

agriculture could continue in these areas, and the land would still be assessed at a low agricultural value. Land that is not assessed at a low agricultural value is assessed based on its future development potential. However, a loss in development potential for land in the critical habitat designation could result in an increase in the development potential of land outside of the critical habitat designation. This would result in little or no net change in the total property values on the island of Hawaii. As such, while there may be a positive or negative effect on county tax revenues associated with redistricting, this analysis assumes that the net effect will be small.

(82) *Comment:* One commenter disagreed with the finding that any redistricting of private lands would likely be limited for the following reasons: (1) The DLNR mandate to initiate down-zone; (2) the extensive amount of critical habitat proposed for designation; and (3) the Service's efforts to document and justify critical habitat boundaries.

*Our Response:* As mentioned in the Indirect Costs section of the Addendum, even if DLNR initiates amendments to the Conservation District boundaries based on critical habitat, or is forced to do so by a third-party lawsuit, the LUC makes the final decision to redistrict a parcel. State law requires the LUC to consider a variety of factors when making this decision, including the "maintenance of other resources relevant to Hawaii's economy, including, but not limited to, agricultural resources;" "provision for employment opportunities and economic development;" "commitment of State funds and resources;" "provision for housing opportunities for all income groups, particularly the low, low-moderate, and gap groups;" and "the preservation of important natural systems or habitats" when considering a petition for redistricting (HRS 205-17). Portions of Hawaii Units 12 and 13 are planned for economic and community development. Based on the LUC's criteria, this analysis assumes that there is a low probability that the LUC will redistrict (either on its own accord or as a result of a third-party lawsuit) these portions of Hawaii Units 12 and 13 to the Conservation District.

Most of the land (approximately 104,288 ha (257,700 ac), or 95 percent) in the critical habitat designation is (1) already in the Conservation District, or (2) owned by the State or Federal Government. Much of the remaining land either (1) is planned for

development and thus not likely to be redistricted for the reasons mentioned above, or (2) has little economic value because it is a cinder cone (puu), gulch, or established endangered plant preserve. The remaining 3,806 ha (9,404 ac) of land are in the Agricultural District and are not currently planned for economic or community development. It is reasonably foreseeable that this land will be redistricted to the Conservation District because of its importance to the conservation of the plant species. The economic costs associated with redistricting this land are presented in the State Redistricting of Land section of the Addendum. Specifically, these costs and other costs associated with redistricting are estimated to be \$22.3 million to \$27.9 million.

(83) *Comment:* One commenter commented that the figures for indirect costs should be totaled in Table VI-3, as the commenter did not agree with the Service's finding that these costs were "speculative."

*Our Response:* A total indirect costs figure is not presented in Table VI-3 or in Table Add-3 because the probability that some of the indirect costs will occur is undetermined and the magnitude of other indirect costs is undetermined. Instead, the probabilities and magnitudes of certain categories of indirect costs are presented in the tables, with further discussion presented in the Indirect Costs sections of the DEA and Addendum.

The probability that certain indirect costs will occur depends on the interaction of Federal, State, and county officials; landowners; and other interested parties. The outcome of these interactions will depend on a variety of factors that are not subject to accurate quantification or prediction. Furthermore, the probability that third parties will file lawsuits and the probability that these lawsuits will be successful is not known. Thus, the probability that certain indirect costs will occur is undetermined.

(84) *Comment:* A reference to the Kaloko Town Center and Kaloko Properties Development needs to be added to Table ES-1 under "residential development."

*Our Response:* The Kaloko Town Center and Kaloko Properties development are referenced in Section 3.c. of the Addendum and are included in the heading "Other Residential Development" in Table Add-3.

(85) *Comment:* Text on page VI-9, Section 3.b (residential development), needs to add a discussion regarding the proposed residential development that would be part of the Kaloko Town

Center and Kaloko Properties Development.

*Our Response:* The Kaloko Town Center and Kaloko Properties development are referenced in Section 3.c. of the Addendum; however, there is no change in the DEA cost estimate.

(86) *Comment:* Text on page VI-16, Section 3.c (industrial, commercial and other urban development), should include a discussion regarding the proposed Kaloko Town Center office, commercial, retail, school, and park uses.

*Our Response:* The Kaloko Town Center office, commercial, retail, school, and park uses are referenced in Section 3.f. of the Addendum; however, there is no change in the DEA cost estimate.

(87) *Comment:* Text on page VI-17, second paragraph under 3.c, should be revised to reflect that the developer is TSA Corporation and that a county zone change allowing for commercial industrial mixed use development was granted.

*Our Response:* This information is included in Section 3.e. of the Addendum; however, there is no change in the DEA cost estimate.

(88) *Comment:* Text on page VI-41, last paragraph, should be revised to reflect the proposed Kaloko Town Center development and proposed residential uses that would be affected. In addition, reference to the donation of land to the National Park Service should be deleted.

*Our Response:* As discussed in Section 3.k. of the Addendum, since the land is planned for development, this analysis estimates that the conservation set-aside scenario for construction of the Main Street Road project is no longer feasible. As such, the \$10.7 million to \$15.7 million total project modification cost for the K-to-K road projects mentioned in the DEA is adjusted to \$10.5 million to \$15.3 million.

(89) *Comment:* Text on page VI-69 should add Kaloko Town Center and Kaloko Properties development to the cost of development loss due to redistricting.

*Our Response:* The economic cost of the loss of development potential of the Kaloko Town Center is not discussed in the redistricting section of the Addendum because the land is currently in the Conservation District. Instead, the cost of development loss for the Kaloko Town Center is included in the State and County Development Approvals section of the Addendum.

As discussed in the State Redistricting of Land section in the Addendum, the planned development in the portions of the Kaloko Properties development that are included in critical habitat include

a golf course and single-family homes. The employment that could be generated by this project is not known. However, construction of the golf course and homes will generate employment on the island. Since the LUC must consider factors such as the "provision for employment opportunities and economic development" (HRS 205-17) when making redistricting decisions, this analysis assumes there is a low probability that the Kaloko Properties will be redistricted to the Conservation District.

(90) *Comment:* Text on page VI-74 regarding the expansion of Kaloko Industrial Park needs to be revised to reflect an economic loss of \$33 million due to an estimated loss of 82 acres affecting 72 lots.

*Our Response:* As discussed in the State Redistricting of Land section in the Addendum, the planned development in the portions of the Kaloko Industrial Park expansion that are included in critical habitat include light industrial development and industrial/commercial mixed use development. Approximately 88 percent of the project is in Hawaii Unit 12. The entire project is expected to generate 19,345 direct full-time equivalent jobs during the build-out phase and 2,789 direct full-time equivalent jobs upon full build-out (Wilson Okamoto & Associates, Inc. 2000). Since the LUC must consider factors such as the "provision for employment opportunities and economic development" (HRS 205-17) when making redistricting decisions, this analysis assumes there is a low probability the Kaloko Industrial Park expansion will be redistricted to the Conservation District.

As mentioned in the State and County Development Approvals section of the Addendum, all of the major discretionary approvals for the Kaloko Industrial Park expansion have been obtained, so the designation of critical habitat is expected to have little impact on development approvals for the project. As such, this analysis anticipates there will be no loss of development potential attributable to the critical habitat designation.

(91) *Comment:* Text on pages VI-76 and VI-85 should add the proposed Kaloko Town Center and Kaloko Properties development.

*Our Response:* These planned developments are considered in the State Redistricting of Land and the Reduced Property Value sections of the Addendum.

(92) *Comment:* Text on page VI-83, section 4e(3), needs to indicate that the completed Environmental Impact

Statement for Kaloko Town Center will likely need to be updated and supplemented if that land is included within designated critical habitat.

*Our Response:* This information is included and discussed in the State and County Environmental Review section of the Addendum.

(93) *Comment:* If total economic loss of Kaloko Properties lands resulted from designation of critical habitat, this loss would be an estimated \$390 million, which would be in addition to direct impacts to three proposed roadway projects.

*Our Response:* As discussed in the State and County Development Approvals section in the Addendum, the Kaloko Properties and Kaloko Town Center developments (Kaloko Developments) will require major discretionary approvals from the State and county. The commenter estimates that the total economic impact if these developments do not occur as an indirect result of the critical habitat designation will be approximately \$390 million, based on the allowable density; average regional selling values of single-family and multi-family homes; the development cost of office, commercial, and retail buildings; and the development costs per acre of golf courses and parks.

However, the methodology used by the commenter to derive the estimated economic impact of \$390 million is not consistent with the methodology presented in the DEA. The landowner's estimate is based on selling values and development cost, not profits. As mentioned in the DEA, only the previous expenditures (sunk costs) and future potential profits to the landowner are considered an economic impact of critical habitat designation. Additional construction and development costs are not considered because it is assumed that if development cannot occur in critical habitat, it will relocate elsewhere in the region. This assumption is supported by the fact that a large area surrounding critical habitat is planned for urban expansion in the County of Hawaii's General Plan, and because there are other entitled projects awaiting development (such as a 1,068 ha (2,640 ac) project on State lands that is just north of Hawaii Unit 13 and planned for residential, commercial, and light industrial development; parks; a golf course; and other uses).

As estimated in the State and County Development Approvals section in the Addendum, the sunk costs associated with the Kaloko Developments in the critical habitat designation is \$5.8 million, and the present value of the future stream of profits ranges from \$17

million to \$34 million. Again, the specific likelihood that the Kaloko Developments will not obtain State and county development approvals as a result of the critical habitat designation is unknown.

(94) *Comment:* The Department of Business, Economic Development and Tourism, a State agency, commented that the designation of critical habitat would compromise the financial feasibility of the VOLA (Village of Laiopua) project should there be future Federal involvement. As such, the commenter does not agree that the economic impacts of the designation of critical habitat would be "moderate" or "modest."

*Our Response:* Section 3.b of the Addendum specifically addresses the commenter's concerns. The State Housing and Community Development Corporation of Hawaii (HCDCH) is the primary agency responsible for planning the VOLA (Village of Laiopua) project. As a result of further discussions with HCDCH and a review of the Service's record regarding the VOLA project, this analysis concludes that no section 7 consultations are anticipated in the next 10 years. First, HCDCH is not currently seeking Federal funding for the project and was unable to identify specific potential Federal funding programs. Second, HUD indicates that there are currently no competitive grant programs for the development of affordable housing and that there are not likely to be any in the near future (HUD 2003). Third, the U.S. Department of Agriculture Rural Housing Service (RHS) has a loan guarantee program and a competitive loan program for the development of affordable housing, but this program is used primarily by individual homeowners and has never been used by State and county agencies in Hawaii (RHS 2003). Thus, because there is no reasonably foreseeable Federal involvement for the VOLA development, no section 7 consultations are anticipated.

(95) *Comment:* One commenter provided information on a proposed plan for the rehabilitation of the landfill site at Keahuolu, which involves development of a golf course to be used to teach children both a sport and a skill, and commented that designation of critical habitat in this area would adversely affect the proposal. The commenter also commented that in the area currently occupied by the sewage plant, there was a desire to build a wetlands endangered species park and designation of critical habitat could affect potential Federal funding sources.

*Our Response:* Section 3.m of the Addendum discusses the K2020 project.

Specifically, due to likely Federal involvement, the K2020 project would be subject to a section 7 consultation. As a result of the consultation, the Service indicates that K2020 may have to obtain funding for planned endangered plant preserves in Hawaii Unit 13 and the restoration of the portions of critical habitat that are temporarily disturbed.

The area currently occupied by the sewage plant and planned for a wetlands endangered species park is not included in the critical habitat designation and thus this analysis anticipates no costs associated with this portion of the K2020 planned project.

(96) *Comment:* One commenter commented that the designation of critical habitat would restrict the Department of Transportation's options in the design, maintenance, and construction of highways in affected areas and threaten the limited resources available to maintain and improve State highways. This commenter also stated that the designation of critical habitat would significantly increase the cost of planning design, construction, maintenance, and repair of the following roads: Saddle Road, Kohala Mountain Road, Kawaihae Road, Queen Kaahumanu Highway, Mamalahoa Highway, Volcano Road, and Kealahou Parkway.

*Our Response:* The costs associated with planned road projects in critical habitat are discussed in Chapter VI, Section 3.i. of the DEA and in Sections 3.j. and 3.k. of the Addendum. These sections discuss the Saddle Road Improvement and Realignment project and the planned widening of the Queen Kaahumanu Highway. The Kawaihae Road is not included in the critical habitat designation. Within the 10-year timeframe of this analysis, there are no known construction, maintenance, and repair projects for the Kohala Mountain Road and the Volcano Road that will impact the primary constituent elements for the listed plants in the critical habitat designation.

The Mamalahoa Highway (Route 190) safety improvements in Hawaii Unit 10 involve simple re-paving and resurfacing of the existing roadway. As mentioned in the DEA, the critical habitat provisions of section 7 do not apply to the operation and maintenance (O&M) of existing manmade features and structures because these features do not contain any primary constituent elements. Thus, the safety improvements planned for Mamalahoa Highway in Hawaii Unit 10 would not be subject to section 7 consultation because they involve operation and maintenance activities rather than new construction.

Finally, while the widening of Kealahou Parkway (Route 197) in Hawaii Unit 13 is a long-term project, there is no timetable given for the project. It is likely that extension of the Parkway (outside of the critical habitat designated critical habitat area) would be required before widening the existing portion of roadway; however, no timetable is given for the completion of the extension. In addition, the State DOT is working on several other widening projects in the area, with its main focus on widening the Queen Kaahumanu Highway from downtown Kailua to the Airport, that are not estimated to be completed until 2011. Given the circumstances, it is unlikely that widening of Kealahou Parkway (Route 197) will occur within the next 10 years.

(97) *Comment:* Several commenters commented that the designation of critical habitat on trust lands (e.g., the Queen Liliuokalani Trust and Kamehameha Schools) could negate decades of planning as well as millions of dollars of infrastructure investment. This, in turn, could adversely affect future revenues that would be generated by these entities and, therefore, their ability to carry out social and cultural mandates to provide for their beneficiaries. One commenter specifically referenced concerns over Keahuolu Ahupuaa being the last and only future of producing lands owned by the Queen Liliuokalani Trust and the need for those lands to continue the legacy left by the Queen.

*Our Response:* The economic, social, cultural, and political impacts associated with the loss of the development potential on Queen Liliuokalani Trust (QLT) land in Hawaii Unit 13 are discussed in detail in Chapter VI, Section 4.c.(7) of the DEA and the State and County Development Approvals section in the Addendum. Specifically, the Addendum estimates that the critical habitat designation could lead to a delay in State and county development approvals. This would delay completion of the project and the associated lease-rent revenues for QLT. This could have related social and cultural costs for the community.

The portions of the parcel owned by Kamehameha Schools and leased by PIA-Kona Limited Partnership that are planned for housing development are not included in the final designation. The portions of this parcel that are included in the critical habitat designation are currently managed as an endangered plant preserve, and there are no plans for a change in management. Kamehameha Schools did not identify other lands in the critical

habitat designation that are planned for development or are likely to generate significant future revenues.

(98) *Comment:* One commenter commented on areas of the economic analysis where they felt it both overestimated and underestimated economic costs. The commenter requested that the DEA be revised to reflect that QLT's own analysis did acknowledge that additional funds would be expended to achieve build-out of Phases I and II. The commenter also asked that the economic analysis include the increased likelihood of loss of entitlements and revenue and increased costs associated with permitting costs and development of infrastructure for Phase III.

*Our Response:* Chapter VI, Section 4.c.(7) of the DEA discusses the costs associated with the loss of development potential at the Keahuolu project site. The DEA references an economic impact analysis supplied by QLT that states the portions of the planned development in Phases I and II in the proposed critical habitat would yield \$44.2 million per year in lease-rent revenue after the project is fully completed. The DEA states that this estimate tends to overstate the total economic impact because it does not include additional funds that would have to be expended by QLT in order to reach full completion. The QLT analysis acknowledges this fact, and thus the QLT analysis did not overstate the total economic impact.

The economic impacts associated with a delay of entitlements, a loss of revenue, and a potential modification to the development approvals for Phase III of the Keahuolu Project are discussed in the State and County Development Approvals section of the Addendum. In particular, costs are anticipated to range from \$14.1 million to \$21.9 million.

(99) *Comment:* One commenter raised a specific concern about the economic impact to Kamehameha Schools and PIA-Kona Limited Partnership.

*Our Response:* The portions of the parcel owned by Kamehameha Schools and leased by PIA-Kona Limited Partnership that are planned for housing development are not included in the final designation. The portions of this parcel that are included in the critical habitat designation are currently managed as an endangered plant preserve, and there are no plans for a change in management. As such, this analysis anticipates there will be no economic impact to the owners of this parcel as a result of the critical habitat designation.

(100) *Comment:* Two commenters commented that critical habitat in the Kailua to Keahole area of Kona is

proposed in a region that has been master-planned for urban expansion by the State and county for over 30 years and for which \$50 million of infrastructure (e.g., Kealahoe Parkway and Kealahoe High School) is already in place. This area also includes a currently undeveloped portion of the State's Villages at Laiopua (VOLA) project that is intended for affordable housing, although that project is currently stalled in litigation. The commenter noted that this West Hawaii area is one of the fastest growing regions in the State and there is no other viable area for expansion.

**Our Response:** The direct and indirect impacts to the Kailua to Keahole area of Kona within Hawaii Units 12 and 13 are discussed in detail in the DEA and in the Addendum, including impacts to State VOLA project, the Keahuolu Project, the Kaloko Industrial Park expansion, the Kaloko Town Center, the Kaloko Properties development, three road projects, and the K2020 county landfill project. However, Hawaii Units 12 and 13 cover a relatively small portion of the area planned for urban expansion in the County of Hawaii General Plan. While the DEA and the Addendum estimate the economic costs to landowners in areas designated as critical habitat, it is estimated that any development displaced by critical habitat will occur elsewhere on the island of Hawaii, due to the availability of comparable land. Thus, the net economic impacts to the economic development of the island of Hawaii will be small.

(101) **Comment:** Several commenters commented regarding the potential adverse effect that designation of critical habitat could have on the military. Specifically, hindering the Army and Navy's (Marines') ability to perform their missions because of the limitations imposed by critical habitat would not only have an adverse effect on the nation's military readiness but would also be a costly waste of fiscal resources or an additional financial burden.

**Our Response:** The impacts on the readiness and budget of the military are discussed in the Military Activities section in the Direct Costs section of the Addendum and in the Military Readiness section in the Indirect Costs section of the Addendum. Specifically, the direct costs to military operations over the next 10 years range from \$31 million to \$40 million. The indirect costs include an undetermined probability of a loss of \$693 million in transformation projects and a possible reduction in readiness.

(102) **Comment:** One commenter commented that designation of critical

habitat will cause private landowners to spend their own resources to determine the possible consequences of such designation on their lands (e.g., legal fees).

**Our Response:** The costs associated with determining the possible consequences of critical habitat are included in the Investigating the Implications of Critical Habitat section of the Addendum. Specifically, approximately 19 private landowners may investigate the implications of critical habitat on their lands at a cost of \$50,000 to \$181,000.

### Summary of Changes From the Proposed Rule

Based on a review of public comments received on the proposed determinations of critical habitat, we have reevaluated our proposed designations and included several changes to the final designations of critical habitat. These changes include the following:

(1) We have designated 99 single species critical habitat units for 41 plant species on the island of Hawaii instead of multi-species units to clarify the exact location of critical habitat for each species.

(2) The scientific names were changed for the following associated species found in the "Supplementary Information: Discussion of the Plant Taxa" section: *Cocculus trilobus* changed to *Cocculus orbiculatus* in the discussions of *Neraudia ovata* and *Pleomele hawaiiensis*. *Jacquemontia sandwicensis* changed to *Jacquemontia ovalifolia* ssp. *sandwicensis* in the discussion of *Sesbania tomentosa*. *Scaevola sericea* changed to *Scaevola taccada* in the discussions of *Ischaemum byrhone* and *Sesbania tomentosa*. *Styphelia tameiameia* changed to *Leptecophylla tameiameia* in the discussions of *Argyroxiphium kauense*, *Asplenium fragile* var. *insulare*, *Clermontia drepanomorpha*, *Clermontia lindseyana*, *Colubrina oppositifolia*, *Hedyotis coriacea*, *Isodendron hosakae*, *Plantago hawaiiensis*, *Sesbania tomentosa*, *Silene hawaiiensis*, *Silene lanceolata*, and *Tetramolopium arenarium*. *Wollastonia venosa* changed to *Melanthera venosa* in the discussions of *Isodendron hosakae*, *Portulaca sclerocarpa*, and *Sesbania tomentosa*. We replaced *Passiflora mollissima* with *Passiflora tarminiana* in the discussions of *Clermontia lindseyana*, *Clermontia pyrularia*, *Cyanea hamatiflora* ssp. *carlsonii*, *Delissea undulata*, *Phyllostegia racemosa*, and *Sicyos alba* (Palmer 2003; Wagner and Herbst 2002).

(3) In "Supplementary Information: Discussion of the Plant Taxa": We removed *Carex montis-eeka* from the list of associated species for *Argyroxiphium kauense*. We replaced *Psychotria mariniana* and *Psychotria greenwelliae* with *Psychotria* spp. (because those two specific species are not found on the island of Hawaii) in the discussion of *Delissea undulata*. We replaced: *Blechnum occidentale* with *Blechnum appendiculatum* in the discussion of *Diellia erecta*; *Nototrichium breviflorum* with *Nothocestrum breviflorum* in the discussion of *Hibiscus hualalaiensis*; *Cyathea cooperi* with *Sphaeropteris cooperi* in the discussion of *Phlegmariurus mannii*; and *Athyrium sandwicensis* with *Diplazium sandwichianum* in the discussions of *Phyllostegia warshaueri*.

(4) In order to avoid confusion regarding the number of location occurrences for each species (that do not necessarily represent viable populations) and the number of viable populations needed for recovery (e.g., 8 to 10 with 100, 300, or 500 reproducing individuals), we changed the word "population" to "occurrence" and updated the number of occurrences for the following species found in the "Supplementary Information: Discussion of the Plant Taxa" section and "Table 1.—Summary of existing occurrences on the island of Hawaii, and landownership for 58 species reported from the island of Hawaii": *Adenophorus periens* changed from 13 populations to 4 occurrences; *Argyroxiphium kauense* changed from 3 populations to 4 occurrences; *Asplenium fragile* var. *insulare* changed from 17 populations to 36 occurrences; *Bonamia menziesii* and *Clermontia drepanomorpha* changed from 1 population to 2 occurrences; *Clermontia lindseyana* changed from 17 populations to 15 occurrences; *Clermontia pyrularia* changed from 1 population to 2 occurrences; *Colubrina oppositifolia* changed from 8 populations to 5 occurrences; *Cyanea platyphylla* changed from 9 populations to 6 occurrences; *Cyanea shipmanii* changed from 5 populations to 3 occurrences; *Cyanea stictophylla* changed from 5 populations to 6 occurrences; *Cyrtandra giffardii* changed from 7 populations to 8 occurrences; *Cyrtandra tintinnabula* changed from 6 populations to 4 occurrences; *Isodendron hosakae* changed from 2 populations to 3 occurrences; *Diellia erecta* changed from 3 populations to occurrences; *Flueggea neowawraea* changed from 4

populations to 12 occurrences; *Gouania vitifolia* changed from 1 population to 4 occurrences; *Hedyotis coriacea* changed from 11 populations to 41 occurrences; *Ischaemum byrhone* changed from 5 populations to 6 occurrences; *Melicope zahlbruckneri* changed from 2 populations to 3 occurrences; *Neraudia ovata* changed from 3 populations to 9 occurrences; *Nothoestrum breviflorum* changed from 10 populations to 66 occurrences; *Phyllostegia racemosa* changed from 7 populations to 6 occurrences; *Phyllostegia velutina* changed from 5 populations to 8 occurrences; *Plantago hawaiiensis* changed from 8 populations to 6 occurrences; *Pleomele hawaiiensis* changed from 8 populations to 22 occurrences; *Portulaca sclerocarpa* changed from 19 populations to 20 occurrences; *Sesbania tomentosa* changed from 11 populations to 31 occurrences; *Sicyos alba* changed from

4 populations to 5 occurrences; *Silene hawaiiensis* changed from 23 populations to 156 occurrences; *Silene lanceolata* changed from 10 populations to 69 occurrences; *Spermolepis hawaiiensis* changed from 4 populations to 30 occurrences; *Tetramolopium arenarium* changed from 2 populations to 8 occurrences; *Zanthoxylum dipetalum* var. *tomentosum* changed from 1 population to 14 occurrences; and *Zanthoxylum hawaiiense* changed from 4 populations to 186 occurrences.

(5) We revised the list of excluded, manmade features in the “Criteria Used to Identify Critical Habitat” and § 17.99 to include additional features based on information received during the public comment periods.

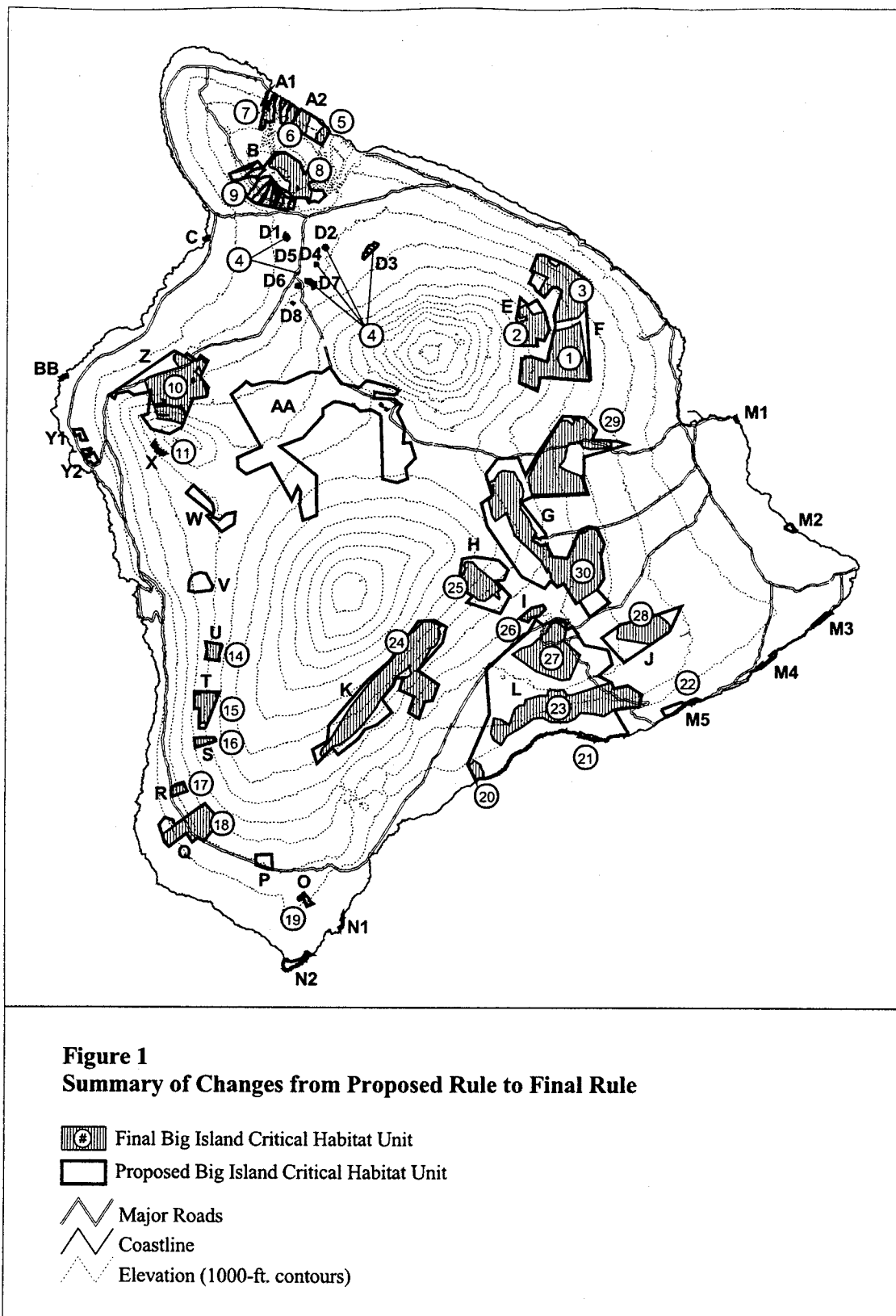
(6) We made revisions to the unit boundaries based on information supplied by commenters, as well as information gained from field visits to some of the sites, that indicated that the

primary constituent elements were not present in certain portions of the proposed unit, that certain changes in land use had occurred on lands within the proposed critical habitat that would preclude those areas from supporting the primary constituent elements, or that the areas were not essential to the conservation of the species in question. In addition, areas were excluded based on other impacts pursuant to section 4(b)(2) of the Act (see “Other Impacts”).

(7) In accordance with the revisions described in (1) through (6), we revised § 17.12 “Endangered and threatened plants” and § 17.99 “Critical Habitat; plants on the islands of Kauai, Niihau, Molokai, Maui, Kahoolawe, Oahu, and Hawaii, Hawaii, and the Northwestern Hawaiian Islands”, as appropriate.

A brief summary of the modifications made to each unit is given below (see also Figure 1).

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*Hawaii A1*

This unit was proposed as critical habitat for one species, *Pleomele*

*hawaiiensis*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for this species. The area

designated as critical habitat for this endemic species provides habitat within its historical range for one population of *Pleomele hawaiiensis*. Three other



critical habitat units for this species are designated on the island of Hawaii for a total of nine populations, and excluded Kamehameha Schools lands provide habitat for one additional population (see “Analysis of Impacts Under Section 4(b)(2)”).

These modifications resulted in the reduction from 719 ha (1,777 ac) to 677 ha (1,673 ac). This unit was renamed Hawaii 7—*Pleomele hawaiiensis*—a.

#### Hawaii A2

This unit was proposed as critical habitat for *Nothocestrum breviflorum*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for this species. The area designated as critical habitat for this endemic species provides habitat within its historical range for four populations of *Nothocestrum breviflorum*. There is habitat designated elsewhere on the island of Hawaii for this species providing habitat for nine populations.

These modifications resulted in the reduction from 2,685 ha (6,635 ac) to 1,516 ha (3,744 ac). This unit was renamed Hawaii 5—*Nothocestrum breviflorum*—a and Hawaii 6—*Nothocestrum breviflorum*—b.

#### Hawaii B

This unit was proposed as critical habitat for three species: *Achyranthes mutica*, *Clermontia drepanomorpha*, and *Phyllostegia warshaueri*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species.

The area designated as critical habitat for the two species endemic to the island of Hawaii provides habitat for six populations of *Clermontia drepanomorpha* and three populations of *Phyllostegia warshaueri* within their historical ranges. One other critical habitat unit for *Phyllostegia warshaueri* is designated on the island of Hawaii for a total of 10 populations. The area designated as critical habitat for the multi-island *Achyranthes mutica* species provides habitat for 10 populations within its historical range. Nine other critical habitat units for this species are designated on the island of Hawaii. This species is historically known from Kauai, but no critical habitat was designated for it on that island (68 FR 9116, February 27, 2003).

These modifications resulted in the reduction from 8,200 ha (20,263 ac) to 3,360 ha (8,304 ac). This unit was renamed Hawaii 9—*Achyranthes mutica*—a, Hawaii 9—*Achyranthes mutica*—b, Hawaii 9—*Achyranthes mutica*—c, Hawaii 9—*Achyranthes*

*mutica*—d, Hawaii 9—*Achyranthes mutica*—e, Hawaii 9—*Achyranthes mutica*—f, Hawaii 9—*Achyranthes mutica*—g, Hawaii 9—*Achyranthes mutica*—h, Hawaii 9—*Achyranthes mutica*—i, Hawaii 9—*Achyranthes mutica*—j, Hawaii 8—*Clermontia drepanomorpha*—a, and Hawaii 8—*Phyllostegia warshaueri*—b.

#### Hawaii C

This unit was proposed as critical habitat for one multi-island species, *Sesbania tomentosa*. The entire area proposed for this species is eliminated from this final rule. This area is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species, and there are 12 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout its historical range on this and other islands. We designated critical habitat for this species on Nihoa (habitat for one population), Necker (habitat for one population), Kauai (habitat for two populations), Oahu (habitat for two populations), Molokai (habitat for two populations), and Maui (habitat for two population) (68 FR 28054, May 22, 2003; 68 FR 9116, February 27, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). There is habitat designated elsewhere on the island of Hawaii for this species, providing habitat for two populations. Exclusion of this unit from critical habitat for *Sesbania tomentosa* resulted in the overall reduction of 38 ha (94 ac) from critical habitat on the island of Hawaii.

#### Hawaii D1

This unit was proposed as critical habitat for three species: *Isodendron hosakae*, *Portulaca sclerocarpa*, and *Vigna o-wahuensis*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species.

In addition, we eliminated the proposed critical habitat in Hawaii D1 for *Portulaca sclerocarpa*. The area proposed for this species is eliminated from this final rule because it is not essential to the conservation of this species due to its lower proportion of associated native species than other areas we consider to be essential to the conservation of *Portulaca sclerocarpa*. This species is currently found on the islands of Lanai and Hawaii, and critical habitat for one population was designated on Lanai (68 FR 1220, January 9, 2003). This rule designates

critical habitat for a total of five populations. There is habitat for four other populations on lands excluded from this final rule in PTA (see “Analysis of Impacts Under Section 4(b)(2)”).

The area designated as critical habitat for the island-endemic species, *Isodendron hosakae*, provides habitat for one population within its historical range. There is habitat designated elsewhere on the island of Hawaii for eight populations of *Isodendron hosakae*. The area designated as critical habitat for the multi-island species, *Vigna o-wahuensis*, provides habitat for one population within its historical range. Critical habitat was designated within its historical range on Oahu (habitat for three populations) and Maui (habitat for one population) (68 FR 35949, June 17, 2003; 68 FR 25934, May 14, 2003). Habitat is designated elsewhere on the island of Hawaii for four populations.

These modifications resulted in the reduction from 55 ha (136 ac) to 49 ha (121 ac). This unit was renamed Hawaii 4—*Isodendron hosakae*—a and Hawaii 4—*Vigna o-wahuensis*—a.

#### Hawaii D2

This unit was proposed as critical habitat for three species: *Isodendron hosakae*, *Portulaca sclerocarpa*, and *Vigna o-wahuensis*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species.

We eliminated the proposed critical habitat in Hawaii D2 for *Portulaca sclerocarpa*. The area proposed for this species is eliminated from this final rule because it is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *Portulaca sclerocarpa*. This species is currently found on the islands of Lanai and Hawaii, and critical habitat for one population was designated on Lanai (68 FR 1220, January 9, 2003). This rule designates critical habitat for a total of five populations. There is habitat for four other populations on lands excluded from this final rule in PTA (see “Analysis of Impacts Under Section 4(b)(2)”).

The area designated as critical habitat for the island-endemic species, *Isodendron hosakae*, provides habitat for one population within its historical range. There is habitat designated elsewhere on the island of Hawaii for eight populations of *Isodendron hosakae*. The area designated as critical habitat for the multi-island species,

*Vigna o-wahuensis*, provides habitat for one population within its historical range. Critical habitat was designated within its historical range on Oahu (habitat for three populations) and Maui (habitat for one population) (68 FR 35949, June 17, 2003; 68 FR 25934, May 14, 2003). Habitat is designated elsewhere on the island of Hawaii for four populations.

These modifications resulted in the reduction from 43 ha (107 ac) to 35 ha (87 ac). This unit was renamed Hawaii 4—*Isodendron hosakae*—b and Hawaii 4—*Vigna o-wahuensis*—b.

#### Hawaii D3

This unit was proposed as critical habitat for *Isodendron hosakae*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for this species. The area designated as critical habitat for this island-endemic species provides habitat within its historical range for one population of *Isodendron hosakae*. There is habitat designated elsewhere on the island of Hawaii for eight populations of *Isodendron hosakae*.

These modifications resulted in the reduction from 257 ha (636 ac) to 49 ha (121 ac). This unit was renamed Hawaii 4—*Isodendron hosakae*—c and Hawaii 4—*Isodendron hosakae*—d.

#### Hawaii D4

This unit was proposed as critical habitat for three species: *Isodendron hosakae*, *Portulaca sclerocarpa*, and *Vigna o-wahuensis*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species.

We eliminated the proposed critical habitat in Hawaii D4 for *Portulaca sclerocarpa* and *Vigna o-wahuensis*. The area proposed for these species is eliminated from this final rule because it is not essential to the conservation of these species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *Portulaca sclerocarpa* and *Vigna o-wahuensis*. This rule designates critical habitat for a total of five populations of *Portulaca sclerocarpa*. There is habitat for four other populations of *Portulaca sclerocarpa* on lands excluded from this final rule in PTA (see “Analysis of Impacts Under Section 4(b)(2)”). Critical habitat for *Vigna o-wahuensis* was designated within its historical range on Oahu (habitat for three populations) and Maui (habitat for one population) (68 FR 35949, June 17, 2003; 68 FR 25934, May 14, 2003). Habitat is designated elsewhere on the island of Hawaii for

four populations. The area designated as critical habitat for the island-endemic species, *Isodendron hosakae*, provides habitat for one population within its historical range. There is habitat designated elsewhere on the island of Hawaii for *Isodendron hosakae* (for eight populations).

These modifications resulted in the reduction from 14 ha (34 ac) to 11 ha (26 ac). This unit was renamed Hawaii 4—*Isodendron hosakae*—e.

#### Hawaii D5

This unit was proposed as critical habitat for three species: *Isodendron hosakae*, *Portulaca sclerocarpa*, and *Vigna o-wahuensis*. The entire area proposed for these species was eliminated. This area is eliminated from this final rule because it is not essential to the conservation of these species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are 10 other locations that have been designated on this and other islands to meet the recovery goal of 8 to 10 populations throughout the historical ranges of *Portulaca sclerocarpa* and *Vigna o-wahuensis*. *Portulaca sclerocarpa* is currently found on the islands of Lanai and Hawaii, and critical habitat for one population was designated on Lanai (68 FR 1220, January 9, 2003). This rule designates critical habitat for a total of five populations. There is habitat for four other populations on lands excluded from this final rule in PTA (see “Analysis of Impacts Under Section 4(b)(2)”). Critical habitat for *Vigna o-wahuensis* was designated on Oahu (habitat for three populations) and Maui (habitat for one population) (68 FR 35949, June 17, 2003; 68 FR 25934, May 14, 2003). Habitat is designated elsewhere on the island of Hawaii for four populations. There is habitat designated elsewhere on the island of Hawaii for *Isodendron hosakae* (for eight populations). Exclusion of this unit from critical habitat for these three species resulted in the overall reduction of 1 ha (2.5 ac) of critical habitat on the island of Hawaii.

#### Hawaii D6

This unit was proposed as critical habitat for three species: *Isodendron hosakae*, *Portulaca sclerocarpa*, and *Vigna o-wahuensis*. The entire unit was excluded from final critical habitat. We excluded the proposed critical habitat on PTA lands for reasons described in “Analysis of Impacts Under Section 4(b)(2)” for *Isodendron hosakae* and *Vigna o-wahuensis*. We also eliminated

the proposed critical habitat in Hawaii D6 for *Portulaca sclerocarpa*. The area proposed for this species is eliminated from this final rule because it is not essential to the conservation of this species because it has a lower proportion of associated native plant species that other areas we consider to be essential to the conservation of *Portulaca sclerocarpa*. This species is currently found on the island of Lanai and Hawaii, and critical habitat for one population was designated on Lanai (68 FR 1220, January 9, 2003). This rule designates habitat for a total of five populations. There is habitat for four other populations on other lands excluded from this final rule in PTA (see “Analysis of Impacts Under Section 4(b)(2)”). The area excluded for the island-endemic species, *Isodendron hosakae*, provides habitat for one population within its historical range. There is habitat designated for six populations elsewhere on the island of Hawaii in this rule. The area excluded for the multi-island species, *Vigna o-wahuensis*, provides habitat for one population within its historical range. Critical habitat was designated on Oahu (habitat for three populations) and Maui (habitat for one population) (68 FR 35949, June 17, 2003; 68 FR 25934, May 14, 2003). Habitat is designated elsewhere on the island of Hawaii for three populations in this rule. Exclusion of this unit from critical habitat for these three species resulted in the overall reduction of 36 ha (89 ac) of critical habitat on the island of Hawaii.

#### Hawaii D7

This unit was proposed as critical habitat for three species: *Isodendron hosakae*, *Portulaca sclerocarpa*, and *Vigna o-wahuensis*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species.

We eliminated the proposed critical habitat in Hawaii D7 for *Portulaca sclerocarpa*. The area proposed for this species is eliminated from this final rule because it is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *Portulaca sclerocarpa*. This species is currently found on the islands of Lanai and Hawaii and critical habitat for one population was designated on Lanai (68 FR 1220, January 9, 2003). This rule designates critical habitat for a total of five populations. There is habitat for four other populations on lands excluded from this final rule in PTA (see

“Analysis of Impacts Under Section 4(b)(2)”).

The area designated as critical habitat for the island-endemic species, *Isodendron hosakae*, provides habitat for one population within its historical range. There is habitat designated elsewhere on the island of Hawaii for *Isodendron hosakae* (for eight populations). The area designated as critical habitat for the multi-island species, *Vigna o-wahuensis*, provides habitat for one population within its historical range. Critical habitat was designated on Oahu (habitat for three populations) and Maui (habitat for one population) (68 FR 35949, June 17, 2003; 68 FR 25934, May 14, 2003). Habitat is designated elsewhere on the island of Hawaii for four populations.

These modifications resulted in the reduction from 112 ha (278 ac) to 51 ha (127 ac). This unit was renamed Hawaii 4—*Isodendron hosakae*—f and Hawaii 4—*Vigna o-wahuensis*—c.

#### Hawaii D8

This unit was proposed as critical habitat for three species: *Isodendron hosakae*, *Portulaca sclerocarpa*, and *Vigna o-wahuensis*. The entire area proposed for these species was eliminated from final critical habitat. We eliminated the proposed critical habitat in Hawaii D6 for *Portulaca sclerocarpa* and *Vigna o-wahuensis*. The area proposed for these species was determined to be not essential to the conservation of this species because it has a lower proportion of associated native plant species than other areas we consider to be essential to the conservation of *Portulaca sclerocarpa* and *Vigna o-wahuensis*. *Portulaca sclerocarpa* is currently found on the island of Lanai and Hawaii, and critical habitat for one population was designated on Lanai (68 FR 1220, January 9, 2003). This rule designates habitat for a total of five populations. There is habitat for four other populations on other lands excluded from this final rule in PTA (see “Analysis of Impacts Under Section 4(b)(2)”). Critical habitat for *Vigna o-wahuensis* was designated within its historical range on Oahu (habitat for three populations) and Maui (habitat for one population) (68 FR 35949, June 17, 2003; 68 FR 25934, May 14, 2003). Habitat is designated elsewhere on the island of Hawaii for three populations in this rule.

We also excluded the proposed critical habitat on PTA lands (see “Analysis of Impacts Under Section 4(b)(2)”) for *Isodendron hosakae*. The area excluded for the island-endemic species, *Isodendron hosakae*, provides

habitat for one population within its historical range. There is habitat designated for six populations elsewhere on the island of Hawaii in this rule. Exclusion of this unit from critical habitat for these three species resulted in the overall reduction of 8 ha (21 ac) of critical habitat on the island of Hawaii.

#### Hawaii E

This unit was proposed as critical habitat for three species: *Clermontia lindseyana*, *Clermontia pyrrularia*, and *Phyllostegia racemosa*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species.

The area designated as critical habitat for the two island-endemic species provides habitat for three populations of *Clermontia pyrrularia* and three populations of *Phyllostegia racemosa* within their historical ranges. The area designated as critical habitat for the multi-island species provides habitat for two populations of *Clermontia lindseyana* within its historical range. Critical habitat for two additional populations was designated for this species on Maui (68 FR 25934, May 14, 2003) and habitat is designated for a total of eight populations on the island of Hawaii in this rule.

These modifications resulted in the reduction from 2,992 ha (7,393 ac) to 2,189 ha (5,409 ac). This unit was renamed Hawaii 2—*Clermontia lindseyana*—b, Hawaii 2—*Clermontia pyrrularia*—b, and Hawaii 2—*Phyllostegia racemosa*—b.

#### Hawaii F

This unit was proposed as critical habitat for seven species: *Clermontia peleana*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Phyllostegia racemosa*, and *Phyllostegia warshaueri*. Modifications were made to this unit to eliminate areas that do not contain the primary constituent elements for these species or were considered not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least 8 other locations that have been designated or are designated in this rule to meet the recovery goal of 8 to 10 populations throughout their historical ranges on this and other islands.

The area designated as critical habitat for the six island-endemic species provides habitat within their historical ranges for three populations each of *Cyanea platyphylla*, *Cyanea shipmanii*,

and *Cyrtandra giffardii*; seven populations of *Cyrtandra tintinnabula* and *Phyllostegia warshaueri*; and five populations of *Phyllostegia racemosa*. The area designated as critical habitat for the multi-island species *Clermontia peleana* provides habitat for six populations within its historical range. Habitat for four additional populations of *Clermontia peleana* is designated in this rule.

These modifications resulted in the reduction from 13,906 ha (34,363 ac) to 11,539 ha (28,513 ac). This unit was renamed Hawaii 1—*Clermontia lindseyana*—a, Hawaii 1—*Clermontia peleana*—a, Hawaii 1—*Clermontia pyrrularia*—a, Hawaii 1—*Cyanea shipmanii*—a, Hawaii 1—*Phyllostegia racemosa*—a, Hawaii 3—*Clermontia peleana*—b, Hawaii 3—*Cyanea platyphylla*—a, Hawaii 3—*Cyrtandra giffardii*—a, Hawaii 3—*Cyrtandra tintinnabula*—a, and Hawaii 3—*Phyllostegia warshaueri*—a.

#### Hawaii G

This unit was proposed as critical habitat for 12 species: *Argyroxiphium kauense*, *Asplenium fragile* var. *insulare*, *Clermontia lindseyana*, *Clermontia peleana*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Cyrtandra giffardii*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Plantago hawaiiensis*, and *Sicyos alba*. Modifications were made to this unit to eliminate areas that do not contain the primary constituent elements for these species or were considered not essential to the conservation of these species. Some portions eliminated from this final rule were not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least 8 other locations that have been designated or are designated in this rule to meet the recovery goal of 8 to 10 populations throughout their historical ranges on this and other islands.

We eliminated the proposed critical habitat for the multi-island species, *Asplenium fragile* var. *insulare*, in Hawaii G because it is not essential to the conservation of this species. *Asplenium fragile* var. *insulare* is historically known from Maui and we have designated critical habitat for two populations for this species on that island (68 FR 25934, May 14, 2003). There is also habitat for seven populations on lands excluded from this final rule on the island of Hawaii in PTA (see “Analysis of Impacts Under Section 4(b)(2)”), and this rule

designates critical habitat for one additional population. We excluded the proposed critical habitat on Kamehameha Schools lands in Hawaii G because the benefits of excluding these lands outweighed the benefits of including them in critical habitat (see “Analysis of Impacts Under Section 4(b)(2)”). Those excluded lands provide habitat for recovery populations of *Phyllostegia racemosa* and *Phyllostegia velutina*, as detailed below.

The area designated as critical habitat for the nine island-endemic species provides habitat for 2 populations of *Argyroxiphium kauense*, 6 populations of *Cyanea platyphylla*, 4 populations of *Cyanea shipmanii*, 6 populations of *Cyanea stictophylla*, 7 populations of *Cyrtandra giffardii*, 5 populations (in combination with Kamehameha Schools lands) of *Phyllostegia racemosa*, 6 populations (in combination with Kamehameha Schools lands) of *Phyllostegia velutina*, 3 populations of *Plantago hawaiiensis*, and 10 populations of *Sicyos alba* within their historical ranges. The area designated as critical habitat for the two multi-island species provides habitat for four populations each of *Clermontia lindseyana* and *Clermontia peleana* within their historical ranges. Critical habitat for two populations of *Clermontia lindseyana* was designated on Maui (68 FR 25934, May 14, 2003) and is designated for a total of eight populations in this rule. *Clermontia peleana* has critical habitat designated for a total of 10 populations in this rule.

These modifications resulted in the reduction from 32,286 ha (79,781 ac) to 20,261 ha (50,066 ac). This unit was renamed Hawaii 29—*Clermontia peleana*—c, Hawaii 29—*Cyanea platyphylla*—b, Hawaii 29—*Cyrtandra giffardii*—b, Hawaii 29—*Cyrtandra tintinnabula*—b, Hawaii 30—*Argyroxiphium kauense*—d, Hawaii 30—*Clermontia lindseyana*—c, Hawaii 30—*Cyanea shipmanii*—b, Hawaii 30—*Cyanea shipmanii*—c, Hawaii 30—*Cyanea stictophylla*—d, Hawaii 30—*Cyrtandra giffardii*—c, Hawaii 30—*Phyllostegia hawaiiensis*—c, Hawaii 30—*Phyllostegia racemosa*—c, Hawaii 30—*Phyllostegia velutina*—b, and Hawaii 30—*Sicyos alba*—a.

#### Hawaii H

This unit was proposed as critical habitat for four island endemic species: *Argyroxiphium kauense*, *Phyllostegia racemosa*, *Plantago hawaiiensis*, and *Silene hawaiiensis*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species or were considered not essential to the

conservation of these species. Some portions eliminated from this final rule were not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least 8 other locations that have been designated or are designated in this rule to meet the recovery goal of 8 to 10 populations throughout their historical ranges on the island of Hawaii.

We eliminated the proposed critical habitat for the endemic species *Phyllostegia racemosa* in Hawaii H. The area proposed for this species was eliminated from this final rule because it is not essential to the conservation of this species. We have designated habitat within this species' historical range in three other units, providing habitat for 10 populations on the island of Hawaii. The area designated as critical habitat for the other three island-endemic species provides habitat for one population of *Argyroxiphium kauense*, four populations of *Plantago hawaiiensis*, and one population of *Silene hawaiiensis* within their historical ranges.

These modifications resulted in the reduction from 5,322 ha (13,151 ac) to 2,433 ha (6,011 ac). This unit was renamed Hawaii 25—*Argyroxiphium kauense*—c, Hawaii 25—*Plantago hawaiiensis*—b, and Hawaii 25—*Silene hawaiiensis*—a.

#### Hawaii I

This unit was proposed as critical habitat for two island-endemic species: *Hibiscadelphus giffardianus* and *Melicope zahlbruckneri*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species. The area designated as critical habitat for these endemic species provides habitat for one population of *Hibiscadelphus giffardianus* and two populations of *Melicope zahlbruckneri* within their historical ranges.

These modifications resulted in the reduction from 522 ha (1,290 ac) to 497 ha (1,228 ac). This unit was renamed Hawaii 26—*Hibiscadelphus giffardianus*—a and Hawaii 26—*Melicope zahlbruckneri*—b.

#### Hawaii J

This unit was proposed as critical habitat for *Adenophorus periens*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for this species. The area designated as critical habitat for this multi-island species provides habitat within its historical

range for one population of *Adenophorus periens*. We have designated critical habitat for this species for four populations on Kauai, one population on Oahu, and four populations on Molokai, in addition to the habitat for one population designated in this rule (68 FR 9116, February 27, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003).

These modifications resulted in the reduction from 5,065 ha (12,516 ac) to 2,733 ha (6,754 ac). This unit was renamed Hawaii 28—*Adenophorus periens*—a.

#### Hawaii K

This unit was proposed as critical habitat for seven species: *Argyroxiphium kauense*, *Asplenium fragile* var. *insulare*, *Clermontia lindseyana*, *Cyanea stictophylla*, *Melicope zahlbruckneri*, *Plantago hawaiiensis*, and *Phyllostegia velutina*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species. Some portions eliminated from this final rule were not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species.

We eliminated the proposed critical habitat in Hawaii K for *Clermontia lindseyana*. The area proposed for this species was eliminated from this final rule because it is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *Clermontia lindseyana*, and there are at least 10 other locations for this species designated elsewhere on the islands of Hawaii and Maui within its historical range. Critical habitat for two populations was designated on Maui (68 FR 25934, May 14, 2003) and habitat for eight populations is designated in this rule.

The area designated as critical habitat for the five island-endemic species provides habitat for four populations of *Argyroxiphium kauense*, two populations of *Cyanea stictophylla*, one population of *Melicope zahlbruckneri*, four populations of *Phyllostegia velutina*, and three populations of *Plantago hawaiiensis* within their historical ranges. The area designated as critical habitat for the multi-island species provides habitat for one population of *Asplenium fragile* var. *insulare* within its historical range.

These modifications resulted in the reduction from 15,294 ha (37,792 ac) to 10,961 ha (27,085 ac). This unit was

renamed Hawaii 24—*Argyroxiphium kauense*—b, Hawaii 24—*Asplenium fragile* var. *insulare*—a, Hawaii 24—*Cyanea stictophylla*—c, Hawaii 24—*Melicope zahlbruckneri*—a, Hawaii 24—*Phyllostegia velutina*—a, and Hawaii 24—*Plantago hawaiiensis*—a.

#### Hawaii L

This unit was proposed as critical habitat for five species: *Ischaemum byrone*, *Pleomele hawaiiensis*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, and *Silene hawaiiensis*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species. In addition, some portions eliminated were not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least 8 other locations that have been designated or are designated in this rule to meet the recovery goal of 8 to 10 populations throughout their historical ranges.

The area designated as critical habitat for the two island-endemic species provides habitat for five populations of *Pleomele hawaiiensis* and one population of *Silene hawaiiensis* within their historical ranges. The area designated as critical habitat for the three multi-island species provides habitat for two populations each of *Ischaemum byrone* and *Sesbania tomentosa* and five populations of *Portulaca sclerocarpa* within their historical ranges. We designated critical habitat for *Ischaemum byrone* on Kauai (habitat for three populations), Molokai (habitat for two populations), and Maui (habitat for two populations) (68 FR 9116, February 27, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). We are designating habitat for a total of three populations on the island of Hawaii in this rule. *Portulaca sclerocarpa* is currently found on the islands of Lanai and Hawaii, and critical habitat for one population was designated on Lanai (68 FR 1220, January 9, 2003). This rule designates critical habitat for a total of five populations. There is habitat for four other populations on lands excluded from this final rule in PTA (see “Analysis of Impacts Under Section 4(b)(2)”). We have designated critical habitat for *Sesbania tomentosa* on Nihoa (habitat for one population), Necker (habitat for one population), Kauai (habitat for two populations), Oahu (habitat for two populations), Molokai (habitat for two populations), and Maui (habitat for two populations) (68 FR 28054, May 22, 2003; 68 FR

9116, February 27, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In this rule, we are designating habitat for two populations of *Sesbania tomentosa*.

These modifications resulted in the reduction from 15,294 ha (37,792 ac) to 14,841 ha (36,674 ac). This unit was renamed Hawaii 20—*Sesbania tomentosa*—a, Hawaii 21—*Ischaemum byrone*—a, Hawaii 23—*Pleomele hawaiiensis*—d, Hawaii 23—*Sesbania tomentosa*—b, Hawaii 27—*Portulaca sclerocarpa*—a, and Hawaii 27—*Silene hawaiiensis*—b.

#### Hawaii M1

This unit was proposed as critical habitat for one multi-island species, *Ischaemum byrone*. The entire area proposed for this species was eliminated. This area is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species, and there are 10 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout its historical range on this and other islands. We have designated critical habitat for this species on Kauai (for three populations), and Maui (for two populations) (68 FR 35949, June 17, 2003; 68 FR 9116, February 27, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In this rule we are designating habitat for three populations. Exclusion of this unit from critical habitat for *Ischaemum byrone* resulted in the overall reduction of 19 ha (46 ac) of critical habitat on the island of Hawaii.

#### Hawaii M2

This unit was proposed as critical habitat for one multi-island species, *Ischaemum byrone*. The entire area proposed for this species was eliminated. This area is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species, and there are 10 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout its historical range on this and other islands. We have designated critical habitat for this species on Kauai (for three populations) and Maui (for two populations) (68 FR 35949, June 17, 2003; 68 FR 9116, February 27, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In this rule, we are designating habitat for three populations. Exclusion of this unit from

critical habitat for *Ischaemum byrone* resulted in the overall reduction of 133 ha (328 ac) of critical habitat on the island of Hawaii.

#### Hawaii M3

This unit was proposed as critical habitat for one multi-island species, *Ischaemum byrone*. The entire area proposed for this species was eliminated. This area is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species, and there are 10 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout its historical range on this and other islands. We have designated critical habitat for this species on Kauai (for three populations) and Maui (for two populations) (68 FR 35949, June 17, 2003; 68 FR 9116, February 27, 2003; 69 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In this rule, we are designating habitat for three populations. Exclusion of this unit from critical habitat for *Ischaemum byrone* resulted in the overall reduction of 141 ha (349 ac) of critical habitat on the island of Hawaii.

#### Hawaii M4

This unit was proposed as critical habitat for one multi-island species, *Ischaemum byrone*. The entire area proposed for this species was eliminated. This area is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species, and there are 10 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout its historical range on this and other islands. We have designated critical habitat for this species on Kauai (for three populations) and Maui (for two populations) (68 FR 35949, June 17, 2003; 68 FR 9116, February 27, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In this rule we are designating habitat for three populations. Exclusion of this unit from critical habitat for *Ischaemum byrone* resulted in the overall reduction of 141 ha (348 ac) of critical habitat on the island of Hawaii.

#### Hawaii M5

This unit was proposed as critical habitat for one species, *Ischaemum byrone*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for

this species. The area designated as critical habitat for this multi-island species provides habitat within its historical range for one population of *Ischaemum byrone*. We have designated critical habitat for this species on Kauai (habitat for three populations), Molokai (habitat for two populations), and Maui (habitat for two populations) (68 FR 9116, February 27, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In this rule, we are designating habitat for three populations on the island of Hawaii.

These modifications resulted in the reduction from 533 ha (1,316 ac) to 159 ha (393 ac). This unit was renamed Hawaii 22—*Ischaemum byrone*—b.

#### Hawaii N1

This unit was proposed as critical habitat for one multi-island species, *Sesbania tomentosa*. The entire area proposed for this species was eliminated. This area is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species, and there are 12 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout its historical range on this and other islands. We designated critical habitat for this species on Nihoa (habitat for one population), Necker (habitat for one population), Kauai (habitat for two populations), Oahu (habitat for two populations), Molokai (habitat for two populations), and Maui (habitat for two populations) (68 FR 28054, May 22, 2003; May 22, 2003; 68 FR 9116, February 27, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In this rule, we are designating habitat elsewhere on the island of Hawaii for two populations. Exclusion of this unit from critical habitat for *Sesbania tomentosa* resulted in the overall reduction of 35 ha (88 ac) of critical habitat on the island of Hawaii.

#### Hawaii N2

This unit was proposed as critical habitat for one multi-island species, *Sesbania tomentosa*. The entire area proposed for this species was eliminated. This area is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species, and there are 12 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout its historical range on this and other

islands. We designated critical habitat for this species on Nihoa (habitat for one population), Necker (habitat for one population), Kauai (habitat for two populations), Oahu (habitat for two populations), Molokai (habitat for two populations), and Maui (habitat for two populations) (68 FR 28054, May 22, 2003; May 22, 2003; 68 FR 9116, February 27, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In this rule, we are designating habitat elsewhere on the island of Hawaii for two populations. Exclusion of this unit from critical habitat for *Sesbania tomentosa* resulted in the overall reduction of 441 ha (1,091 ac) of critical habitat on the island of Hawaii.

#### Hawaii O

This unit was proposed as critical habitat for one species, *Mariscus fauriei*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for this species.

The area designated as critical habitat for this multi-island species provides habitat within its historical range for one population of *Mariscus fauriei*. We designated critical habitat for this species on Molokai (habitat for seven populations) (68 FR 12982, March 18, 2003).

These modifications resulted in the reduction from 215 ha (531 ac) to 127 ha (313 ac). This unit was renamed Hawaii 19—*Mariscus fauriei*—b.

#### Hawaii P

This unit was proposed as critical habitat for one species, *Pleomele hawaiiensis*. The entire area proposed for this species was eliminated. This area is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species, and there are 10 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout its historical range on this island. Three other critical habitat units for this species are designated on the island of Hawaii for a total of nine populations, and the excluded Kamehameha Schools lands provide habitat for one population (see “Analysis of Impacts Under Section 4(b)(2)”). Exclusion of this unit from critical habitat for *Pleomele hawaiiensis* resulted in the overall reduction of 547 ha (1,351 ac) of critical habitat on the island of Hawaii.

#### Hawaii Q

This unit was proposed as critical habitat for six species: *Colubrina oppositifolia*, *Diellia erecta*, *Flueggea neowawraea*, *Gouania vitifolia*, *Neraudia ovata*, and *Pleomele hawaiiensis*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species. The portions eliminated from this final rule were not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least eight other locations that have been designated or are being designated in this rule to meet the recovery goal of 8 to 10 populations throughout their historical ranges.

The area designated as critical habitat for the two island-endemic species provides habitat for two populations each of *Neraudia ovata* and *Pleomele hawaiiensis* within their historical ranges. The area designated as critical habitat for the four multi-island species provides habitat for two populations each of *Colubrina oppositifolia* and *Gouania vitifolia*, and one population each of *Diellia erecta* and *Flueggea neowawraea*, within their historical ranges. We designated critical habitat for *Colubrina oppositifolia* on Oahu (habitat for three populations) and Maui (habitat for three populations) (68 FR 35949, June 17, 2003; 68 FR 25934, May 14, 2003), and we are designating habitat for a total of four populations on the island of Hawaii in this rule. Critical habitat for one population each of *Diellia erecta* was designated on Kauai, Oahu, and Molokai, and four populations on Maui (68 FR 9116, February 27, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In this rule, habitat is designated for two populations on the island of Hawaii. We designated critical habitat for *Flueggea neowawraea* on Kauai (habitat for four populations), Molokai (habitat for one population), and Maui (habitat for one population) (68 FR 9116, February 27, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In this rule we are designating habitat for two populations. In addition, there is habitat on Oahu for one population of *Flueggea neowawraea* on excluded lands (68 FR 35949, June 17, 2003). We designated critical habitat for *Gouania vitifolia* on Oahu (habitat for seven populations) and Maui (habitat for one population), as well as habitat for two populations in this rule (68 FR 35949, June 17, 2003; 68 FR 25934, May 14, 2003).

These modifications resulted in the reduction from 15,294 ha (37,792 ac) to 2,997 ha (7,406 ac). This unit was renamed Hawaii 18—*Colubrina oppositifolia*—b, Hawaii 18—*Diellia erecta*—b, Hawaii 18—*Flueggea neowawraea*—b, Hawaii 18—*Gouania vitifolia*—a, Hawaii 18—*Neraudia ovata*—d, and Hawaii 18—*Pleomele hawaiiensis*—c.

#### Hawaii R

This unit was proposed as critical habitat for two species: *Diellia erecta* and *Flueggea neowawraea*. Modifications were made to this unit to eliminate areas that do not contain the primary constituent elements for these species. The portions eliminated were not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least 8 other locations that have been designated or are designated in this rule to meet the recovery goal of 8 to 10 populations throughout their historical ranges.

The area designated as critical habitat for these two multi-island species provides habitat for one population each of *Diellia erecta* and *Flueggea neowawraea* within their historical ranges. Critical habitat for one population each of *Diellia erecta* was designated on Kauai, Oahu, and Molokai, and four populations on Maui (68 FR 9116, February 27, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). We are designating habitat for two populations of *Diellia erecta* on the island of Hawaii in this rule. We designated critical habitat for *Flueggea neowawraea* on Kauai (habitat for four populations), Molokai (habitat for one population), and Maui (habitat for one population) (68 FR 9116, February 27, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In this rule, we are designating habitat for two populations. In addition, there is habitat for on Oahu for one population of *Flueggea neowawraea* on excluded lands (68 FR 35949, June 17, 2003).

These modifications resulted in the reduction from 387 ha (955 ac) to 332 ha (819 ac). This unit was renamed Hawaii 17—*Diellia erecta*—a and Hawaii 17—*Flueggea neowawraea*—a.

#### Hawaii S

This unit was proposed as critical habitat for two species: *Cyanea hamatiflora* ssp. *carlsonii* and *Cyanea stictophylla*. Modifications were made to this unit to eliminate areas that do not contain the primary constituent

elements for these species. Some portions eliminated were not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least 8 other locations that are being designated in this rule to meet the recovery goal of 8 to 10 populations throughout their historical ranges. The area designated as critical habitat for these two island-endemic species provides habitat for one population each of *Cyanea hamatiflora* ssp. *carlsonii* and *Cyanea stictophylla* within their historical ranges.

These modifications resulted in the reduction from 383 ha (947 ac) to 331 ha (819 ac). This unit was renamed Hawaii 16—*Cyanea hamatiflora* ssp. *carlsonii*—d and Hawaii 16—*Cyanea stictophylla*—b.

#### Hawaii T

This unit was proposed as critical habitat for two species: *Cyanea hamatiflora* ssp. *carlsonii* and *Cyanea stictophylla*. Modifications were made to this unit to eliminate areas that do not contain the primary constituent elements for these species. Some portions eliminated were not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least 8 other locations that are being designated in this rule to meet the recovery goal of 8 to 10 populations throughout their historical ranges. The area designated as critical habitat for these two island-endemic species provides habitat for one population each of *Cyanea hamatiflora* ssp. *carlsonii* and *Cyanea stictophylla* within their historical ranges.

These modifications resulted in the reduction from 1,489 ha (3,681 ac) to 1,264 ha (3,123 ac). This unit was renamed Hawaii 15—*Cyanea hamatiflora* ssp. *carlsonii*—c and Hawaii 15—*Cyanea stictophylla*—a.

#### Hawaii U

This unit was proposed as critical habitat for one species, *Cyanea hamatiflora* ssp. *carlsonii*. Modifications were made to this unit to eliminate areas that do not contain the primary constituent elements for this species. Some portions eliminated were not essential to the conservation of this species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species, and there are at least 5 other

locations with habitat for a total of 7 populations that are designated in this rule to meet the recovery goal of 8 to 10 populations throughout the species' historical range. The area designated as critical habitat for this island-endemic species provides habitat for one population of *Cyanea hamatiflora* ssp. *carlsonii* within its historical range.

These modifications resulted in the reduction from 615 ha (1,520 ac) to 597 ha (1,475 ac). This unit was renamed Hawaii 14—*Cyanea hamatiflora* ssp. *carlsonii*—b.

#### Hawaii V

This unit was proposed as critical habitat for one species endemic to the island of Hawaii, *Nothocestrum breviflorum*. The entire area proposed for this species was eliminated. This area is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species, and there are 3 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout its historical range on this island. Habitat designated elsewhere on the island of Hawaii for this species provides habitat for nine populations. Exclusion of this unit from critical habitat for *Nothocestrum breviflorum* resulted in the overall reduction of 951 ha (2,351 ac) of critical habitat on the island of Hawaii.

#### Hawaii W

This unit was proposed as critical habitat for one multi-island species, *Delissea undulata*. The entire area proposed for this species was excluded. Some of it was excluded because it is not essential to the conservation of this species. We also excluded the proposed critical habitat on Kamehameha Schools lands in Hawaii W because the benefits of excluding these lands outweighed the benefits of including them in critical habitat (see "Analysis of Impacts Under Section 4(b)(2)"). These excluded lands provide habitat for three recovery populations of *Delissea undulata*. There is habitat designated elsewhere on the island of Hawaii for this species providing habitat for two populations. In addition, we have designated habitat on Kauai for three populations (68 FR 9116, February 27, 2003). Exclusion of this unit from critical habitat for *Delissea undulata* resulted in the overall reduction of 1,479 ha (3,654 ac) of critical habitat on the island of Hawaii.

#### Hawaii X

This unit was proposed as critical habitat for two species: *Cyanea*



*hamatiflora* ssp. *carlsonii* and *Solanum incompletum*. Modifications were made to this unit to eliminate areas that do not contain the primary constituent elements for these species. Some portions eliminated were not essential to the conservation of these species because they have a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least 8 other locations that have been designated or are designated in this rule to meet the recovery goal of 8 to 10 populations throughout their historical ranges.

The area designated as critical habitat for the island-endemic species provides habitat for one population of *Cyanea hamatiflora* ssp. *carlsonii* within its historical range. The area designated as critical habitat for the multi-island species provides habitat for one population of *Solanum incompletum* within its historical range. This rule designates critical habitat for four populations on the island of Hawaii. There is also habitat for five populations on lands excluded from this final rule in PTA (see “*Analysis of Impacts Under Section 4(b)(2)*”). Habitat for one population is in the area excluded from critical habitat on Lanai (68 FR 1220, January 9, 2003).

These modifications resulted in the reduction from 138 ha (340 ac) to 92 ha (227 ac). This unit was renamed Hawaii 11—*Cyanea hamatiflora* ssp. *carlsonii*—a and Hawaii 11—*Solanum incompletum*—b.

#### Hawaii Y1

This unit was proposed as critical habitat for two species: *Isodendron pyriform* and *Neraudia ovata*. We excluded the proposed critical habitat on these lands because the benefits of excluding these lands outweighed the benefits of including them in critical habitat (see “*Analysis of Impacts Under Section 4(b)(2)*”). Habitat for nine populations of *Neraudia ovata* are designated in this rule. We designated critical habitat for *Isodendron pyriform* on Oahu (habitat for three populations), Molokai (habitat for one population), and Maui (habitat for two populations) (68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). Habitat for two additional populations is in the land excluded from critical habitat on Lanai (68 FR 1220, January 9, 2003). Exclusion of this unit from critical habitat for *Isodendron pyriform* and *Neraudia ovata* resulted in the overall reduction of 212 ha (524 ac) of critical habitat on the island of Hawaii.

#### Hawaii Y2

This unit was proposed as critical habitat for two species: *Isodendron pyriform* and *Neraudia ovata*. We excluded the proposed critical habitat on these lands because the benefits of excluding these lands outweighed the benefits of including them in critical habitat (see “*Analysis of Impacts Under Section 4(b)(2)*”). Habitat for nine populations of *Neraudia ovata* are designated in this rule. We designated critical habitat for *Isodendron pyriform* on Oahu (habitat for three populations), Molokai (habitat for one population), and Maui (habitat for two populations) (68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). Habitat for two additional populations is in the land excluded from critical habitat on Lanai (68 FR 1220, January 9, 2003). Exclusion of this unit from critical habitat for *Isodendron pyriform* and *Neraudia ovata* resulted in the overall reduction of 334 ha (826 ac) of critical habitat on the island of Hawaii.

#### Hawaii Z

This unit was proposed as critical habitat for 12 species: *Bonamia menziesii*, *Colubrina oppositifolia*, *Cyanea stictophylla*, *Delissea undulata*, *Flueggea neowawraea*, *Hibiscadelphus hualalaiensis*, *Hibiscus brackenridgei*, *Nothocestrum breviflorum*, *Phyllostegia velutina*, *Plantago hawaiiensis*, *Pleomele hawaiiensis*, and *Zanthoxylum dipetalum* var. *tomentosum*. Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for these species. We also eliminated the proposed critical habitat in Hawaii Z for *Cyanea stictophylla*, *Flueggea neowawraea*, *Phyllostegia velutina*, and *Plantago hawaiiensis*. Areas proposed for these four species were eliminated because they are not essential to the conservation of these species because they had a lower proportion of associated native species than other areas we consider to be essential to the conservation of these species, and there are at least nine other locations for each of these species designated elsewhere within their historical ranges. We are designating critical habitat elsewhere on the island of Hawaii for 10 populations each of *Cyanea stictophylla*, *Phyllostegia velutina*, and *Plantago hawaiiensis*, all island-endemic species. For the multi-island species *Flueggea neowawraea*, we are designating critical habitat for two populations elsewhere on the island of Hawaii, and we have designated habitat for four populations on Kauai and one population on

Molokai and Maui (68 FR 9116, February 27, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). Habitat for one additional population of *Flueggea neowawraea* is on lands excluded from critical habitat on Oahu (68 FR 35949, June 17, 2003).

In addition, we excluded the proposed critical habitat on Kamehameha Schools and National Tropical Botanical Garden lands in Hawaii Z because the benefits of excluding these lands outweighed the benefits of including them in critical habitat (see “*Analysis of Impacts Under Section 4(b)(2)*”). These excluded lands provide habitat for one population of *Pleomele hawaiiensis* and, in combination with land designated in this unit, one population of *Bonamia menziesii*.

The area designated as critical habitat for the four island-endemic species in this unit provides habitat for eight populations of *Hibiscadelphus hualalaiensis*, five populations of *Nothocestrum breviflorum*, one population of *Pleomele hawaiiensis*, and seven populations of *Zanthoxylum dipetalum* var. *tomentosum* within their historical ranges. Elsewhere in this rule, we are designating habitat for four populations of *Nothocestrum breviflorum* and eight populations of *Pleomele hawaiiensis*. The area designated as critical habitat for the four multi-island species in this unit provides habitat for one population (in combination with excluded lands) of *Bonamia menziesii*, two populations each of *Colubrina oppositifolia* and *Delissea undulata*, and one population of *Hibiscus brackenridgei* within their historical ranges. We have designated critical habitat for *Bonamia menziesii* on Kauai (habitat for two populations), Oahu (habitat for four populations), and Maui (habitat for one population), and elsewhere in this rule are designating habitat for one population. Habitat for one additional population of this species is in the land excluded from critical habitat on Lanai. We have designated critical habitat for *Colubrina oppositifolia* on Oahu (habitat for three populations) and Maui (habitat for three populations), and elsewhere in this rule, we are designating habitat for four populations on the island of Hawaii. We have designated critical habitat for *Delissea undulata* on Kauai (habitat for three populations). We have designated critical habitat for *Hibiscus brackenridgei* on Oahu (habitat for three populations), Molokai (habitat for one population), Maui (habitat for three populations) and habitat for one additional population is in land excluded from critical habitat on Lanai



(68 FR 1220, January 9, 2003; 68 FR 9116, February 27, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003).

These modifications resulted in the reduction from 10,738 ha (26,535 ac) to 6,564 ha (16,221 ac). This unit was renamed Hawaii 10—*Bonamia menziesii*—a, Hawaii 10—*Colubrina oppositifolia*—a, Hawaii 10—*Delissea undulata*—a, Hawaii 10—*Delissea undulata*—b, Hawaii 10—*Hibiscadelphus hualalaiensis*—a, Hawaii 10—*Hibiscus brackenridgei*—a, Hawaii 10—*Nothocestrum breviflorum*—c, Hawaii 10—*Pleomele hawaiiensis*—b, and Hawaii 10—*Zanthoxylum dipetalum* ssp. *tomentosum*—a.

#### Hawaii AA

This unit was proposed as critical habitat for 10 species: *Asplenium fragile* var. *insulare*, *Hedyotis coriacea*, *Neraudia ovata*, *Portulaca sclerocarpa*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense*. The entire area proposed for these species, which is located on PTA lands, was excluded for the reasons described in “Analysis of Impacts Under Section 4(b)(2)”. As a result, no critical habitat was designated for the five multi-island species *Hedyotis coriacea*, *Silene lanceolata*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense* on the island of Hawaii because all of the habitat proposed for these species is within these lands. These excluded lands provide habitat for six populations of *Hedyotis coriacea*, six populations of *Silene lanceolata*, two populations of *Spermolepis hawaiiensis*, seven populations of *Tetramolopium arenarium*, and six populations of *Zanthoxylum hawaiiense*. We have designated critical habitat for *Hedyotis coriacea* on Oahu (habitat for two populations) and Maui (habitat for two populations) (68 FR 25934, May 14, 2003). We designated critical habitat for *Silene lanceolata* on Oahu (habitat for one population) and Molokai (habitat for two populations) (68 FR 12982, March 19, 2003). We have designated critical habitat for *Spermolepis hawaiiensis* on Kauai (habitat for two populations), Oahu (habitat for two populations), Molokai (habitat for one population), and Maui (habitat for two populations) (68 FR 25934, May 14, 2003). Habitat for one additional population of *Spermolepis hawaiiensis* is in the area excluded from critical habitat on Lanai (68 FR 1220, January 9, 2003). *Tetramolopium arenarium* is

known historically from Maui, but is currently only found on the island of Hawaii. We have designated no critical habitat for this species. We have designated critical habitat for *Zanthoxylum hawaiiense* on Kauai (habitat for two populations), Molokai (habitat for one population), and Maui (habitat for one population) (68 FR 9116, February 27, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003).

These excluded lands also provide habitat for seven populations of *Asplenium fragile* var. *insulare*, four populations of *Neraudia ovata*, four populations of *Portulaca sclerocarpa*, seven populations of *Silene hawaiiensis*, and four populations of *Solanum incompletum*. *Asplenium fragile* var. *insulare* is historically known from Maui and we have designated critical habitat for two populations for this species on that island (68 FR 25934, May 14, 2003) and habitat for one population is designated in this rule. *Neraudia ovata* is endemic to the island of Hawaii and habitat for six populations are designated in this rule. We have designated critical habitat for one population of *Portulaca sclerocarpa* on Lanai (68 FR 1220, January 9, 2003) and are designating habitat for five populations in this rule. *Silene hawaiiensis* is endemic to the island of Hawaii, and habitat for three populations is designated in this rule. Habitat for one population of the multi-island species *Solanum incompletum* is in the area excluded from critical habitat on Lanai (68 FR 1220, January 9, 2003) and we are designating habitat for four populations in this rule.

Exclusion of this unit from critical habitat for *Asplenium fragile* var. *insulare*, *Hedyotis coriacea*, *Neraudia ovata*, *Portulaca sclerocarpa*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense* resulted in the overall reduction of 28,384 ha (70,138 ac) of critical habitat on the island of Hawaii.

#### Hawaii BB

This unit was proposed as critical habitat for one multi-island species, *Sesbania tomentosa*. The entire area proposed for this species was eliminated. This area is not essential to the conservation of this species because it has a lower proportion of associated native species than other areas we consider to be essential to the conservation of this species, and there are 12 other locations that have been designated to meet the recovery goal of 8 to 10 populations throughout its

historical range on this and other islands. We designated critical habitat for this species on Nihoa (habitat for one population), Necker (habitat for one population), Kauai (habitat for two populations), Oahu (habitat for two populations), Molokai (habitat for two populations), and Maui (habitat for two populations) (68 FR 28054, May 22, 2003; 68 FR 9116, February 27, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). There is habitat designated elsewhere on the island of Hawaii for this species, providing habitat for two populations. Exclusion of this unit from critical habitat for *Sesbania tomentosa* resulted in the overall reduction of 43 ha (106 ac) of critical habitat on the island of Hawaii.

#### Critical Habitat

Critical habitat is defined in section 3 of the Act as—(i) the specific areas within the geographic 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 considerations or protection; and, (ii) specific areas outside the geographic 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,” as defined by the Act, means the use of all methods and procedures that are necessary to bring an endangered or a threatened species to the point at which listing under the Act is no longer necessary.

Critical habitat receives protection under section 7 of the Act through the prohibition against destruction or adverse modification of critical habitat with regard to actions carried out, funded, or authorized by a Federal agency. Section 7 also requires conferences on Federal actions that are likely to result in the destruction or adverse modification of proposed critical habitat. In our regulations at 50 CFR 402.02, we define destruction or adverse modification as “\* \* \* a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.” However, in the March 15, 2001, decision of the United States Court of Appeals for the Fifth Circuit (*Sierra Club v. U.S. Fish and Wildlife Service et al.*, 245 F.3d 434) regarding a not prudent finding, the court found our

definition of destruction or adverse modification as currently contained in 50 CFR 402.02 to be invalid. In response to this decision, we are reviewing the regulatory definition of adverse modification in relation to the conservation of the species.

In order to be included in a critical habitat designation, areas within the geographical range of the species at the time of listing must contain physical or biological features essential to the conservation of the species or for an area outside the geographical area occupied by the species at the time of listing, the area itself must be essential to the conservation of the species, 16 U.S.C. 1532(5)(A).

Our regulations state that "The Secretary shall designate as critical habitat areas outside the geographical area presently occupied by a species only when a designation limited to its present range would be inadequate to ensure the conservation of the species" (50 CFR 424.12(e)). Accordingly, when the best available scientific and commercial data do not demonstrate that the conservation needs of the species require designation of critical habitat outside of occupied areas, we will not designate critical habitat in areas outside the geographic area occupied by the species.

Section 4 requires that we designate critical habitat for a species, to the extent such habitat is determinable, at the time of listing. When we designate critical habitat at the time of listing or under short court-ordered deadlines, we may not have sufficient information to identify all the areas essential for the conservation of the species, or we may inadvertently include areas that later will be shown to be nonessential. Nevertheless, we are required to complete the designation process, using the best information available to us. If new information becomes available subsequent to the designation, we have authority to revise the critical habitat at that time (16 U.S.C. 1533(a)(3)(B)).

Our Policy on Information Standards Under the Endangered Species Act, published in the **Federal Register** on July 1, 1994 (59 FR 34270), provides criteria, establishes procedures, and provides guidance to ensure that our decisions represent the best scientific and commercial data available. It requires our biologists, to the extent consistent with the Act and with the use of the best scientific and commercial data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat. When determining which areas are critical habitat, a primary source of information should be

the listing package for the species. Additional information may be obtained from recovery plans, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, and biological assessments or other unpublished materials.

It is important to clearly understand that critical habitat designations do not signal that habitat outside the designation is unimportant or may not be required for recovery. Areas outside the critical habitat designation will continue to be subject to conservation actions that may be implemented under section 7(a)(1) and to the regulatory protections afforded by the Act's section 7(a)(2) jeopardy standard and section 9 prohibitions, as determined on the basis of the best available information at the time of the action. We specifically anticipate that federally funded or assisted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans, or other species conservation planning efforts if new information available to these planning efforts calls for a different outcome. Furthermore, we recognize that designation of critical habitat may not include all of the habitat areas that may eventually be determined to be necessary for the recovery of the species.

#### Prudency

Designation of critical habitat is not prudent when 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 to the species (50 CFR 424.12(a)(1)).

To determine whether critical habitat would be prudent for each species, we analyzed the potential threats and benefits for each species in accordance with the court's order. Two species, *Cyanea copelandii* ssp. *copelandii* and *Ochrosia kilaueaensis*, endemic to the island of Hawaii, are no longer extant in the wild. *Cyanea copelandii* ssp. *copelandii* was last seen in the wild in 1957, in the Glenwood area. *Ochrosia kilaueaensis* was last observed in the wild in 1927, in an area that is now part of Hawaii Volcanoes National Park. Neither of these two species is known to be in storage or under propagation. Under these circumstances, designation of critical habitat for *Cyanea copelandii* ssp. *copelandii* and *Ochrosia*

*kilaueaensis* is not prudent because such designation would be of no benefit to these species. If these species are rediscovered, we may revise these final prudency determinations to incorporate or address new information as new data become available (See 16 U.S.C. 1532 (5)(B); 50 CFR 424.13(f)).

Due to low numbers of individuals and populations and their inherent immobility, the other 56 plant species may be vulnerable to unrestricted collection, vandalism, or disturbance. However, we examined the evidence currently available for each of these species and found specific evidence of vandalism, disturbance, and the threat of unrestricted collection only for two species of *Pritchardia*, the native palm. At the time of listing, we determined that designation of critical habitat was not prudent for *Pritchardia affinis* and *Pritchardia schattaueri* because it would increase the degree of threat from vandalism or collecting, and would provide no benefit (59 FR 10305, March 4, 1994; 61 FR 53137, October 10, 1996). Since publication of the listing rule, we learned of specific instances of vandalism, collection, and commercial trade involving these two species of *Pritchardia*. In the 1990s, seeds of *Pritchardia schattaueri* were removed from plants in two of the three locations where this species was known at that time (L. Perry and Nick Agorastos, DOFAW pers. comm. 2000). We received information on the commercial trade in palms conducted through the Internet (Grant Canterbury, Service *in litt.* 2000). Several nurseries advertise and sell seedlings and young plants, including 13 species of Hawaiian *Pritchardia*. Seven of these species are federally protected, including *Pritchardia affinis* and *Pritchardia schattaueri*. In light of this information, we believe that designation of critical habitat would likely increase the threat from vandalism to or collection of to these two species of *Pritchardia* on the island of Hawaii. First, these plants are easy to identify, and second, they may be attractive to collectors of rare palms either for their personal use or to trade or sell for personal gain (Johnson 1996). Although the final listing rules for these two species of palm do not list vandalism or overcollection as threats, in light of documented vandalism and overcollection events on these species and on species in the same genus on Kauai, we believe that *Pritchardia affinis* and *P. schattaueri* are vulnerable to these threats (59 FR 10305; 61 FR 53137).

In addition, we believe that designation would not provide significant benefits that would outweigh

these increased risks. First, *Pritchardia affinis* and *Pritchardia schattaueri* do not occur on Federal lands. *Pritchardia schattaueri* is reported on privately owned land that is zoned for agriculture, and 10 of the approximately 12 individuals have been fenced (Mick Castillo, USFWS, pers. comm. 2003). In addition, the privately owned land is currently farmed, with 10 of the plants located in pasture and 2 located in macadamia nut orchards, and this land is unlikely to be developed. *Pritchardia affinis* occurs on State and privately owned lands that are zoned for conservation and agriculture. Since there do not appear to be any actions in the future that would likely involve a Federal agency, designation of critical habitat would not provide any protection to these species that they do not already have through listing alone. If, however, in the future, any Federal involvement did occur, such as through the permitting process or funding by the U.S. Department of Agriculture, the U.S. Department of the Interior, the Corps through section 404 of the Clean Water Act, the U.S. Federal Department of Housing and Urban Development, or the Federal Highway Administration, the actions would be subject to consultation under section 7 of the Act. We acknowledge that critical habitat designation, in some situations, may provide some value to the species, for example, by identifying areas important for conservation and calling attention to those areas in need of special protection. However, for these two species, we believe that the benefits of designating critical habitat do not outweigh the potential increased threats from vandalism or collection. Given all of the above considerations, we determine that designation of critical habitat for *Pritchardia affinis* and *P. schattaueri* is not prudent.

In the final rule for Lanai plants (68 FR 1220, January 9, 2003), we found that critical habitat was prudent for the following 16 multi-island species that also occur on the island of Hawaii: *Adenophorus periens*, *Bonamia menziesii*, *Cenchrus agrimonoides*, *Ctenitis squamigera*, *Diellia erecta*, *Hedyotis cookiana*, *Hibiscus brackenridgei*, *Isodendron pyrifolium*, *Mariscus fauriei*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Vigna o-wahuensis*, and *Zanthoxylum hawaiiense*. In the final rule for Kauai and Niihau plants (68 FR 9116, February 27, 2003), we found that critical habitat was prudent for the following seven multi-island species that are also found on the island of

Hawaii: *Achyranthes mutica*, *Delissea undulata*, *Flueggea neowawraea*, *Ischaemum byrone*, *Mariscus pennatifolius*, *Phlegmariurus mannii*, and *Plantago princeps*. In the final rule for Maui and Kahoolawe plants (68 FR 25934, May 14, 2003), we found that critical habitat was prudent for the following eight multi-island species that also occur on the island of Hawaii: *Asplenium fragile* var. *insulare*, *Clermontia lindseyana*, *Clermontia peleana*, *Colubrina oppositifolia*, *Gouania vitifolia*, *Hedyotis coriacea*, *Phyllostegia parviflora*, and *Tetramolopium arenarium*.

We examined the evidence available for the other 23 species and have not, at this time, found specific evidence of taking, vandalism, collection, or trade of these species or of similar species. Consequently, while we remain concerned that these activities could potentially threaten these 23 plant species in the future, consistent with applicable regulations (50 CFR 424.12(a)(1)(i)) and the court's discussion of these regulations, we do not find that any of these species are currently threatened by taking or other human activity, which would be exacerbated by the designation of critical habitat.

In the absence of 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. The potential benefits include: (1) Triggering section 7 consultation in new areas where it would not otherwise occur because, for example, it is or has become unoccupied or the occupancy is in question; (2) focusing conservation activities on the most essential areas; (3) providing educational benefits to State or county governments or private entities; and (4) preventing people from causing inadvertent harm to the species.

In the case of these 23 species, there would 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 affects critical habitat. Thirteen of these species are reported on or near Federal lands (see Table 1 above), where actions are subject to section 7 consultation. Although many of the species considered in this rule are located exclusively on non-Federal lands with limited Federal activities, there could be Federal actions affecting these lands in the future. While a critical habitat designation for habitat currently occupied by these species would not likely change the section 7 consultation

outcome, since 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 were designated. There may also be some educational or informational benefits to the designation of critical habitat. Educational benefits include the notification of landowner(s), land managers, and the general public of the importance of protecting the habitat of these species and dissemination of information regarding their essential habitat requirements. Therefore, we find that critical habitat is prudent for these 23 plant species: *Argyroxiphium kauense*, *Clermontia drepanomorpha*, *Clermontia pyricularia*, *Cyanea hamatiflora* ssp. *carlsonii*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Hibiscadelphus giffardianus*, *Hibiscadelphus hualalaiensis*, *Isodendron hosakae*, *Melicope zahlbruckneri*, *Neraudia ovata*, *Nothocestrum breviflorum*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Phyllostegia warschaueri*, *Plantago hawaiiensis*, *Pleomele hawaiiensis*, *Sicyos alba*, *Silene hawaiiensis*, and *Zanthoxylum dipetalum* var. *tomentosum*.

## Methods

As required by the Act and regulations (section 4(b)(2) and 50 CFR 424.12), we used the best scientific information available to determine areas that contain the physical and biological features that are essential for the conservation of *Achyranthes mutica*, *Adenophorus periens*, *Argyroxiphium kauense*, *Asplenium fragile* var. *insulare*, *Bonamia menziesii*, *Cenchrus agrimonoides*, *Clermontia drepanomorpha*, *Clermontia lindseyana*, *Clermontia peleana*, *Clermontia pyricularia*, *Colubrina oppositifolia*, *Ctenitis squamigera*, *Cyanea hamatiflora* ssp. *carlsonii*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Delissea undulata*, *Diellia erecta*, *Flueggea neowawraea*, *Gouania vitifolia*, *Hedyotis cookiana*, *Hedyotis coriacea*, *Hibiscadelphus giffardianus*, *Hibiscadelphus hualalaiensis*, *Hibiscus brackenridgei*, *Ischaemum byrone*, *Isodendron hosakae*, *Isodendron pyrifolium*, *Mariscus fauriei*, *Mariscus pennatifolius*, *Melicope zahlbruckneri*, *Neraudia ovata*, *Nothocestrum breviflorum*, *Phlegmariurus mannii*, *Phyllostegia parviflora*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Phyllostegia warschaueri*, *Plantago*

*hawaiiensis*, *Plantago princeps*, *Pleomele hawaiiensis*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, *Sicyos alba*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, *Vigna o-wahuensis*, *Zanthoxylum dipetalum* var. *tomentosum*, and *Zanthoxylum hawaiiense*. This information included the known locations, site-specific species information from the HINHP database and our own rare plant database; species information from the Center for Plant Conservation's (CPC's) rare plant monitoring database housed at the University of Hawaii's Lyon Arboretum; island-wide Geographic Information System (GIS) coverages (e.g., vegetation, soils, annual rainfall, elevation contours, landownership); the final listing rules for these 54 species; the May 28, 2002 proposal; information received during the public comment periods and the public hearings; recent biological surveys and reports; our recovery plans for these species; information from landowners, land managers, and interested parties on the island of Hawaii; discussions with botanical experts; and recommendations from the Hawaii and Pacific Plant Recovery Coordinating Committee (HPPRCC) (see also the discussion below) (GDSI 2000; HINHP Database 2000; Service 1994, 1995a, 1996a, 1996b, 1996c, 1997a, 1998a, 1998b, 1998c, 1999; 67 FR 36968; CPC, *in litt.* 1999; R. Hobby and S. Perlman, pers. comms. 2000; L. Pratt *et al.*, pers. comm. 2001).

In 1994, the HPPRCC initiated an effort to identify and map habitat it believed to be important for the recovery of 282 endangered and threatened Hawaiian plant species. The HPPRCC identified these areas on most of the islands in the Hawaiian chain, and in 1999, we published them in our *Recovery Plan for the Multi-Island Plants* (Service 1999). The HPPRCC expects there will be subsequent efforts to further refine the locations of important habitat areas and that new survey information or research may also lead to additional refinement of identifying and mapping of habitat important for the recovery of these species.

The HPPRCC identified essential habitat areas for all listed, proposed, and candidate plants and evaluated species of concern to determine if essential habitat areas would provide for their habitat needs. However, the HPPRCC's mapping of habitat is distinct from the regulatory designation of critical habitat as defined by the Act. More data have been collected since the

recommendations made by the HPPRCC in 1998. Much of the area that was identified by the HPPRCC as inadequately surveyed has now been surveyed to some degree. New location data for many species have been gathered. Also, the HPPRCC identified areas as essential based on species clusters (areas that included listed species, as well as candidate species and species of concern) while we have only delineated areas that are essential for the conservation of the specific listed species at issue. As a result, the critical habitat designations in this rule include not only some habitat that was identified as essential in the 1998 recommendations but also habitat that was not identified as essential in those recommendations.

### Primary Constituent Elements

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to propose as critical habitat, we are required to base critical habitat determinations on the best scientific and commercial data available and to consider those physical and biological features (primary constituent elements) that are essential to the conservation of the species and that may require special management considerations or protection. These features include, but are not limited to: Space for individual and population growth, and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing of offspring, germination, or seed dispersal; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

Much of what is known about the specific physical and biological requirements of the 54 species (*Achyranthes mutica*, *Adenophorus perians*, *Argyroxiphium kauense*, *Asplenium fragile* var. *insulare*, *Bonamia menziesii*, *Cenchrus agrimonoides*, *Clermontia drepanomorpha*, *Clermontia lindseyana*, *Clermontia peleana*, *Clermontia pyricularia*, *Colubrina oppositifolia*, *Ctenitis squamigera*, *Cyanea hamatiflora* ssp. *carlsonii*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Delissea undulata*, *Diellia erecta*, *Flueggea neowawraea*, *Gouania vitifolia*, *Hedyotis cookiana*, *Hedyotis coriacea*, *Hibiscadelphus giffardianus*, *Hibiscadelphus hualalaiensis*, *Hibiscus brackenridgei*, *Ischaemum byrrone*,

*Isodendron hosakae*, *Isodendron pyriformis*, *Mariscus fauriei*, *Mariscus pennatifolius*, *Melicope zahlbruckneri*, *Neraudia ovata*, *Nothocestrum breviflorum*, *Phlegmariurus mannii*, *Phyllostegia parviflora*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Phyllostegia warshaueri*, *Plantago hawaiiensis*, *Plantago princeps*, *Pleomele hawaiiensis*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, *Sicyos alba*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, *Vigna o-wahuensis*, *Zanthoxylum dipetalum* var. *tomentosum*, and *Zanthoxylum hawaiiense*) is described in the "Background" section of this final rule. We are unable to identify these features for *Cenchrus agrimonoides*, *Ctenitis squamigera*, *Hedyotis cookiana*, *Mariscus pennatifolius*, *Phlegmariurus mannii*, *Phyllostegia parviflora*, and *Plantago princeps*, which no longer occur on the island of Hawaii, because information on the physical and biological features (i.e., the primary constituent elements) that are considered essential to the conservation of these seven species on the island of Hawaii is not known. Only scanty information based on old collection records (mostly from the 1800s) exists. We are able to identify these features for *Hedyotis coriacea*, *Silene lanceolata*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense*, but we are not designating critical habitat for these species on the island of Hawaii for the reasons given in the "Analysis of Impacts Under Section 4(b)(2)" section. Sufficient habitat to meet the recovery goal of 8 to 10 populations for these 12 multi-island species has either been designated on other islands within their historical ranges or has been specifically identified in lands on this or other islands (68 FR 1220, January 9, 2003; 68 FR 9116, February 27, 2003; 68 FR 28054, May 22, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003).

All areas designated as critical habitat are either within the geographical range of the species at the time of listing and contain one or more of the physical or biological features (primary constituent elements) essential for the conservation of the species, or are essential to the conservation of the species.

As described in the discussions for each of the 41 species for which we are designating critical habitat, we are defining the primary constituent elements on the basis of the habitat features of the areas from which the plant species are reported, as described

by the type of plant community (e.g., mesic *Metrosideros polymorpha* forest), associated native plant species, locale information (e.g., steep rocky cliffs, talus slopes, gulches, stream banks), and elevation. The habitat features provide the ecological components required by the plant. The type of plant community and associated native plant species indicate specific microclimate (localized climatic) conditions, retention and availability of water in the soil, soil microorganism community, and nutrient cycling and availability. The locale indicates information on soil type, elevation, rainfall regime, and temperature. Elevation indicates information on daily and seasonal temperature and sun intensity. Therefore, the descriptions of the physical elements of the locations of each of these species, including habitat type, plant communities associated with the species, location, and elevation, as described in the "Supplementary Information: Discussion of the Plant Taxa" section above, constitute the primary constituent elements for these species on the island of Hawaii.

#### Criteria Used To Identify Critical Habitat

The lack of detailed scientific data on the life history of these plant species makes it impossible for us to develop a robust quantitative model (e.g., population viability analysis (National Research Council 1995)) to identify the optimal number, size, and location of critical habitat units to achieve recovery (Beissinger and Westphal 1998; Burgman *et al.* 2001; Ginzburg *et al.* 1990; Karieva and Wennergren 1995; Menges 1990; Murphy *et al.* 1990; Taylor 1995). At this time, and consistent with the listing of these species and their recovery plans, the best available information leads us to conclude that the current size and distribution of the extant populations are not sufficient to expect a reasonable probability of long-term survival and recovery of these plant species. Therefore, we used available information, including expert scientific opinion, to identify potentially suitable habitat within the known historic range of each species.

We considered several factors in the selection and proposal of specific boundaries for critical habitat for these 41 species. For each of these species, the overall recovery strategy outlined in the approved recovery plans includes: (1) Stabilization of existing wild populations, (2) protection and management of habitat, (3) enhancement of existing small populations and reestablishment of new populations

within historic range, and (4) research on species biology and ecology (Service 1995a, 1995b, 1996a, 1996b, 1997, 1998a, 1998b, 1999, 2001). Thus, the long-term recovery of these species is dependent upon the protection of existing population sites and potentially suitable unoccupied habitat within the species' historic range.

The overall recovery goal stated in the recovery plans for each of these species includes the establishment of 8 to 10 populations with a minimum of 100 mature, reproducing individuals per population for long-lived perennials; 300 mature, reproducing individuals per population for short-lived perennials; and 500 mature, reproducing individuals per population for annuals. There are some specific exceptions to this general recovery goal of 8 to 10 populations for species that are believed to be very narrowly distributed on a single island (e.g., the recovery goal for *Argyroxiphium kauense* is 10 populations of more than 2,000 individuals), and the critical habitat designations reflect this exception for these species. To be considered recovered, the populations of a multi-island species should be distributed among the islands of its known historic range (Service 1994, 1995a, 1996a, 1996b, 1996c, 1997a, 1998a, 1998b, 1998c, 1999). A population, for the purposes of this discussion and as defined in the recovery plans for these species, is a unit in which the individuals could be regularly cross-pollinated and influenced by the same small-scale events (such as landslides) and which contains a minimum of 100, 300, or 500 mature, reproducing individuals, depending on whether the species is a long-lived perennial, short-lived perennial, or annual.

By adopting the specific recovery objectives enumerated above, the adverse effects of genetic inbreeding and random environmental events and catastrophes, such as landslides, hurricanes, or tsunamis, which could destroy a large percentage of a species at any one time, may be reduced (Menges 1990; Podolsky 2001). These recovery objectives were initially developed by the HPPRCC and are found in all of the recovery plans for these species. While they are expected to be further refined as more information on the population biology of each species becomes available, the justification for these objectives is found in the current conservation biology literature addressing the conservation of rare and endangered plants and animals (Beissinger and Westphal 1998; Burgman *et al.* 2001; Falk *et al.* 1996; Ginzburg *et al.* 1990; Hendrix and Kyhl

2000; Karieva and Wennergren 1995; Luijten *et al.* 2000; Meffe and Carroll 1996; Menges 1990; Murphy *et al.* 1990; Podolsky 2001; Quintana-Ascencio and Menges 1996; Taylor 1995; Tear *et al.* 1995; Wolf and Harrison 2001). The overall goal of recovery in the short-term is a successful population that can carry on basic life history processes, such as establishment, reproduction, and dispersal, at a level where the probability of extinction is low. In the long-term, the species and its populations should be at a reduced risk of extinction and be adaptable to environmental change through evolution and migration.

Many aspects of species life history are typically considered to determine guidelines for species' interim stability and recovery, including longevity, breeding system, growth form, fecundity, ramet (a plant that is an independent member of a clone) production, survivorship, seed longevity, environmental variation, and successional stage of the habitat. Hawaiian species are poorly studied, and the only one of these characteristics that can be uniformly applied to all Hawaiian plant species is longevity (*i.e.*, long-lived perennial, short-lived perennial, and annual). In general, long-lived woody perennial species would be expected to be viable at population levels of 50 to 250 individuals per population, while short-lived perennial species would be viable at population levels of 1,500 to 2,500 individuals or more per population. These population numbers were refined for Hawaiian plant species by the HPPRCC (1996) due to the restricted distribution of suitable habitat typical of Hawaiian plants and the likelihood of smaller genetic diversity of several species that evolved from a single introduction. For recovery of Hawaiian plants, the HPPRCC recommended a general recovery guideline of 100 mature, reproducing individuals per population for long-lived perennial species, 300 mature, reproducing individuals per population for short-lived perennial species, and 500 mature, reproducing individuals per population for annual species.

The HPPRCC also recommended the conservation and establishment of 8 to 10 populations to address the numerous risks to the long-term survival and conservation of Hawaiian plant species. Although absent the detailed information inherent to the types of population viability analysis models described above (Burgman *et al.* 2001), this approach employs two widely recognized and scientifically accepted goals for promoting viable populations of listed species—(1) Creation or

maintenance of multiple populations so that a single or series of catastrophic events cannot destroy the entire listed species (Luijten *et al.* 2000; Menges 1990; Quintana-Ascencio and Menges 1996); and (2) increasing the size of each population in the respective critical habitat units to a level where the threats of genetic, demographic, and normal environmental uncertainties are diminished (Hendrix and Kyhl 2000; Luijten *et al.* 2000; Meffe and Carroll 1996; Podolsky 2001; Service 1997; Tear *et al.* 1995; Wolf and Harrison 2001). In general, a basic conservation principle is that the larger the number of populations and the larger the size of each population, the lower the probability of extinction (Meffe and Carroll 1996; Raup 1991). This basic conservation principle of redundancy applies to Hawaiian plant species. By maintaining 8 to 10 viable populations in several critical habitat units, the threats represented by a fluctuating environment are alleviated and the species has a greater likelihood of achieving long-term survival and recovery. Conversely, loss of one or more of the plant populations within any critical habitat unit could result in an increase in the risk that the entire listed species may not survive and recover.

Due to the reduced size of suitable habitat areas for these Hawaiian plant species, they are now more susceptible to the variations and weather fluctuations affecting quality and quantity of available habitat, as well as direct pressure from hundreds of species of nonnative plants and animals. Establishing and conserving 8 to 10 viable populations on one or more islands within the historic range of the species will provide each species with a reasonable expectation of persistence and eventual recovery, even with the high potential that one or more of these populations will be eliminated by normal or random adverse events, such as the hurricanes that occurred in 1982 and 1992 on Kauai, fires, and nonnative plant invasions (HPPRCC 1996; Luijten *et al.* 2000; Mangel and Tier 1994; Pimm *et al.* 1998; Stacey and Taper 1992). We conclude that designation of adequate suitable habitat for 8 to 10 populations as critical habitat is essential to give the species a reasonable likelihood of long-term survival and recovery, based on currently available information.

In summary, the long-term survival and recovery of Hawaiian plant species requires the designation of critical habitat units on one or more of the Hawaiian islands with suitable habitat for 8 to 10 populations of each plant species. Some of this habitat is currently

not known to be occupied by these species. To recover the species, it is essential to conserve suitable habitat in these unoccupied units, which in turn will allow for the establishment of additional populations through natural recruitment or managed reintroductions. Establishment of these additional populations will increase the likelihood that the species will survive and recover in the face of normal and stochastic events (*e.g.*, hurricanes, fire, and nonnative species introductions) (Mangel and Tier 1994; Pimm *et al.* 1998; Stacey and Taper 1992).

Our approach to delineating critical habitat units was applied in the following manner:

(1) Critical habitat was designated on an island-by-island basis for ease of understanding for landowners and the public, for ease of conducting the public hearing process, and for ease of conducting public outreach. In Hawaii, landowners and the public are most interested and affected by issues centered on the island on which they reside;

(2) We focused on designating units representative of the known current and historical geographic and elevational range of each species; and

(3) We designated critical habitat units to allow for expansion of existing wild populations and reestablishment of wild populations within the historic range, as recommended by the recovery plans for each species.

The proposed critical habitat units were delineated by creating rough units for each species by screen digitizing polygons (map units) using ArcView (Environmental Systems Research Institute, Inc.), a computer GIS program. We created the polygons by overlaying current and historic plant location points onto digital topographic maps of each of the islands.

We then evaluated the resulting shape files (delineating historic elevational range and potential, suitable habitat). We refined elevation ranges, and we avoided land areas identified as not suitable for a particular species (*i.e.*, not containing the primary constituent elements). We then considered the resulting shape files for each species to define all suitable habitat on the island, including occupied and unoccupied habitat.

We further evaluated these shape files of suitable habitat. We used several factors to delineate the proposed critical habitat units from these land areas. We reviewed the recovery objectives, as described above and in recovery plans for each of the species, to determine if the number of populations and population size requirements needed for

conservation would be available within the suitable habitat units identified as containing the appropriate primary constituent elements for each species. If more than the area needed for the number of recovery populations was identified as potentially suitable, only those areas within the least disturbed suitable habitat were proposed as critical habitat. A population for this purpose is defined as a discrete aggregation of individuals located a sufficient distance from a neighboring aggregation such that the two are not affected by the same small-scale events and are not believed to be consistently cross-pollinated. In the absence of more specific information indicating the appropriate distance to assure limited cross-pollination, we are using a distance of 1,000 m (3,280 ft) based on our review of current literature on gene flow (Barret and Kohn 1991; Fenster and Dudash 1994; Havens 1998; Schierup and Christiansen 1996). We further refined the resulting critical habitat units by using satellite imagery and parcel data to eliminate areas that did not contain the appropriate vegetation or associated native plant species, as well as features such as cultivated agriculture fields, housing developments, and other areas that are unlikely to contribute to the conservation of one or more of the 47 plant species for which critical habitat was proposed on May 28, 2002. We used geographic features (ridge lines, valleys, streams, coastlines, etc.) or manmade features (roads or obvious land use) that created an obvious boundary for a unit as unit area boundaries.

Following publication of the proposed critical habitat rules, some of which were also published in revised form, for 255 Hawaiian plants (67 FR 3940, January 28, 2002; 67 FR 9806, March 4, 2002; 67 FR 15856, April 3, 2002; 67 FR 16492, April 5, 2002; 67 FR 34522, May 14, 2002; 67 FR 36968, May 28, 2002; 67 FR 37108, May 28, 2002), we reevaluated proposed critical habitat, Statewide, for each species using the recovery guidelines (8 to 10 populations with a minimum of 100 mature, reproducing individuals per population for long-lived perennials; 300 mature, reproducing individuals per population for short-lived perennials; and 500 mature, reproducing individuals per population for annuals) to determine if we had inadvertently proposed for designation too much or too little habitat to meet the essential recovery goals of 8 to 10 populations per species distributed among the islands of the species' known historic range (HINHP

Database 2000, 2001; Wagner *et al.* 1990, 1999).

Based on comments and information we received during the comment periods, we assessed the proposed critical habitat in order to ascertain which areas contained the highest quality habitat, had the highest likelihood of species conservation, and were geographically distributed within the species' historical range and distributed such that all populations of a single species are unlikely to be impacted by a single catastrophic event. We ranked areas of the proposed critical habitat by the quality of the primary constituent elements (*i.e.*, intact native plant communities, predominance of associated native plants versus nonnative plants), potential as a conservation area (*e.g.*, whether the land is zoned for conservation; whether the landowner is already participating in plant conservation or recovery actions), and current or expected management of known threats (*e.g.*, ungulate control; weed control; nonnative insect, slug, and snail control). We ranked as most essential those areas that contain high quality primary constituent elements, are zoned for conservation, and have ongoing or expected threat abatement actions. This ranking process also included determining which habitats were representative of the historic geographical and ecological distributions of the species (see "Primary Constituent Elements"). Areas that are zoned for conservation or have been identified as a State Forest Reserve, NAR, Wildlife Preserve, State Park, or are managed for conservation by a private landowner have a high likelihood of providing conservation benefit to the species and are therefore more essential than other comparable habitat outside of those types of areas. Of these essential areas, we selected adequate area to provide for 8 to 10

populations distributed among the islands of each species' historical range. Of the proposed critical habitat for a species, areas that provide habitat for populations above the recovery goal of 8 to 10 populations were determined not essential for the conservation of the species and were eliminated from the final designation.

Within the critical habitat boundaries, section 7 consultation is generally necessary, and adverse modification could occur only if the primary constituent elements are affected. Therefore, not all activities within critical habitat would trigger an adverse modification conclusion. In selecting areas of designated critical habitat, we made an effort to avoid developed areas, such as towns and other similar lands, that are unlikely to contribute to the conservation of the 41 species. However, the minimum mapping unit that we used to approximate our delineation of critical habitat for these species did not allow us to exclude all such developed areas from the maps. Nevertheless, since manmade features and structures within the boundaries of the mapped unit do not contain the primary constituent elements, they are excluded by the terms of the final regulation such areas include: Buildings; roads; aqueducts and other water system features, including but not limited to, pumping stations, irrigation ditches, pipelines, siphons, tunnels, water tanks, gaging stations, intakes, reservoirs, diversions, flumes, and wells; existing trails; campgrounds and their immediate surrounding landscaped area; scenic lookouts; remote helicopter landing sites; existing fences; telecommunications towers and associated structures and equipment; electrical power transmission lines and distribution and communication facilities and regularly maintained associated rights-of-way and access

ways; radars; telemetry antennas; missile launch sites; arboreta and gardens; heiau (indigenous places of worship or shrines) and other archaeological sites; airports; other paved areas; and lawns and other rural residential landscaped areas. Federal actions limited to those areas would not trigger a section 7 consultation unless they affect the species or primary constituent elements in adjacent critical habitat.

In summary, for these species we utilized the approved recovery plan guidance to identify appropriately sized land units containing essential occupied and unoccupied habitat. Based on the best available information, we believe these areas constitute the essential habitat on the island of Hawaii to provide for the conservation of these 41 species.

The critical habitat areas described below constitute our best assessment of the physical and biological features needed for the conservation of the 41 plant species from the island of Hawaii and the special management needs of these species, and are based on the best scientific and commercial information available and described above. We publish this final rule acknowledging that we have incomplete information regarding many of the primary biological and physical requirements for these species. However, both the Act and the relevant court orders require us to proceed with designation at this time based on the best information available. As new information accrues, we may consider reevaluating the boundaries of areas that warrant critical habitat designation.

The approximate areas of designated critical habitat by landownership or jurisdiction are shown in Table 3. The approximate final critical habitat area (ha (ac)), essential area, and excluded area are shown in Table 4.

TABLE 3.—APPROXIMATE CRITICAL HABITAT DESIGNATED AREA BY UNIT AND LANDOWNERSHIP OR JURISDICTION, HAWAII COUNTY, HAWAII<sup>1</sup>

Unit name	State/local	Private	Federal	Total
Hawaii 9— <i>Achyranthes mutica</i> —a .....	63 ha ..... (157 ac)	.....	.....	63 ha ..... (157 ac)
Hawaii 9— <i>Achyranthes mutica</i> —b .....	83 ha ..... (205 ac)	41 ha ..... (101 ac)	.....	125 ha ..... (306 ac)
Hawaii 9— <i>Achyranthes mutica</i> —c .....	67 ha ..... (166 ac)	.....	.....	67 ha ..... (166 ac)
Hawaii 9— <i>Achyranthes mutica</i> —d .....	58 ha ..... (143 ac)	.....	.....	58 ha ..... (143 ac)
Hawaii 9— <i>Achyranthes mutica</i> —e .....	74 ha ..... (182 ac)	23 ha ..... (56 ac)	.....	96 ha ..... (238 ac)
Hawaii 9— <i>Achyranthes mutica</i> —f .....	43 ha ..... (105 ac)	.....	.....	43 ha ..... (105 ac)
Hawaii 9— <i>Achyranthes mutica</i> —g .....	37 ha ..... (92 ac)	.....	.....	37 ha ..... (92 ac)



TABLE 3.—APPROXIMATE CRITICAL HABITAT DESIGNATED AREA BY UNIT AND LANDOWNERSHIP OR JURISDICTION, HAWAII COUNTY, HAWAII<sup>1</sup>—Continued

Unit name	State/local	Private	Federal	Total
Hawaii 9— <i>Achyranthes mutica</i> —h .....	46 ha .....	5 ha .....	.....	51 ha
	(115 ac)	(12 ac)		(127 ac)
Hawaii 9— <i>Achyranthes mutica</i> —i .....	<1 ha .....	30 ha .....	.....	31 ha
	(1 ac)	(75 ac)		(76 ac)
Hawaii 9— <i>Achyranthes mutica</i> —j .....	21 ha .....	12 ha .....	.....	33 ha
	(52 ac)	(29 ac)		(81 ac)
Hawaii 28— <i>Adenophorus periens</i> —a .....	.....	2,733 ha .....	.....	2,733 ha
		(6,754 ac)		(6, 754 ac)
Hawaii 10— <i>Argyroxiphium kauense</i> —a .....	349 ha .....	.....	.....	349 ha
	(861 ac)			(861 ac)
Hawaii 24— <i>Argyroxiphium kauense</i> —b .....	3,149 ha .....	4,646 ha .....	.....	7,795 ha
	(7,780 ac)	(11,481 ac)		(19,261, ac)
Hawaii 25— <i>Argyroxiphium kauense</i> —c .....	.....	.....	2,006 ha .....	2,006 ha
			(4,957 ac)	(4,957 ac)
Hawaii 30— <i>Argyroxiphium kauense</i> —d .....	4,281 ha .....	.....	.....	4,281 ha
	(10,578 ac)			(10,578 ac)
Hawaii 24— <i>Asplenium fragile</i> var. <i>insulate</i> —a .....	907 ha .....	.....	.....	907 ha
	(2,241 ac)			(2,241 ac)
Hawaii 10— <i>Bonamia menziesii</i> —a .....	163 ha .....	.....	.....	163 ha
	(402 ac)			(402 ac)
Hawaii 8— <i>Clermontia drepanomorpha</i> —a ....	1,906 ha .....	.....	.....	1,906 ha
	(4,709 ac)			(4,709 ac)
Hawaii 1— <i>Clermontia lindseyana</i> —a .....	.....	.....	1,377 ha .....	1,377 ha
			(3,303 ac)	(3,303 ac)
Hawaii 2— <i>Clermontia lindseyana</i> —b .....	371 ha .....	.....	891 ha .....	1,262 ha
	(918 ac)		(2,201 ac)	(3,119 ac)
Hawaii 30— <i>Clermontia lindseyana</i> —c .....	1,634 ha .....	.....	.....	1,634 ha
	(4,037 ac)			(4,037 ac)
Hawaii 1— <i>Clermontia peleana</i> —a .....	114 ha .....	.....	4,590 ha .....	4,704 ha
	(281 ac)		(11,343 ac)	(11,624 ac)
Hawaii 3— <i>Clermontia peleana</i> —b .....	2,630 ha .....	.....	1,468 ha .....	4,128 ha
	(6,498 ac)		(3,627 ac)	(10,126 ac)
Hawaii 29— <i>Clermontia peleana</i> —c .....	6,830 ha .....	.....	.....	6,830 ha
	(16,914 ac)			(16,914 ac)
Hawaii 1— <i>Clermontia pyrrularia</i> —a .....	.....	.....	1,378 ha .....	1,378 ha
			(3,405 ac)	(3,405 ac)
Hawaii 2— <i>Clermontia pyrrularia</i> —b .....	608 ha .....	.....	775 ha .....	1,383 ha
	(1,502 ac)		(1,916 ac)	(3,418 ac)
Hawaii 10— <i>Colubrina oppositifolia</i> —a .....	1,918 ha .....	.....	.....	1,918 ha
	(4,740 ac)			(4,740 ac)
Hawaii 18— <i>Colubrina oppositifolia</i> —b .....	2,703 ha .....	<1 ha .....	.....	2,703 ha
	(6,712 ac)	(1 ac)		(6,713 ac)
Hawaii 11— <i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> —a .....	92 ha .....	.....	.....	92 ha
	(227 ac)			(227 ac)
Hawaii 14— <i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> —b .....	.....	.....	597 ha .....	597 ha
			(1,475 ac)	(1,475 ac)
Hawaii 15— <i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> —c .....	741 ha .....	304 ha .....	.....	1,045 ha
	(1,832 ac)	(751 ac)		(2,583 ac)
Hawaii 16— <i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> —d .....	186 ha .....	.....	.....	186 ha
	(459 ac)			(459 ac)
Hawaii 3— <i>Cyanea platyphylla</i> —a .....	1,403 ha .....	.....	.....	1,403 ha
	(3,467 ac)			(3,467 ac)
Hawaii 29— <i>Cyanea platyphylla</i> —b .....	1,122 ha .....	402 ha .....	.....	1,524 ha
	(2,773 ac)	(994 ac)		(3,767 ac)
Hawaii 1— <i>Cyanea shipmanii</i> —a .....	.....	.....	1,557 ha .....	1,557 ha
			(3,898 ac)	(3,898 ac)
Hawaii 30— <i>Cyanea shipmanii</i> —b .....	62 ha .....	.....	.....	62 ha
	(152 ac)			(152 ac)
Hawaii 30— <i>Cyanea shipmanii</i> —c .....	825 ha .....	.....	.....	825 ha
	(2,038 ac)			(2,038 ac)
Hawaii 15— <i>Cyanea stictophylla</i> —a .....	500 ha .....	185 ha .....	.....	685 ha
	(1,235 ac)	(457 ac)		(1,693 ac)
Hawaii 16— <i>Cyanea stictophylla</i> —b .....	327 ha .....	.....	.....	327 ha
	(809 ac)			(809 ac)
Hawaii 24— <i>Cyanea stictophylla</i> —c .....	584 ha .....	.....	.....	584 ha
	(1,443 ac)			(1,443 ac)
Hawaii 30— <i>Cyanea stictophylla</i> —d .....	632 ha .....	.....	.....	632 ha
	(91,539 ac)			(91,539 ac)
Hawaii 3— <i>Cytandra giffardii</i> —a .....	1,510 ha .....	.....	.....	1,510 ha
	(3,731 ac)			(3,731 ac)



TABLE 3.—APPROXIMATE CRITICAL HABITAT DESIGNATED AREA BY UNIT AND LANDOWNERSHIP OR JURISDICTION, HAWAII COUNTY, HAWAII<sup>1</sup>—Continued

Unit name	State/local	Private	Federal	Total
Hawaii 29— <i>Cytandra giffardii</i> —b .....	938 ha ..... (2,319 ac)	.....	.....	938 ha ..... (2,319 ac)
Hawaii 30— <i>Cytandra giffardii</i> —c .....	2,673 ha ..... (6,606 ac)	.....	1,198 ha ..... (2,961 ac)	3,872 ha ..... (9,567 ac)
Hawaii 3— <i>Cytandra tintinnabula</i> —a .....	2,322 ha ..... (5,738 ac)	.....	.....	2,322 ha ..... (5,738 ac)
Hawaii 29— <i>Cytandra tintinnabula</i> —b .....	378 ha ..... (934 ac)	.....	.....	378 ha ..... (934 ac)
Hawaii 10— <i>Delissea undulata</i> —a .....	93 ha ..... (227 ac)	.....	.....	93 ha ..... (227 ac)
Hawaii 10— <i>Delissea undulata</i> —b .....	379 ha ..... (938 ac)	.....	.....	379 ha ..... (938 ac)
Hawaii 17— <i>Diellia erecta</i> —a .....	327 ha ..... (808 ac)	2 ha ..... (6 ac)	.....	329 ha ..... (814 ac)
Hawaii 18— <i>Diellia erecta</i> —b .....	1,615 ha ..... (3,992 ac)	.....	.....	1,615 ha ..... (3,992 ac)
Hawaii 17— <i>Flueggea neowawraea</i> —a .....	324 ha ..... (801 ac)	2 ha ..... (6 ac)	.....	327 ha ..... (807 ac)
Hawaii 18— <i>Flueggea neowawraea</i> —b .....	1,148 ha ..... (2,837 ac)	<1 ha ..... (1 ac)	.....	1,148 ha ..... (2,838 ac)
Hawaii 18— <i>Gouania vitifolia</i> —a .....	1,785 ha ..... (4,412 ac)	.....	.....	1,785 ha ..... (4,412 ac)
Hawaii 26— <i>Hibiscadelphus giffardianus</i> —a ..	.....	.....	149 ha ..... (367 ac)	149 ha ..... (367 ac)
Hawaii 10— <i>Hibiscadelphus hualalaiensis</i> —a	3,979 ha ..... (9,832 ac)	.....	.....	3,979 ha ..... (9,832 ac)
Hawaii 10— <i>Hibiscus brackenridgei</i> —a .....	196 ha ..... (485 ac)	.....	.....	196 ha ..... (485 ac)
Hawaii 21— <i>Ischaemum byrone</i> —a .....	.....	.....	206 ha ..... (510 ac)	206 ha ..... (510 ac)
Hawaii 22— <i>Ischaemum byrone</i> —b .....	.....	.....	159 ha ..... (393 ac)	159 ha ..... (393 ac)
Hawaii 4— <i>Isodendron hosakae</i> —a .....	.....	49 ha ..... (121 ac)	.....	49 ha ..... (121 ac)
Hawaii 4— <i>Isodendron hosakae</i> —b .....	.....	35 ha ..... (87 ac)	.....	35 ha ..... (87 ac)
Hawaii 4— <i>Isodendron hosakae</i> —c .....	.....	49 ha ..... (121 ac)	.....	49 ha ..... (121 ac)
Hawaii 4— <i>Isodendron hosakae</i> —d .....	.....	49 ha ..... (121 ac)	.....	49 ha ..... (121 ac)
Hawaii 4— <i>Isodendron hosakae</i> —e .....	.....	11 ha ..... (26 ac)	.....	11 ha ..... (26 ac)
Hawaii 4— <i>Isodendron hosakae</i> —f .....	.....	51 ha ..... (127 ac)	.....	51 ha ..... (127 ac)
Hawaii 19— <i>Mariscus fauriei</i> —a .....	127 ha ..... (313 ac)	.....	.....	127 ha ..... (313 ac)
Hawaii 24— <i>Melicope zahlbruckneri</i> —a .....	434 ha ..... (1,072 ac)	.....	.....	434 ha ..... (1,072 ac)
Hawaii 26— <i>Melicope zahlbruckneri</i> —b .....	.....	.....	495 ha ..... (1,224 ac)	495 ha ..... (1,224 ac)
Hawaii 10— <i>Neraudia ovata</i> —a .....	1,859 ha ..... (4,493 ac)	.....	.....	1,859 ha ..... (4,493 ac)
Hawaii 18— <i>Neraudia ovata</i> —d .....	1,134 ha ..... (2,801 ac)	.....	.....	1,134 ha ..... (2,801 ac)
Hawaii 5— <i>Nothocestrum breviflorum</i> —a .....	382 ha ..... (944 ac)	21 ha ..... (51 ac)	.....	403 ha ..... (995 ac)
Hawaii 6— <i>Nothocestrum breviflorum</i> —b .....	1,113 ha ..... (2,749 ac)	.....	.....	1,113 ha ..... (2,749 ac)
Hawaii 10— <i>Nothocestrum breviflorum</i> —c .....	3,627 ha ..... (8,964 ac)	.....	.....	3,627 ha ..... (8,964 ac)
Hawaii 1— <i>Phyllostegia racemosa</i> —a .....	.....	.....	938 ha ..... (2,317 ac)	938 ha ..... (2,317 ac)
Hawaii 2— <i>Phyllostegia racemosa</i> —b .....	465 ha ..... (1,148 ac)	.....	1,218 ha ..... (3,010 ac)	1,683 ha ..... (4,158 ac)
Hawaii 30— <i>Phyllostegia racemosa</i> —c .....	267 ha ..... (659 ac)	.....	.....	267 ha ..... (659 ac)
Hawaii 24— <i>Phyllostegia velutina</i> —a .....	2,466 ha ..... (6,093 ac)	.....	.....	2,466 ha ..... (6,093 ac)
Hawaii 30— <i>Phyllostegia velutina</i> —b .....	1,180 ha ..... (2,916 ac)	.....	.....	1,180 ha ..... (2,916 ac)

TABLE 3.—APPROXIMATE CRITICAL HABITAT DESIGNATED AREA BY UNIT AND LANDOWNERSHIP OR JURISDICTION, HAWAII COUNTY, HAWAII <sup>1</sup>—Continued

Unit name	State/local	Private	Federal	Total
Hawaii 3— <i>Phyllostegia warshaueri</i> —a .....	2,248 ha ..... (5,555 ac)	223 ha ..... (550 ac)	.....	2,471 ha ..... (6,105 ac)
Hawaii 8— <i>Phyllostegia warshaueri</i> —b .....	1,177 ha ..... (2,908 ac)	.....	.....	1,177 ha ..... (2,908 ac)
Hawaii 24— <i>Plantago hawaiiensis</i> —a .....	1,348 ha ..... (3,330 ac)	.....	.....	1,348 ha ..... (3,330 ac)
Hawaii 25— <i>Plantago hawaiiensis</i> —b .....	.....	.....	1,522 ha ..... (3,761 ac)	1,522 ha ..... (3,761 ac)
Hawaii 30— <i>Plantago hawaiiensis</i> —c .....	1,219 ha ..... (3,012 ac)	.....	.....	1,219 ha ..... (3,012 ac)
Hawaii 7— <i>Pleomele hawaiiensis</i> —a .....	499 ha ..... (1,233 ac)	178 ha ..... (440 ac)	.....	677 ha ..... (1,673 ac)
Hawaii 10— <i>Pleomele hawaiiensis</i> —b .....	1,339 ha ..... (3,306 ac)	<1 ha ..... (<1 ac)	.....	1,339 ha ..... (3,306 ac)
Hawaii 18— <i>Pleomele hawaiiensis</i> —c .....	1,997 ha ..... (4,933 ac)	<1 ha ..... (1 ac)	.....	1,997 ha ..... (4,934)
Hawaii 23— <i>Pleomele hawaiiensis</i> —d .....	.....	.....	8,943 ha ..... (22,097 ac)	8,943 ha ..... (22,097 ac)
Hawaii 27— <i>Portulaca sclerocarpa</i> —a .....	.....	.....	4,390 ha ..... (10,848 ac)	4,390 ha ..... (10,848 ac)
Hawaii 20— <i>Sesbania tomentosa</i> —a .....	.....	.....	486 ha ..... (1,201 ac)	486 ha ..... (1,201 ac)
Hawaii 23— <i>Sesbania tomentosa</i> —b .....	.....	.....	803 ha ..... (1,984 ac)	803 ha ..... (1,984 ac)
Hawaii 30— <i>Sicyos alba</i> —a .....	2,776 ha ..... (6,860 ac)	.....	3,490 ha ..... (8,623 ac)	6,266 ha ..... (15,483 ac)
Hawaii 25— <i>Silene hawaiiensis</i> —a .....	.....	.....	854 ha ..... (2,110 ac)	854 ha ..... (2,110 ac)
Hawaii 27— <i>Silene hawaiiensis</i> —b .....	.....	.....	1,942 ha ..... (4,798 ac)	1,942 ha ..... (4,798 ac)
Hawaii 10— <i>Solanum incompletum</i> —a .....	704 ha ..... (1,738 ac)	1 ha ..... (3 ac)	.....	705 ha ..... (1,741 ac)
Hawaii 11— <i>Solanum incompletum</i> —b .....	57 ha ..... (141 ac)	.....	.....	57 ha ..... (141 ac)
Hawaii 4— <i>Vigna o-wahuensis</i> —a .....	.....	49 ha ..... (121 ac)	.....	49 ha ..... (121 ac)
Hawaii 4— <i>Vigna o-wahuensis</i> —b .....	.....	35 ha ..... (87 ac)	.....	35 ha ..... (87 ac)
Hawaii 4— <i>Vigna o-wahuensis</i> —c .....	.....	51 ha ..... (127 ac)	.....	51 ha ..... (127 ac)
Hawaii 10— <i>Zanthoxylum dipetalum</i> ssp. <i>tomentosum</i> —a .....	1,685 ha ..... (4,164 ac)	.....	.....	1,685 ha ..... (4,164 ac)
Total * .....	46,109 ha ..... (114,356 ac)	6,482 ha ..... (16,025 ac)	31,600 ha ..... (78,085 ac)	84,200 ha <sup>1</sup> ..... (208,063 ac)

<sup>1</sup> Area differences due to digital mapping discrepancies between TMK data (GDSI 2000) and USGS coastline, or differences due to rounding.

\* Total take into consideration overlapping individual species units.

TABLE 4.—APPROXIMATE FINAL CRITICAL HABITAT AREA (HA (AC)), ESSENTIAL AREA, AND EXCLUDED AREA

Area considered essential	118,444 ha (292,679 ac)
Area not included because of special management or protection (Pohakuloa Training Area).	19,239 ha (47,540 ac)
Area excluded under 4(b)(2) (Kamehameha Schools, Queen Liliuokalani Trust, TSA/MID, State).	5,860 ha (14,478 ac)
Final Critical Habitat .....	109,299 ha (270,083 ac)

Lands designated as critical habitat for the 41 species on the island of

Hawaii have been divided into a total of 105 units. A brief description of each unit is presented below.

#### Descriptions of Critical Habitat Units

Hawaii 9—*Achyranthes mutica*—a through Hawaii 9—*Achyranthes mutica*—j

We are designating 10 critical habitat units for *Achyranthes mutica*, a short-lived perennial. Only unit “Hawaii 9—*Achyranthes mutica*—b” currently supports an extant colony of this species. This unit contains the physical and biological features essential to the conservation of the species. It supports an extant colony and includes habitat that is important for the expansion of the present population. The remaining nine unoccupied units are essential to

the conservation of the species because they support habitat that is necessary for the establishment of additional populations in order to reach established conservation goals. Each of the 10 units provides habitat for 1 population of 300 mature, reproducing individuals of *A. mutica*. The habitat features contained in these units that are essential for this species include, but are not limited to, lowland dry forest, primarily in gulches but also in remnant stands of forest. Each unit is geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations on the island being destroyed by one naturally occurring catastrophic event. Although this species is historically known from

Kauai, critical habitat was not designated for *A. mutica* on that island. Ten critical habitat units for this species are designated on the island of Hawaii, providing habitat for a total of 10 populations.

Hawaii 9—*Achyranthes mutica*—a: This unit contains a portion of Waipahoehoe Gulch in the Kawaihae watershed.

Hawaii 9—*Achyranthes mutica*—b: This unit contains a portion of Keauewai Stream and Kilohana Gulch in the Kawaihae watershed, and is currently occupied by 25 to 50 individuals.

Hawaii 9—*Achyranthes mutica*—c: This unit contains a portion of an unnamed gulch adjacent to Puu Loa in the Kawaihae watershed.

Hawaii 9—*Achyranthes mutica*—d: This unit contains a portion of an unnamed gulch between Hawaii 9—*Achyranthes mutica*—c and Lauhine Gulch in the Kawaihae watershed.

Hawaii 9—*Achyranthes mutica*—e: This unit contains a portion of Lauhine Gulch and a gulch just east of Lauhine Gulch and west of Puu Kawaiwai in the Kawaihae watershed.

Hawaii 9—*Achyranthes mutica*—f: This unit contains a portion of Umipoho Gulch in the Kawaihae watershed.

Hawaii 9—*Achyranthes mutica*—g: This unit contains a portion of Pauahi Gulch, straddling the Kawaihae and the Waikoloa/Waiulaula watersheds.

Hawaii 9—*Achyranthes mutica*—h: This unit contains a portion of Momoualua Gulch in the Waikoloa/Waiulaula watershed.

Hawaii 9—*Achyranthes mutica*—i: This unit contains a portion of an unnamed gulch between Puu Kamoa and Puu Lanikepu in the Waikoloa/Waiulaula watershed.

Hawaii 9—*Achyranthes mutica*—j: This unit contains a portion of Waiaka Gulch in the Waikoloa/Waiulaula watershed. This unit provides the easternmost critical habitat within the species' historical range.

Hawaii 28—*Adenophorus periens*—a

We are designating one critical habitat unit for *Adenophorus periens*, short-lived perennial. This unit straddles the Kaahakini and Kilauea watersheds, and lies completely within the Kahaulea NAR. The unit provides habitat for 1 population of 300 mature, reproducing individuals of *A. periens*, and is currently occupied by an unknown number of individuals. It contains habitat features essential for the conservation of the species including, but not limited to, *Metrosideros polymorpha* or *Ilex anomala*, or possibly other native trees large enough

to support epiphytic growth of this species, in *Metrosideros polymorpha-Cibotium glaucum* lowland wet forest. This unit is essential to the conservation of *A. periens* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population. This unit is geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. In addition to this unit, critical habitat was designated for four populations *A. periens* within its historical range on Kauai (68 FR 9116, February 27, 2003), for one population on Oahu (68 FR 35949, June 17, 2003), and four populations on Molokai (68 FR 12982, March 19, 2003).

Hawaii 10—*Argyroxiphium kauense*—a through Hawaii 30—*Argyroxiphium kauense*—d

We are designating four critical habitat units for *Argyroxiphium kauense*, a long-lived perennial. Of the four units, only "Hawaii 10—*Argyroxiphium kauense*—a" is currently unoccupied by the species. The habitat features contained in these four units that are essential for this species include, but are not limited to, subalpine forests, bogs, and mountain parkland. The three occupied units contain the habitat features essential to the conservation of *A. kauense* and each supports at least one extant colony of the species and includes habitat that is important for the expansion of present populations, which are currently considered nonviable. The unoccupied unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. Each unit is geographically separated from other critical habitat for this island-endemic species in order to reduce the likelihood of all recovery populations on the island being destroyed by one naturally occurring catastrophic event. The four units being designated in this rule for *A. kauense* provide habitat to support a total of eight populations.

Hawaii 10—*Argyroxiphium kauense*—a: This unit, which contains no named natural features, lies in the Kiholo watershed and is completely within the Puuwaawaa Wildlife Sanctuary. This unoccupied unit, in combination with adjacent Kamehameha Schools land, provides habitat for one population of 2,000 individuals. This unit provides the

northwesternmost critical habitat within the species' historical range.

Hawaii 24—*Argyroxiphium kauense*—b: This unit contains the upper portions of Hionamoa, Kauhuula, Moaula, Pikea, and Waihaka gulches, Makaka Ravine, Puu Kinikini summit, and Maunaanu Waterhole. The southern portion lies in the Hilea watershed, the northern portion in Kapapala watershed, and the central portion in the Pahala watershed. The northeast portion is in the Kapapala Forest Reserve. This unit provides habitat for four populations of 2,000 individuals and is currently occupied by about 1,130 individuals of *A. kauense* in three locations. This unit provides the southernmost critical habitat within the species' historical range.

Hawaii 25—*Argyroxiphium kauense*—c: This unit contains a portion of Kipuka Kulalio and Kipuka Maunaiu in the Kapapala watershed. This unit provides habitat for one population of 2,000 individuals and currently is occupied by about 1,000 outplanted individuals of *A. kauense*.

Hawaii 30—*Argyroxiphium kauense*—d: This unit contains portions of the lava flows of 1852 and 1942 and lies mostly in the Wailoa watershed, with the southern tip in the Kaahakini watershed. The upper area of the unit lies in portions of Upper Waiakea Forest Reserve and Mauna Loa Forest Reserve. The southern portion is part of the Olaa-Kilauea Partnership. This unit provides habitat for two populations of 2,000 individuals of *A. kauense* and is currently occupied by fewer than 500 individuals. This unit provides the easternmost critical habitat within the species' historical range.

Hawaii 24—*Asplenium fragile* var. *insulare*—a

We are designating one critical habitat unit for *Asplenium fragile* var. *insulare*, a short-lived perennial. The unit contains no named natural features and lies in the Pahala watershed, mostly in Kapapala Forest Reserve, with the southern point in Kau Forest Reserve. This unit provides habitat for 1 population of 300 mature, reproducing individuals of *A. fragile* var. *insulare* and is currently occupied by 11 individuals. It contains habitat features essential for this species including, but not limited to, *Metrosideros polymorpha* dry montane forest, *Dodonaea viscosa* dry montane shrubland, *Myoporum sandwicense-Sophora chrysophylla* dry montane forest, and *Metrosideros polymorpha-Acacia koa* forest, as well as subalpine dry forest and shrubland. This species grows almost exclusively in large, moist lava tubes (from 3 to 4.5

m (10 to 15 ft) in diameter), pits, deep cracks, and lava tree molds, with at least a moderate soil or ash accumulation, associated with mosses and liverworts. This unit is essential to the conservation of *A. fragile* var. *insulare* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. This unit provides the southernmost critical habitat within the species' historical range. This unit is geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. Habitat for another 7 populations is in the PTA on this island that we are excluding from designation (see "Analysis of Impacts Under 4(b)(2)"). We previously designated critical habitat for this species within its historical range for two populations on Maui (68 FR 25934, May 14, 2003).

#### Hawaii 10—*Bonamia menziesii*—a

We are designating one critical habitat unit for *B. menziesii*, a short-lived perennial. This unit contains no named natural features and lies completely within the Kiholo watershed just above the highway. This unit, in combination with Kamehameha Schools land adjacent to the unit, provides habitat for 1 population of 300 mature, reproducing individuals of *B. menziesii* and is currently unoccupied (although the adjacent, excluded Kamehameha Schools land is occupied by 6 to 8 individuals) (see "Analysis of Impacts Under 4(b)(2)"). This unit is essential to the conservation of *B. menziesii* because it is adjacent to excluded land that supports an extant colony of this species and includes habitat that is important for the expansion of that population. The habitat features contained in this unit that are essential for this species include, but are not limited to, dry forest. It unit provides the southeasternmost critical habitat within the species' historical range and is geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We previously designated critical habitat for two populations of *B. menziesii* within its historical range on Kauai (68 FR 9116, February 27, 2003), for four populations on Oahu (68 FR 35949, June 17, 2003), and for one population on Maui (68 FR 25934, May 14, 2003). Habitat for one population is in the lands we excluded

from designation as critical habitat on Lanai (68 FR 1220, January 9, 2003).

#### Hawaii 8—*Clermontia drepanomorpha*—a

We are designating one critical habitat unit for *Clermontia drepanomorpha*, a short-lived perennial. This unit contains part of the Kohala Mountains, Opaolo summit, Puu O Umi, and Puu Pohoulaula. The western portion of the unit is in the Honokane Nui watershed, the eastern portion is in the Wailoa/Waipio watershed, and the southern portion in the Waikoloa/Waiulaula watershed. The northern portion contains the upper reaches of the Honopue, Nakooko, Ohiahuea, Waikaloa, and Waimanu watersheds. The unit lies completely within the Kohala Forest Reserve. This unit provides habitat for 6 populations of 300 mature, reproducing individuals of *C. drepanomorpha*; and is currently occupied by about 200 individuals. It contains habitat features that are essential for this species including, but not limited to, montane wet forests dominated by *Metrosideros polymorpha*, *Cheirodendron trigynum*, and *Cibotium glaucum*. This unit is essential to the conservation of *C. drepanomorpha* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. Although we do not believe enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this island-endemic species, this unit is of an appropriate size such that each of the 6 potential recovery populations within the unit is geographically separated to a sufficient extent to be likely to avoid destruction of all of the populations by one naturally occurring catastrophic event.

#### Hawaii 1—*Clermontia lindseyana*—a through Hawaii 30—*Clermontia lindseyana*—c

We are designating three units of critical habitat for *Clermontia lindseyana*, a short-lived perennial. All three units currently are occupied. They contain habitat features that are essential for this species including, but not limited to, slightly open forest cover in wet and mesic *Metrosideros polymorpha*-*Acacia koa* forest, *M. polymorpha* forest, and mixed montane mesic *M. polymorpha*-*Acacia koa* forest. Each unit is essential to the conservation of *C. lindseyana* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently

considered nonviable. Each unit is geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations on this and other islands being destroyed by one naturally occurring catastrophic event. We previously designated critical habitat to support two populations of *C. lindseyana* within its historical range on Maui (67 FR 25934, May 14, 2003). In this rule, we are designating habitat for a total of eight populations, each with 300 mature, reproducing individuals of *C. lindseyana*.

Hawaii 1—*Clermontia lindseyana*—a: This unit contains the upper portions of the Awehi, Hakalau, Honolili, and Kapue streams, and is in the Honolii, Kapue, Kolekole, and Wailuku watersheds. The unit, which lies completely within the Hakalau Unit of Hakalau Forest NWR; and provides habitat for 2 populations of 300 individuals of *C. lindseyana*; and is currently occupied by about 8 individuals. This unit provides the easternmost critical habitat within the species' historical range.

Hawaii 2—*Clermontia lindseyana*—b: This unit contains a portion of Nauhi Gulch, and the northern portion is in the Haakoa watershed, the southern portion in Umauma watershed, and the central portion in Waikaumalo watershed. The northern and southern portions of this unit lie partly in the Hakalau Forest NWR, and the central portion lies in the Hilo Forest Reserve. The unit provides habitat for 2 populations of 300 individuals of *C. lindseyana* and is currently occupied by 5 individuals.

Hawaii 30—*Clermontia lindseyana*—c: This unit, which contains no named natural features, lies just northeast of Puu Kipu. The northern portion of this unit lies in the Wailoa watershed and the southern portion is in the Kaahakini watershed. This unit is mostly within Olaa-Kilauea Partnership lands with a small portion of the northeast section lying in the upper Waiakea Forest Reserve. The unit provides habitat for 4 populations of 300 individuals of *C. lindseyana* and is currently occupied by 9 individuals. This unit provides the southernmost critical habitat within the species' historical range.

#### Hawaii 1—*Clermontia peleana*—a through Hawaii 29—*Clermontia peleana*—c

We are designating three units of critical habitat for *Clermontia peleana*, a short-lived perennial. One unit, "Hawaii 1—*Clermontia peleana*—a," that currently is unoccupied is essential to the conservation of the species

because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. Each of the two occupied units is essential to the conservation of *C. peleana* because each supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. They contain habitat features that are essential for this species including, but not limited to, montane wet *Metrosideros-Cibotium* forest. Each unit is geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations on the island being destroyed by one naturally occurring catastrophic event. *C. peleana* is historically known from Maui, but no critical habitat was designated for it on that island (68 FR 25934, May 14, 2003). The critical habitat we are designating in this rule provides for a total of 10 populations, each with 300 mature, reproducing individuals.

Hawaii 1—*Clermontia peleana*—a: This unit contains a portion of Honohina and Nauhi gulches, and Hakalau, Kapue, and Kolekole streams. The unit is bordered on the north by the Nanue watershed and on the south by the Honolii and Pahoeohoe watersheds. It also contains portions of the Kapue, Kolekole, and Umauma watersheds. This unit lies mostly within Hakalau Forest NWR and is intersected by a small section of the Hilo Forest Reserve. This unit provides habitat for 3 populations of 300 individuals of *C. peleana* and is currently unoccupied.

Hawaii 3—*Clermontia peleana*—b: This unit contains a portion of Kaiwilalilahi, Haakoa, and Waikaumalo streams and is bordered on the northwest by the Kaawalii and Laupahoehoe watersheds, in the south by the Waikaumalo watershed, and contains portions of the Haakoa, Kaiwilalilahi, Kilau, Manowaiopae, Maulua, Ninole, Pahale, and Pohakupuka watersheds. This unit lies partly, in the northwest portion, in the Hilo Forest Reserve; in the central portion in Laupahoehoe NAR; and in the southern portion in the Hakalau Forest NWR. The unit provides habitat for 3 populations of 300 individuals of *C. peleana* and is currently occupied by 1 individual.

Hawaii 29—*Clermontia peleana*—c: This unit contains a portion of Waipahoehoe Gulch and a portion of the lava flows of 1881 and 1852, and the northern portion is in the Wailuku watershed, while the southern portion is in the Wailoa watershed. The unit

contains about half of the Waiakea 1942 Lava Flow NAR, the main part of the unit lying, in the south, in the Upper Waiakea Forest Reserve and in the north in the Hilo Forest Reserve. This unit provides habitat for 4 populations of 300 individuals of *C. lindseyana* and is currently occupied by 3 individuals.

Hawaii 1—*Clermontia pyrrularia*—a and Hawaii 2—*Clermontia pyrrularia*—b

We are designating two units of critical habitat for *Clermontia pyrrularia*, a short-lived perennial. One of the units, "Hawaii 2—*Clermontia pyrrularia*—b," is currently occupied. The two units provide habitat for combined total of six populations, each with 300 mature, reproducing individuals. The units are geographically separated. Although we do not believe enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this island-endemic species, the two units are of an appropriate size so that each potential recovery population within the unit is geographically separated enough to be likely to avoid both units being destroyed by one naturally occurring catastrophic event.

Hawaii 1—*Clermontia pyrrularia*—a: This unit contains Kaloalua summit and portions of Hakalau, Honolii, and Kapue streams. It is bordered in the north by Kolekole watershed and in the south by Wailuku watershed, and it contains portions of the Kapue and Honolii watersheds. The unit lies completely within Hakalau Forest NWR; provides habitat for 3 populations of 300 individuals; and is currently unoccupied. This unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. It contains habitat features that are essential for this species including, but not limited to, wet and mesic montane forest dominated by *Acacia koa* or *Metrosideros polymorpha*, and subalpine dry forest dominated by *Metrosideros polymorpha*.

Hawaii 2—*Clermontia pyrrularia*—b: This unit contains a portion of Nauhi Gulch and is bordered in the north by Kaawalii watershed; and in the south by Umauma watershed. It also contains portions of Haakoa, Kaiwilalilahi, and Waikaumalo watersheds. The unit lies partly in the Hilo Forest Reserve in the north and south-central portion of the unit and in Hakalau Forest NWR in the south and north-central portion of the unit. This unit provides habitat for 3 populations of 300 individuals of *C. pyrrularia* and is currently occupied by 4 individuals. It contains habitat features that are essential for this

species include, but not limited to, montane wet *Metrosideros-Cibotium* forest. This unit is essential to the conservation of *C. pyrrularia* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable.

Hawaii 10—*Colubrina oppositifolia*—a and Hawaii 18—*Colubrina oppositifolia*—b

We are designating two units of critical habitat for *Colubrina oppositifolia*, a long-lived perennial. Each unit is currently occupied, and each provides habitat to support two populations with 100 mature, reproducing individuals of *C. oppositifolia*. They contain habitat features that are essential for this species include, but not limited to, lowland dry and mesic forests dominated by *Diospyros sandwicensis* or *Metrosideros polymorpha*. Each unit is essential to the conservation of *C. oppositifolia* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population (the present population within "Hawaii 18—*Colubrina oppositifolia*—b" is currently considered nonviable). The units are geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We have designated critical habitat for for three populations of *C. oppositifolia* within its historical range on Oahu (68 FR 35949, June 17, 2003) and for three populations on Maui (67 FR 25934, May 14, 2003), and in this rule the units we are designating provide habitat for a total of four populations on the island of Hawaii.

Hawaii 10—*Colubrina oppositifolia*—a: This unit contains no named natural features and lies completely within the Kiholo watershed. It is currently occupied by several hundred individuals of *C. oppositifolia*.

Hawaii 18—*Colubrina oppositifolia*—b: This unit contains no named natural features and lies almost completely within the Kauna watershed, with a small portion lying in the Kiilae watershed on the southwestern side of the unit. This unit is currently occupied by 10 to 50 individuals, and is currently considered nonviable. This unit provides the southernmost critical habitat within the species' historical range.

Hawaii 11—*Cyanea hamatiflora* ssp. *carlsonii*—a through Hawaii 16—*Cyanea hamatiflora* ssp. *carlsonii*—d

We are designating four units of critical habitat for *Cyanea hamatiflora* ssp. *carlsonii*, a short-lived perennial. They contain habitat features that are essential for this species including, but not limited to, mesic montane forest dominated by *Metrosideros polymorpha* or *Acacia koa*. Two of the units, “Hawaii 11—*Cyanea hamatiflora* ssp. *carlsonii*—a” and “Hawaii 16—*Cyanea hamatiflora* ssp. *carlsonii*—d” currently are occupied. These two units are each essential to the conservation of *C. hamatiflora* ssp. *carlsonii* because each supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. Each of the two currently unoccupied units is essential to the conservation of the species because each supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. The four critical habitat units are geographically separated in order to avoid destruction of habitat for all populations by one naturally occurring catastrophic event. The designation of these four units provides habitat for a total of eight populations of *C. hamatiflora* ssp. *carlsonii*, each with 300 mature, reproducing individuals.

Hawaii 11—*Cyanea hamatiflora* ssp. *carlsonii*—a: This unit contains no named natural features and lies completely within the Waiaha watershed. The unit, which is completely within the Honuaua Forest Reserve, provides habitat for 1 population of 300 individuals and is currently occupied by about 14 individuals. This unit provides the northernmost critical habitat within the species’ historical range.

Hawaii 14—*Cyanea hamatiflora* ssp. *carlsonii*—b: This unit contains no named natural features and lies completely within the Kiilae watershed. The unit, which is completely within the Kona Unit of Hakalau Forest NWR, provides habitat for 2 populations of 300 individuals and is currently unoccupied.

Hawaii 15—*Cyanea hamatiflora* ssp. *carlsonii*—c: This unit contains no named natural features, lies completely within the Kiilae watershed, and contains portions of the South Kona Forest Reserve. The unit provides habitat for 4 populations of 300 individuals and is currently unoccupied.

Hawaii 16—*Cyanea hamatiflora* ssp. *carlsonii*—d: This unit contains no

named natural features, it lies completely within the Kiilae watershed, and is completely within Kipahoe NAR. The unit provides habitat for 1 population of 300 individuals is currently occupied by 1 individual. This unit provides the southernmost critical habitat within the species’ historical range.

Hawaii 3—*Cyanea platyphylla*—a and Hawaii 29—*Cyanea platyphylla*—b

We are designating two critical habitat units for *Cyanea platyphylla*, a short-lived perennial. Both units are currently occupied. They contain habitat features that are essential for this species including, but not limited to, open *Metrosideros polymorpha*-*Acacia koa* lowland and montane wet forests. Each unit is essential to the conservation of *C. platyphylla* because it supports an extant colony of this island-endemic species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. This unit is geographically separated to avoid their destruction by one naturally occurring catastrophic event. This rule designates critical habitat for a total of nine populations of this species, each with 300 mature, reproducing individuals.

Hawaii 3—*Cyanea platyphylla*—a: This unit contains a portion of Haakoa, Kaiwilahilahi, and Kilau streams and is bordered in the northwest by Laupahoehoe watershed and in the southeast by Maulua watershed. It also contains portions of Haakoa, Kaiwilahilahi, Kilau, Manowaiopae, and Pahale watersheds. The unit lies almost completely within Laupahoehoe NAR with a small portion in the northwest in the Hilo Forest Reserve. This unit provides habitat for three populations of 300 individuals of *C. platyphylla* and is currently occupied by 57 individuals.

Hawaii 29—*Cyanea platyphylla*—b: This unit contains Waterhole Spring, a portion of the Wailuku River, and a branch of the Kalohehewa Stream. It lies completely within the Wailuku watershed. The unit also lies almost completely within the Hilo Forest Reserve. This unit provides habitat for 6 populations of 300 individuals of *C. platyphylla*; and is currently occupied by 1 individual.

Hawaii 1—*Cyanea shipmanii*—a through Hawaii 30—*Cyanea shipmanii*—c

We are designating three critical habitat units for *Cyanea shipmanii*, a short-lived perennial. Two of the units, “Hawaii 1—*Cyanea shipmanii*—a” and “Hawaii 30—*Cyanea shipmanii*—b,” are currently occupied. Each of these two

units is essential to the conservation of *C. shipmanii* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. The unoccupied unit, “Hawaii 30—*Cyanea shipmanii*—c,” is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. They contain habitat features that are essential for this species including, but not limited to, mesic forest dominated by *Acacia koa*-*Metrosideros polymorpha*. Although we do not believe enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this island-endemic species, the three units are geographically separated to reduce the likelihood of their destruction by one naturally occurring catastrophic event. Within the three units, habitat is provided for a total of seven populations, each with 300 mature, reproducing individuals of *C. shipmanii*.

Hawaii 1—*Cyanea shipmanii*—a: This unit contains Puu Akala and portions of Awehi, Honolii, and Kapue streams. It is bordered by Kolekole watershed in the north and Wailuku in the south, with Honolii and Kapue watersheds in the central portion. The unit is completely within Hakalau Forest NWR; provides habitat for 3 populations of 300 individuals of *C. shipmanii*; and is currently occupied by 1 individual.

Hawaii 30—*Cyanea shipmanii*—b: This unit contains no named natural features, lies completely within the Wailoa watershed, and is completely within the Mauna Loa Forest Reserve. The unit provides habitat for 1 population of 300 individuals of *C. shipmanii*; and is currently occupied by 1 individual.

Hawaii 30—*Cyanea shipmanii*—c: This unit, which contains no named natural features, lies almost completely within the Wailoa watershed with a small segment of the southern portion lying in the Kaahakini watershed. The unit is completely within the Olaa-Kilauea Partnership. This unit provides habitat for 3 populations of 300 individuals of *C. shipmanii*; and is currently unoccupied.

Hawaii 15—*Cyanea stictophylla*—a through Hawaii 30—*Cyanea stictophylla*—d

We are designating four units of critical habitat for *Cyanea stictophylla*, a short-lived perennial. Two of the units, “Hawaii 15—*Cyanea stictophylla*—a” and “Hawaii 16—

*Cyanea stictophylla*—b” currently are occupied by individuals of this species. These two units are each essential to the conservation of *C. stictophylla* because each supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. Each of the two unoccupied units are essential to the conservation of the species because each supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. The four units contain habitat features that are essential for this species including, but not limited to, *Acacia koa* or wet *Metrosideros polymorpha* forests. Each unit is geographically separated from others on this island to reduce the likelihood of the destruction of all the units by one naturally occurring catastrophic event. Within the 4 units we are designating for *C. stictophylla* in this rule, habitat is provided for a total of 10 populations, each with 300 mature, reproducing individuals.

Hawaii 15—*Cyanea stictophylla*—a: This unit contains no named natural features and lies completely within the Kiilae watershed. The unit is almost completely within the South Kona Forest Reserve. This unit provides habitat for 1 population of 300 individuals of *C. stictophylla* and is currently occupied by 1 individual.

Hawaii 16—*Cyanea stictophylla*—b: This contains no named natural features and lies completely within the Kiilae watershed. The unit also lies completely within Kipahoe NAR. This unit provides habitat for 1 population of 300 individuals of *C. stictophylla* and is currently occupied by 1 individual. This unit provides the southernmost critical habitat within the species’ historical range.

Hawaii 24—*Cyanea stictophylla*—c: This unit is just north of, but does not include, Uwewale Gulch, it lies completely within the Pahala watershed, and also lies completely within Kau Forest Reserve; provides habitat for 2 populations of 300 individuals of *C. stictophylla*; and is currently unoccupied.

Hawaii 30—*Cyanea stictophylla*—d: This unit straddles the Kulani summit but otherwise has no named natural features, and it lies completely within the Kaahakini watershed. The unit also is completely within the Olaa-Kilauea Partnership lands; provides habitat for 6 populations of 300 individuals of *C. stictophylla*; and is currently unoccupied.

Hawaii 3—*Cyrtandra giffardii*—a through Hawaii 30—*Cyrtandra giffardii*—c

We are designating three critical habitat units for *Cyrtandra giffardii*, a short-lived perennial. Two of the units, “Hawaii 3—*Cyrtandra giffardii*—a” and “Hawaii 30—*Cyrtandra giffardii*—c,” currently are occupied by this species. They contain habitat features that are essential for this species including, but not limited to, wet montane forest dominated by *Cibotium* sp. or *Metrosideros polymorpha* and *M. polymorpha*-*Acacia koa* lowland wet forests. Each unit is geographically separated from other units on this island to avoid their destruction by one naturally occurring catastrophic event. Within the 3 units we are designating for *Cyrtandra giffardii* in this rule, habitat is provided for a total of 10 populations, each with 300 mature, reproducing individuals.

Hawaii 3—*Cyrtandra giffardii*—a: This unit contains a portion of Haakoa, Kawilahilahi, and Kilau streams and is bordered in the northwest by Laupahoehoe watershed with a small overlap into Kaawali watershed, in the southeast by Haakoa and Pahala watersheds, and with the Kaiwilahilahi, Kilau, and Manowaiopae watersheds in the central portion. The unit is almost completely within Laupahoehoe NAR with a small overlap into the Hilo Forest Reserve. This unit provides habitat for 3 populations of 300 individuals of *C. giffardii* and is currently occupied by more than 245 individuals. This unit is essential to the conservation of this species because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population.

Hawaii 29—*Cyrtandra giffardii*—b: This unit contains portions of two forks of the Wailuku River and two forks of Kalohewahewa Stream and lies completely within the Wailuku watershed. The unit also is completely within the Hilo Forest Reserve; provides habitat for 2 populations of 300 individuals of *C. giffardii*; and is currently unoccupied. This unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals.

Hawaii 30—*Cyrtandra giffardii*—c: This unit contains Puu Makaala and lies completely within the Kaahakini watershed. It also lies completely within the Olaa-Kilauea Partnership lands. This unit provides habitat for 5 populations of 300 individuals of *C. giffardii* and is currently occupied by one individual.

This unit is essential to the conservation of *C. giffardii* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable.

Hawaii 3—*Cyrtandra tintinnabula*—a and Hawaii 29—*Cyrtandra tintinnabula*—b

We are designating two critical habitat units for *Cyrtandra tintinnabula*, a short-lived perennial. One of the units, “Hawaii 3—*Cyrtandra tintinnabula*—a,” currently is occupied by individuals of this species. They contain habitat features that are essential for this species including, but not limited to, lowland wet forest dominated by dense *Acacia koa*, *Metrosideros polymorpha*, and *Cibotium* spp. The units are geographically separated to avoid their destruction by one naturally occurring catastrophic event. Within the two units, habitat is provided for a total of nine populations, each with 300 mature, reproducing individuals of *C. tintinnabula*.

Hawaii 3—*Cyrtandra tintinnabula*—a: This unit contains a portion of Haakoa, Kilau, and Kawilahilahi streams and is bordered on the northwest by Kaawali and Laupahoehoe watersheds, and on the southeast by Maulua and Pahala watersheds. It also contains portions of the Haakoa, Kaiwilahilahi, Kilau and Manowaiopae watersheds in the central portion. The unit is almost completely within Laupahoehoe NAR with a very small overlap into the Hilo Forest Reserve. This unit provides habitat for 7 populations, each with 300 individuals of *C. tintinnabula*, and the unit is currently occupied by 18 individuals. This unit is essential to the conservation of *C. tintinnabula* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable.

Hawaii 29—*Cyrtandra tintinnabula*—b: This unit contains portions of two forks of the Wailuku River, it lies completely within the Wailuku watershed, and also lies completely within the Hilo Forest Reserve; provides habitat for 2 populations of 300 individuals of *C. tintinnabula*; and is currently unoccupied. This unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals.



Hawaii 10—*Delissea undulata*—a and  
Hawaii 10—*Delissea undulata*—b

We are designating two critical habitat units for *Delissea undulata*, a short-lived perennial. They contain habitat features that are essential for this species including, but not limited to, dry cinder cones and open *Sophora chrysophylla* and *Metrosideros polymorpha* forest. The units are geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We previously designated critical habitat for three populations on Kauai (68 FR 9116). The units we are designating in this rule provide habitat for two populations on Hawaii, each with 300 mature, reproducing individuals of *D. undulata*. In addition, Kamehameha Schools land excluded from designation in this rule provides habitat for another three populations of *D. undulata* (see “Analysis of Impacts Under 4(b)(2)”).

Hawaii 10—*Delissea undulata*—a: This unit lies on the northwest slopes of Puuwaawaa and is completely within the Kiholo watershed. The unit provides habitat for 1 population of 300 individuals of *D. undulata* and is currently unoccupied. This unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals.

Hawaii 10—*Delissea undulata*—b: This unit lies on the northwest slopes of Puuwaawaa between the Poohohoo summit and Potato Hill and is completely within the Kiholo watershed. The southern portion of this unit lies in Puuwaawaa Wildlife Sanctuary. The unit provides habitat for 1 population of 300 individuals of *D. undulata* and is currently occupied by one individual. This unit is essential to the conservation of *D. undulata* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable.

Hawaii 17—*Diellia erecta*—a and  
Hawaii 18—*Diellia erecta*—b

We are designating two critical habitat units for *Diellia erecta*, a short-lived perennial. Both units currently are occupied. They contain habitat features that are essential for this species including, but not limited to, *Metrosideros polymorpha*-*Nestegis sandwicensis* lowland mesic forest. Each unit is essential to the

conservation of *D. erecta* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. The units are geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We designated critical habitat for one population each on Kauai (68 FR 9116, February 27, 2003), Oahu (68 FR 35949, June 17, 2003), and Molokai (67 FR 16492, March 19, 2003), and four populations on Maui (68 FR 25934, May 14, 2003). The two critical habitat units we are designating for *D. erecta* in this rule provide habitat for a total of two populations, each with 300 mature, reproducing individuals.

Hawaii 17—*Diellia erecta*—a: This unit contains no named natural features, it lies completely within the Kiilae watershed, and is also completely within the South Kona Forest Reserve; provides habitat for one population of 300 individuals of *D. erecta*; and is currently occupied by 22 individuals.

Hawaii 18—*Diellia erecta*—b: This unit contains no named natural features, it lies completely within the Kauna watershed, and is also completely within the Manuka NAR; provides habitat for 1 population of 300 individuals of *D. erecta*; and is currently occupied by 2 individuals. This unit provides the southernmost critical habitat within the species' historical range.

Hawaii 17—*Flueggea neowawraea*—a  
and Hawaii 18—*Flueggea neowawraea*—b

We are designating two critical habitat units for *Flueggea neowawraea*, a long-lived perennial. Both units are occupied by individuals of this species. They contain habitat features that are essential for this species including, but not limited to, mesic *Metrosideros polymorpha* forest. Each unit is essential to the conservation of *F. neowawraea* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. The units are geographically separated from other critical habitat for this multi-island species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We previously designated critical habitat for four populations of this species on

Kauai (68 FR 9116), for one population on Molokai (67 FR 16492), and for one population on Maui (68 FR 25934, May 14, 2003). There is habitat for one additional population on lands excluded from critical habitat on Oahu (68 FR 35949, June 17, 2003). The two units we are designating for *F. neowawraea* in this rule provide habitat for a total of 2 populations, each with 100 mature, reproducing individuals.

Hawaii 17—*Flueggea neowawraea*—a: This unit contains no named natural features, it lies completely within the Kiilae watershed, and is completely within the South Kona Forest Reserve. The unit provides habitat for 1 population of 100 individuals of *F. neowawraea*, and is currently occupied by 10 individuals.

Hawaii 18—*Flueggea neowawraea*—b: This unit contains no named natural features and lies completely within the Kauna watershed. The unit also lies almost completely within Manuka NAR except for one State-owned inholding that is nonmanaged land within the conservation district. This unit provides habitat for 1 population of 100 individuals of *F. neowawraea* and is currently occupied by 5 to 11 individuals. This unit provides the southernmost critical habitat within the species' historical range.

Hawaii 18—*Gouania vitifolia*—a

We are designating one critical habitat unit for *Gouania vitifolia*, a short-lived perennial. This unit contains no named natural features, it lies completely within the Kauna watershed, and is completely within Manuka NAR; provides habitat for 2 populations of 300 mature, reproducing individuals of *G. vitifolia*; and is currently occupied by 4 individuals. It contains habitat features that are essential for this species including, but not limited to, dry, rocky ridges and slopes in dry shrubland or dry to mesic *Nestegis-Metrosideros* forests on old substrate kipuka. This unit is essential to the conservation of *G. vitifolia* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. This unit provides the southeasternmost critical habitat within the species' historical range. This unit is geographically separated from other critical habitat for this multi-island species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We previously designated critical habitat for seven populations of this species on

Oahu (68 FR 35949, June 17, 2003) and for one population on Maui (68 FR 25934, May 14, 2003).

Hawaii 26—*Hibiscadelphus giffardianus*—a

We are designating one critical habitat unit for *Hibiscadelphus giffardianus*, a long-lived perennial. The unit contains portions of Kipuka Puauulu and Kipuka Ki, and also lies completely within the Kapapala watershed, and is completely within HVNP; provides habitat for 1 population of 100 mature, reproducing individuals of the *H. giffardianus*; and is currently occupied by 100 individuals. It contains habitat features that are essential for this species including, but not limited to, mixed montane mesic forest. This unit is essential to the conservation of *H. giffardianus* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. Although we do not believe enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this island-endemic species, we could not identify any other areas as suitable for *H. giffardianus* based upon what currently is known about this species. Only one tree has ever been known in the wild, and the species is a very narrow endemic that probably never naturally occurred in more than a single or a few populations.

Hawaii 10—*Hibiscadelphus hualalaiensis*—a

We are designating one critical habitat unit for *Hibiscadelphus hualalaiensis*, a long-lived perennial. This unit contains Puu Iki and Puuwaawaa summits and is completely within the Kiholo watershed. The unit provides habitat for 8 populations, each with 100 mature, reproducing individuals of *H. hualalaiensis*, and is currently occupied by 12 individuals. It contains habitat features that are essential for this species including, but not limited to, dry mesic to dry *Metrosideros* forest on rocky substrate in deep soils. This unit is essential to the conservation of *H. hualalaiensis* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. This unit provides enough space within the historical range of this island-endemic species for the geographic separation of the eight populations to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. No other critical

habitat has designated previously for this species. It has a limited known historical range, and there is little information available about this species.

Hawaii 10—*Hibiscus brackenridgei*—a

We are designating one critical habitat unit for *Hibiscus brackenridgei*, a short-lived perennial. This unit contains Puu Huluhulu and lies completely within the Kiholo watershed. The unit provides habitat for 1 population of 300 mature, reproducing individuals of *H. brackenridgei* and is currently occupied by 5 individuals. It contains habitat features that are essential for this species including, but not limited to, *Acacia koa* lowland mesic forest. This unit is essential to the conservation of *H. brackenridgei* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. This unit provides the easternmost critical habitat within the species' historical range. The unit is geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We previously designated critical habitat for three populations of *H. brackenridgei* on Oahu (68 FR 35949, June 17, 2003), for one population on Molokai (67 FR 16492, March 19, 2003), and for three populations on Maui (68 FR 25934, May 14, 2003).

Hawaii 21—*Ischaemum byrhone*—a and Hawaii 22—*Ischaemum byrhone*—b

We are designating two critical habitat units for *Ischaemum byrhone*, a short-lived perennial. They contain habitat features that are essential for this species including, but not limited to, coastal wet to dry shrubland, near the ocean, among rocks or on pahoehoe lava in cracks and holes. Each unit is geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations on the island being destroyed by one naturally occurring catastrophic event. We previously designated critical habitat for three populations of this species on Kauai (68 FR 9116, February 27, 2003), for two populations on Molokai (67 FR 16492, March 19, 2003), and for two populations on Maui (68 FR 25934, May 14, 2003). Within the two units we are designating for *I. byrhone* on the island of Hawaii in this rule, habitat is provided for a total of three populations, each with 300 mature, reproducing individuals.

Hawaii 21—*Ischaemum byrhone*—a: This unit lies along the coast from just east of Keauhou Point, running west. The unit is bordered by the Kapapala watershed in the east and the Kilauea watershed in the west and lies completely within the HVNP. This unit provides habitat for 2 populations of 300 individuals of *I. byrhone* and is currently unoccupied. This unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. This unit provides the southernmost critical habitat within the species' historical range.

Hawaii 22—*Ischaemum byrhone*—b: This unit lies along the coast from just east of Ka Lae Apuki to just east of Puu Manawalea and is completely within the HVNP. The unit provides habitat for 1 population of 300 individuals of *I. byrhone* and is currently occupied by 200 individuals. This unit is essential to the conservation of *I. byrhone* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable.

Hawaii 4—*Isodendron hosakae*—a through Hawaii 4—*Isodendron hosakae*—f

We are designating six critical habitat units for *Isodendron hosakae*, a short-lived perennial. One of the six units, "Hawaii 4—*Isodendron hosakae*—f," currently is occupied. This unit is essential to the conservation of *I. hosakae* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. The five unoccupied units are essential to the conservation of the species because they support habitat that is necessary for the establishment of additional populations in order to reach recovery goals. They contain habitat features that are essential for this species including, but not limited to, cinder cones with montane dry shrubland. Each unit is geographically separated from other critical habitat for this island-endemic species in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. Within the six units, habitat is provided on the island of Hawaii for a total of six populations of *I. hosakae*, each with 300 mature, reproducing individuals. There also is habitat for two other populations on lands in PTA that we excluded from designation in this final rule (see

“*Analysis of Impacts Under Section 4(b)(2)*”).

Hawaii 4—*Isodendron hosakae*—a: This unit contains most of Puu Pa cinder cone and lies in the Pohakuloa watershed in the southwest and in the Waikoloa/Waiulaula watershed in the northeast.

Hawaii 4—*Isodendron hosakae*—b: This unit contains most of the Holoholoku cinder cone and lies completely within the Pohakuloa watershed.

Hawaii 4—*Isodendron hosakae*—c: This unit contains most of the Puu Makahalau cinder cone and lies completely within the Waipunahoe watershed.

Hawaii 4—*Isodendron hosakae*—d: This unit contains most of the Puu Io and Puu Kekuakahea cinder cones and lies completely in the Waipunahoe watershed.

Hawaii 4—*Isodendron hosakae*—e: This unit contains most of the Heiheii cinder cone and lies completely within the Pohakuloa watershed.

Hawaii 4—*Isodendron hosakae*—f: This unit contains upper portions of an unnamed cinder cone in the Pohakuloa watershed. The unit is currently occupied by 8 individuals of *I. hosakae*.

Hawaii 19—*Mariscus fauriei*—a

We are designating one critical habitat unit for *Mariscus fauriei*, a short-lived perennial. This unit contains a portion of Kipuka Puu Kou and lies completely within the South Point watershed. The unit provides habitat for 1 population of 300 mature, reproducing individuals of *M. fauriei* and is currently occupied by 12 individuals. It contains habitat features that are essential for this species including, but not limited to, *Diospyros sandwicensis*-*Metrosideros polymorpha*-*Sapindus saponaria* dominated lowland dry forests, often on a lava substrate. This unit is essential to the conservation of *M. fauriei* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. This unit provides the southeasternmost critical habitat within the species' historical range. This unit is geographically separated from other critical habitat for this multi-island species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We previously designated critical habitat for seven populations of *M. fauriei* on Molokai (67 FR 16492, March 19, 2003).

Hawaii 24—*Melicope zahlbruckneri*—a and Hawaii 26—*Melicope zahlbruckneri*—b

We are designating two critical habitat units for *M. zahlbruckneri*, a long-lived perennial. They contain habitat features that are essential for this species including, but not limited to, *Acacia koa*-*Metrosideros polymorpha* dominated montane mesic forest. Although we do not believe enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this island-endemic species, the two designated units identify habitat for recovery populations that is geographically separated to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The two critical habitat units designated for this species provide habitat for a total of three populations, each with 100 mature, reproducing individuals of *M. zahlbruckneri*.

Hawaii 24—*Melicope zahlbruckneri*—a: This unit is just north of Uwewale gulch, it is completely within the Pahala watershed, and is within the Kau Forest Reserve; provides habitat for 1 population of 100 individuals of *M. zahlbruckneri*; and is currently unoccupied. This unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals.

Hawaii 26—*Melicope zahlbruckneri*—b

This unit contains portions of Kipuka Puaulu and Kipuka Ki and lies completely within the Kapapala watershed and within HVNP. The unit provides habitat for 2 populations of 100 individuals of *M. zahlbruckneri* and is currently occupied by 31 to 36 individuals. This unit is essential to the conservation of *M. zahlbruckneri* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable.

Hawaii 10—*Neraudia ovata*—a through Hawaii 18—*Neraudia ovata*—d

We are designating two critical habitat units for *Neraudia ovata*, a short-lived perennial. One of the units, “Hawaii 18—*Neraudia ovata*—d,” currently is occupied. This unit is essential to the conservation of *N. ovata* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. The remaining unoccupied unit is essential to the

conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. It contains habitat features that are essential for this species including, but not limited to, open *Metrosideros polymorpha*-*Sophora chrysophylla* dominated lowlands, montane dry forests, and *Metrosideros*-shrub woodland. Each unit is geographically separated from other critical habitat for this island-endemic species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The two units for this species that we are designating on the island of Hawaii provide for habitat for a total of four populations, each with 300 mature, reproducing individuals of the *N. ovata*. Habitat is also provided for four populations on lands at the PTA that we are excluding from designation (see “*Analysis of Impacts Under 4(b)(2)*”).

Hawaii 10—*Neraudia ovata*—a: This unit contains no named natural features and lies completely within the Kiholo watershed. This unit, plus the excluded Kamehameha Schools land (see “*Analysis of Impacts Under 4(b)(2)*”), provides habitat for 2 populations of 300 mature, reproducing individuals of the *N. ovata* and is currently unoccupied. This unit provides the northernmost critical habitat within the species' historical range.

Hawaii 18—*Neraudia ovata*—d: This unit contains no named natural features and is completely within the Kauna watershed. This unit provides habitat for 2 populations of 300 individuals of *N. ovata* and is currently occupied by one individual. The unit provides the southernmost critical habitat within the species' historical range.

Hawaii 5—*Nothocestrum breviflorum*—a through Hawaii 10—*Nothocestrum breviflorum*—c

We are designating three critical habitat units for *Nothocestrum breviflorum*, a long-lived perennial. Two of the units are currently occupied. They contain habitat features that are essential for this species including, but not limited to, lowland and montane dry forest, and montane mesic forest dominated by *Metrosideros polymorpha*, *Acacia koa*, and/or *Diospyros sandwicensis* on aa lava substrates. Each unit is geographically separated from other critical habitat for this island-endemic species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The three

units we are designating for this species on the island of Hawaii provide habitat to support a total of nine populations of *N. breviflorum*, each with 100 mature, reproducing individuals.

Hawaii 5—*Nothocestrum breviflorum*—a: This unit is the ridge adjacent to Laupahoehoe Iki Cape between Waimanu Valley and Kaimu Stream, bordered on the west by Kamu watershed, on the east by Waimanu watershed, with the Pae watershed in between. The unit lies in the Kohala Forest Reserve in the west and the Waimanu Estuarine Research Reserve in the east. This unit provides habitat for 3 populations of 100 individuals of *N. breviflorum* and is currently unoccupied. This unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. This unit provides the easternmost critical habitat within the species' historical range.

Hawaii 6—*Nothocestrum breviflorum*—b: This unit contains portions of Kalaikaula, Kamoloumi, Kolealiilii, Nakooko, Ohiahuea, Oniu, and Waiapuka streams, and Paohia Gulch. It is bordered by the Honokea watershed in the west, the Waikalua watershed in the east. It contains portions of the Honopue, Kalikaula, Kolealiilii, Nakookoo, Ohiahuea, and Waiapuka watersheds. The unit lies completely within the Kohala Forest Reserve; provides habitat for 1 population of 100 individuals of *N. breviflorum*; and is currently occupied by 6 individuals. This unit is essential to the conservation of *N. breviflorum* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. This unit provides the northernmost critical habitat within the species' historical range.

Hawaii 10—*Nothocestrum breviflorum*—c: This unit contains Poohohoo summit and is completely within the Kiholo watershed. This unit provides habitat for 5 populations of 100 individuals of *N. breviflorum* and is currently occupied by more than 165 individuals. This unit is essential to the conservation of *N. breviflorum* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population. The unit provides the southwesternmost critical habitat within the species' historical range.

Hawaii 1—*Phyllostegia racemosa*—a through Hawaii 30—*Phyllostegia racemosa*—c

We are designating three critical habitat units for *Phyllostegia racemosa*, a short-lived perennial. Two of the units, "Hawaii 1—*Phyllostegia racemosa*—a" and Hawaii 2—*Phyllostegia racemosa*—b," are currently occupied. This unit is essential to the conservation of *P. racemosa* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. The unoccupied unit, "Hawaii 30—*Phyllostegia racemosa*—c," is essential to the conservation of *P. racemosa* because it supports an extant colony of this species (12 individuals on the adjacent excluded Kamehameha Schools lands) and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. These units contain habitat features that are essential for this species including, but not limited to, *Acacia koa*, *Metrosideros polymorpha*, and *Cibotium* dominated montane mesic or wet forests. Each unit is geographically separated from other critical habitat for this island-endemic species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The three units being designated for this species on the island of Hawaii provide for a total of 10 populations, each with 300 mature, reproducing individuals.

Hawaii 1—*Phyllostegia racemosa*—a: This unit contains Puu Akala and portions of Awehi, Honolii, and Kapue streams. It is bordered by the Kolekole watershed in the north and Wailuku watershed in the south, with Honolii and Kapue watersheds in the central portion. The unit is completely within Hakalau Forest NWR; provides habitat for 3 populations, each with 300 individuals of *P. racemosa*; and is currently occupied by 2 individuals.

Hawaii 2—*Phyllostegia racemosa*—b: This unit contains a portion of Nauhi Gulch, and the northern portion is in the Haakoa watershed, the southern portion in the Umauma watershed, and the central portion in the Waikaumalo watershed. The northern and southern portions of this unit lie partly within Hakalau Forest NWR, and the central portion lies in the Hilo Forest Reserve. This unit provides habitat for 2 populations of 300 individuals of *P. racemosa* and is currently occupied by 31 to 41 individuals.

Hawaii 30—*Phyllostegia racemosa*—c: This unit contains no named natural features and is completely within the Kaahakini watershed. This unit also lies completely within Olaa-Kilauea Partnership lands. The unit provides, in combination with the adjacent excluded Kamehameha Schools lands (see "Analysis of Impacts Under 4(b)(2)"), habitat for 5 populations of 300 mature, reproducing individuals of the short-lived perennial *P. racemosa* and is currently unoccupied.

Hawaii 24—*Phyllostegia velutina*—a and Hawaii 30—*Phyllostegia velutina*—b

We are designating two critical habitat units for *Phyllostegia velutina*, a short-lived perennial. Both units are currently occupied. They contain habitat features that are essential for this species including, but not limited to, *Metrosideros polymorpha*-*Acacia koa* dominated montane mesic and wet forests. Each unit is geographically separated from other critical habitat for this island-endemic species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The units we are designating for this species on the island of Hawaii provide habitat to support a total of 10 populations of *P. velutina*, each with 300 mature, reproducing individuals.

Hawaii 24—*Phyllostegia velutina*—a: This unit contains a portion of Uwewale and Waihaka gulches and is completely within the Pahala watershed. The unit also lies completely within the Kau Forest Reserve; provides habitat for 4 populations of 300 individuals of *P. velutina*; and is currently occupied by an unknown number of individuals. This unit is essential to the conservation of *P. velutina* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population.

Hawaii 30—*Phyllostegia velutina*—b: This unit contains the northeastern portion of Kulani summit and lies completely within the Kaahakini watershed. The unit also lies completely within Olaa-Kilauea partnership lands. In combination with the adjacent excluded Kamehameha Schools lands (see "Analysis of Impacts Under 4(b)(2)"), this unit provides habitat for 6 populations of 300 individuals of *P. racemosa* and is currently occupied by 6 individuals (there also is 1 individual in the excluded adjacent lands). This unit is essential to the conservation of *P. velutina* because it supports an extant colony of this species and includes habitat that is important for the

expansion of the present population, which is currently considered nonviable.

Hawaii 3—*Phyllostegia warshaueri*—a and Hawaii 8—*Phyllostegia warshaueri*—b

We are designating two critical habitat units for *Phyllostegia warshaueri*, a short-lived perennial. Both units are occupied. They contain habitat features that are essential for this species including, but not limited to, *Metrosideros polymorpha* and *Cibotium* montane and lowland wet forest in which *Acacia koa* or *Cheirodendron trigynum* may co-dominate. Each unit is essential to the conservation of *P. warshaueri* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. The units are geographically separated for this island-endemic species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The two unit being designated for this species on the island of Hawaii provide habitat for a total of 10 populations, each with 300 mature, reproducing individuals.

Hawaii 3—*Phyllostegia warshaueri*—a: This unit contains portions of Haakoa, Kilau, and Kawilahilahi streams and is bordered in the northwest by the Kaiwiki and Kaula watersheds, in the southeast by the Maulua watershed, and has portions of the Haakoa, Kaawali, Kaiwilahilahi, Kilau, Laupahoehoe, Manowaiopae, and Pahala watersheds in the central portion. This unit contains a portion of Hilo Forest Reserve, Manowaialee Forest Reserve, and Laupahoehoe NAR. The unit provides habitat for 7 populations of 300 individuals each of *P. warshaueri* and is currently occupied by 13 individuals.

Hawaii 8—*Phyllostegia warshaueri*—b: This unit contains Kaiholena summit and Puu Ohu, and the northern portion is in the Wailoa/Waipio watershed, with the southern portion in the Waikoloa/Waiulaula watershed. The unit is completely within the Kohala Forest Reserve; provides habitat for 3 populations of 300 individuals of *P. warshaueri*; and is currently occupied by 1 individual.

Hawaii 24—*Plantago hawaiiensis*—a through Hawaii 30—*Plantago hawaiiensis*—c

We are designating three critical habitat units for *Plantago hawaiiensis*, a short-lived perennial. All three units are

currently occupied by the species. They contain habitat features that are essential for this species including, but not limited to, montane wet sedge land with mixed sedges and grasses, montane mesic forest, dry subalpine woodland, or *Metrosideros* and native shrub. Each unit is geographically separated from other critical habitat for this island-endemic species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The three units we are designating for this species on the island of Hawaii provide habitat for a total of 10 populations, each with 300 mature, reproducing individuals.

Hawaii 24—*Plantago hawaiiensis*—a: This unit contains no named natural features; the northern portion is in the Kapapala watershed, and the southern portion is in the Pahala watershed, and the unit is completely within the Kapapala Forest Reserve; provides habitat for 3 populations of 300 individuals of *P. hawaiiensis*; and is currently occupied by 5,000 individuals. This unit is essential to the conservation of *P. hawaiiensis* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population. This unit provides the southwesternmost critical habitat within the species' historical range.

Hawaii 25—*Plantago hawaiiensis*—b: This unit contains a portion of Kipuka Kulalio, it is completely within the Kapapala watershed. This unit is completely within HVNP; provides habitat for 4 populations of 300 individuals of *P. hawaiiensis*; and is currently occupied by more than 630 individuals. This unit is essential to the conservation of *P. hawaiiensis* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population.

Hawaii 30—*Plantago hawaiiensis*—c: This unit contains no named natural features and is mostly in the Wailoa watershed, but it is bordered in the south by the Kaahakini watershed. This unit is completely within Olaa-Kilauea Partnership lands. The unit provides habitat for 3 populations of 300 individuals of *P. hawaiiensis* and is currently occupied by 50 to 100 individuals. This unit is essential to the conservation of *P. hawaiiensis* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable.

Hawaii 7—*Pleomele hawaiiensis*—a through Hawaii 23—*Pleomele hawaiiensis*—d

We are designating 4 critical habitat units for *Pleomele hawaiiensis*, a long-lived perennial. All of the units are currently occupied by individuals of this species. They contain habitat features that are essential for this species including, but not limited to, open aa lava in diverse lowland dry forests and *Metrosideros-Diospyros* lowland dry forest. Each unit is essential to the conservation of *P. hawaiiensis* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. Each unit is geographically separated from other critical habitat for this island-endemic species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The four units we are designating for this species on the island of Hawaii provide habitat to support a total of nine populations, each with 100 mature, reproducing individuals. Kamehameha Schools land that we are excluding from this designation of critical habitat provides habitat for one additional population (see "Analysis of Impacts Under 4(b)(2)").

Hawaii 7—*Pleomele hawaiiensis*—a: This unit contains Kupenau summit and the ridges around Pololu Valley, and is in the Pololu watershed in the west and Honokane Nui watershed in the east. The west side of the unit is in the Kohala Forest Reserve. This unit provides habitat for 1 population of 100 individuals of *P. hawaiiensis* and is currently occupied by 21 to 31 individuals. This unit provides the northernmost critical habitat within the species' historical range.

Hawaii 10—*Pleomele hawaiiensis*—b: This unit contains no named natural features and is entirely in the Kiholo watershed. The unit provides habitat for 1 population of 100 individuals of *P. hawaiiensis* and is currently occupied by 50 to 100 individuals.

Hawaii 18—*Pleomele hawaiiensis*—c: This unit contains no named natural features and is mostly in the Kauna watershed with a small portion on the southwest side in the Kiilae watershed. The unit is completely within Manuka NAR; provides habitat for 2 populations of 100 individuals of *P. hawaiiensis*; and is currently occupied by 5 individuals. This unit provides the southernmost critical habitat within the species' historical range.

Hawaii 23—*Pleomele hawaiiensis*—d: This unit contains the Hilina Pali, Holei Pali, Makahanu Pali, Poliokeawe Pali, Puueo Pali, the Keana Bihopa summit, and portions of Kipuka Kaena Bihopa, Kipuka Papalinamoku, and Kipuka Pepeiau. It is in the Kapala watershed in the west and the Kilauea watershed in the east and lies completely within HVNP. This unit provides habitat for 5 populations of 100 individuals of *P. hawaiiensis* and currently is occupied by 9 to 10 individuals. This unit provides the easternmost critical habitat within the species' historical range.

Hawaii 27—*Portulaca sclerocarpa*—a

We are designating one critical habitat unit for *Portulaca sclerocarpa*, a short-lived perennial. This contains the Keanakakoi, Kokoolau, and Puhimau craters; Lele o Kalihipaa Pali; and a portion of the lava flow of 1921. The unit lies completely within HVNP; provides habitat for 5 populations of 300 individuals of the *P. sclerocarpa*; and is currently occupied by more than 900 individuals. It contains habitat features that are essential for this species including, but not limited to, weathered Mauna Kea soils, cinder cones, or geologically young lavas in montane dry shrubland, often on bare cinder, near steam vents, and in open *Metrosideros polymorpha* dominated woodlands. This unit is essential to the conservation of *P. sclerocarpa* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population. This unit provides the southeasternmost critical habitat within the species' historical range. This unit is geographically separated from other critical habitat for this multi-island species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We designated critical habitat for one population of *P. sclerocarpa* on Lanai (68 FR 1220, January 9, 2003). The inland habitat of populations on the island of Hawaii differs from the coastal habitat provided for on Lanai. Land on the PTA that was excluded from designation in this rule provides habitat for four additional populations (see "Analysis of Impacts Under 4(b)(2)").

Hawaii 20—*Sesbania tomentosa*—a and Hawaii 23—*Sesbania tomentosa*—b

We are designating two units of critical habitat for *Sesbania tomentosa*, a short-lived perennial. Both units are occupied by this species. Each unit is essential to the conservation of *S. tomentosa* because it supports an extant colony of this species and includes

habitat that is important for the expansion of the present population, which is currently considered nonviable. They contain habitat features that are essential for this species including, but not limited to, dry *Metrosideros polymorpha* forest with mixed native grasses, *Scaevola taccada* coastal dry shrubland on windswept slopes, and weathered basaltic slopes. Each unit is geographically separated from other critical habitat for this multi-island species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We previously designated critical habitat for one population of *S. tomentosa* on Nihoa, one population on Necker (68 FR 28054, May 22, 2003), two populations on Kauai (68 FR 9116, February 27, 2003), two populations on Oahu (68 FR 35949, June 17, 2003), two populations on Molokai (68 FR 12982, March 19, 2003), and two populations on Maui (68 FR 25934, May 14, 2003).

Hawaii 20—*Sesbania tomentosa*—a: This unit contains the area inland of Waiwelawela Point, all of Halemaoli Point and it lies entirely in the Pahala watershed. The unit also lies completely within HVNP; provides habitat for 1 population of 300 individuals; and is currently occupied by 10 to 15 individuals. This unit provides the southernmost critical habitat within the species' historical range.

Hawaii 23—*Sesbania tomentosa*—b: This unit contains Kipuka Nene, is entirely in the Kapapala watershed, and lies completely within HVNP. The unit provides habitat for 1 population of 300 individuals of *S. tomentosa*; and is currently occupied by 50 to 65 individuals. This unit provides the easternmost critical habitat within the species' historical range.

Hawaii 30—*Sicyos alba*—a

We are designating one critical habitat unit for *Sicyos alba*, a short-lived perennial. This unit contains Puu Makaala and is entirely in the Kaahakini watershed. This unit lies within HVNP, Puu Makaala Natural Area Reserve, and Olaa-Kilauea Partnership lands. The unit provides habitat for 10 populations of 300 mature, reproducing individuals of the *S. alba* and is currently occupied by 4 individuals. This unit contains habitat features that are essential for this species including, but not limited to, *Metrosideros polymorpha-Cibotium glaucum* dominated montane wet forests. This unit is essential to the conservation of *S. alba* because it supports an extant colony of this island-endemic species and includes habitat that is important for the expansion of

the present population, which is currently considered nonviable. This unit is of an appropriate size so that each potential recovery population within the unit is separated enough to avoid their destruction by one naturally occurring catastrophic event. Beyond the 10 populations provided for in this unit, no other critical habitat is designated for this species.

Hawaii 25—*Silene hawaiiensis*—a and Hawaii 27—*Silene hawaiiensis*—b

We are designating two critical habitat units for *Silene hawaiiensis*, a short-lived perennial. Both units are currently occupied by individuals of this species. These units contain habitat features that are essential for this species including, but not limited to, montane and subalpine dry shrubland on weathered lava, on variously aged lava flows, and cinder substrates. Each unit is essential to the conservation of *S. hawaiiensis* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population. Each unit provides habitat for a population that is geographically separated from other recovery populations of this island-endemic species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The two units we are designating for *S. hawaiiensis* in this rule provide habitat for a total of three populations, each with 300 mature, reproducing individuals. The excluded lands at PTA provide habitat for seven additional populations (see "Analysis of Impacts Under 4(b)(2)").

Hawaii 25—*Silene hawaiiensis*—a: This unit contains a portion of Kipuka Kulalio, it is completely within the Kapapala watershed, and it lies completely within HVNP. The unit provides habitat for 1 population of 300 individuals of *S. hawaiiensis*, and is currently occupied by about 1,800 individuals.

Hawaii 27—*Silene hawaiiensis*—b: This unit contains Uwekahuna Bluff; portions of the lava flows of 1919, 1921, and 1961; a portion of Kilauea Crater; and all of Halemaumau Crater. The unit is entirely in the Kapapala watershed and lies completely within HVNP. This unit provides habitat for 2 populations of 300 individuals of *S. hawaiiensis* and is currently occupied by 3,851 to 3,951 individuals. This unit provides the southeasternmost critical habitat within the species' historical range.

Hawaii 10—*Solanum incompletum*—a and Hawaii 11—*Solanum incompletum*—b

We are designating two critical habitat units for *Solanum incompletum*, a short-lived perennial. Both units currently are unoccupied by this species. Each unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. These units contain habitat features that are essential for this species including, but not limited to, dry to mesic forest, diverse mesic forest, and subalpine forest. Each unit is geographically separated from other critical habitat for this multi-island species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The two units we are designating for *S. incompletum* in this rule provide habitat for a total of four populations, each with 300 mature, reproducing individuals. Lands at the PTA that we are excluding from designation in this rule provide habitat for five additional populations (see “*Analysis of Impacts Under 4(b)(2)*”). In addition, habitat for one population of *S. incompletum* is in the area we excluded from critical habitat designations on Lanai (68 FR 1220, January 9, 2003).

Hawaii 10—*Solanum incompletum*—a: This unit contains no named natural features, it is entirely in the Kiholo watershed, and is completely within the Puuwaawaa Wildlife Sanctuary; provides habitat for 3 populations of 300 individuals of *S. incompletum*; and is currently unoccupied.

Hawaii 11—*Solanum incompletum*—b: This unit contains no named natural features, it is entirely in the Waiaha watershed, and is completely within the Honuaulu Forest Reserve; provides habitat for 1 population of 300 individuals of *S. incompletum*; and is currently unoccupied. This unit provides the southernmost critical habitat within the species’ historical range.

Hawaii 4—*Vigna o-wahuensis*—a through Hawaii 4—*Vigna o-wahuensis*—c

We are designating three critical habitat units for *Vigna o-wahuensis*, a short-lived perennial. None of the units is currently occupied. Each unit provides habitat for 1 population of 300 mature, reproducing individuals of *V. o-wahuensis*. Each unit is essential to the conservation of the species because it supports habitat that is necessary for the

establishment of additional populations in order to reach recovery goals. These units contain habitat features that are essential for this species including, but not limited to, *Dodonaea viscosa* lowland dry shrubland. Each unit is geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We previously designated critical habitat for three populations of *V. o-wahuensis* on Oahu (68 FR 35949, June 17, 2003), and for one population on Maui (68 FR 25934, May 14, 2003). The four units for *V. o-wahuensis* that we are designating in this rule provide habitat for a total of four populations.

Hawaii 4—*Vigna o-wahuensis*—a: This unit contains most of Puu Pa cinder cone and lies in the Pohakuloa watershed in the southwest and in the Waikoloa/Waiulaula watershed in the northeast.

Hawaii 4—*Vigna o-wahuensis*—b: This unit contains most of the Holoholoku cinder cone and lies completely within the Pohakuloa watershed. This unit provides the easternmost critical habitat within the species’ historical range.

Hawaii 4—*Vigna o-wahuensis*—c: This unit contains the upper portions of an unnamed cinder cone in the Pohakuloa watershed. This unit provides the southernmost critical habitat within the species’ historical range.

Hawaii 10—*Zanthoxylum dipetalum* ssp. *tomentosum*—a

We are designating one critical habitat unit for *Zanthoxylum dipetalum* ssp. *tomentosum*, a long-lived perennial. The unit contains Puu Ike, Puu Paha, and Puuwaawaa and is in the Kiholo watershed. This unit provides habitat for 7 populations of 100 mature, reproducing individuals of the *Z. dipetalum* ssp. *tomentosum* and is currently occupied by 8 to 10 individuals. It contains habitat features that are essential for this species including, but not limited to, *Metrosideros polymorpha* dominated montane mesic forest, often on aa lava. This unit is essential to the conservation of *Z. dipetalum* ssp. *tomentosum* because it supports an extant colony of this island-endemic species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. Although we do not believe enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this island-endemic species, this

unit is of an appropriate size so that each of the seven potential recovery populations within the unit is geographically separated enough to avoid their destruction by one naturally occurring catastrophic event. No other critical habitat for this species is designated on the island of Hawaii.

## Effects of Critical Habitat Designation

### Section 7 Consultation

Section 7(a) of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out are not likely to destroy or adversely modify critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal action agency must enter into consultation with us. Section 7(a)(4) of the Act requires Federal agencies (action agency) to confer with us on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in the destruction or adverse modification of proposed critical habitat. Destruction or adverse modification of critical habitat occurs when a Federal action directly or indirectly alters critical habitat to the extent that it appreciably diminishes the value of critical habitat for the conservation of the species. Individuals, organizations, States, local governments, and other non-Federal entities are directly affected by the designation of critical habitat only if their actions occur on Federal lands; require a Federal permit, license, or other authorization; or involve Federal funding.

Regulations at 50 CFR 402.16 require Federal agencies to reinstate consultation on previously reviewed actions under certain circumstances, including instances where critical habitat is subsequently designated and the Federal agency has retained discretionary involvement, or control has been retained or is authorized by law. Consequently, some Federal agencies may request reinitiation of consultation or conferencing with us on actions for which formal consultation has been completed, if those actions may affect designated critical habitat or adversely modify or destroy proposed critical habitat.

If we issue a biological opinion concluding that a project is likely to result in the destruction or adverse modification of critical habitat, we also provide “reasonable and prudent alternatives” to the project, if any are identifiable. Reasonable and prudent alternatives are defined at 50 CFR 402.02 as alternative actions identified during consultation that can be



implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Director believes would avoid destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project.

Activities on Federal lands that may affect critical habitat of one or more of the 41 plant species from the island of Hawaii will require section 7 consultation. Activities on private or State lands requiring a permit from a Federal agency, such as a permit from the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act (33 U.S.C. 1344 *et seq.*), the Department of Housing and Urban Development, or a section 10(a)(1)(B) permit from us; or some other Federal action, including funding (*e.g.*, from the Federal Highway Administration, Federal Aviation Administration (FAA), Federal Emergency Management Agency (FEMA), Environmental Protection Agency (EPA), or Department of Energy); regulation of airport improvement activities by the FAA; and construction of communication sites licensed by the Federal Communications Commission (FCC) may also be subject to the section 7 consultation process. Federal actions not affecting critical habitat and actions on non-Federal lands that are not federally funded, authorized, or permitted would not require section 7 consultation as a result of this rule designating critical habitat.

Section 4(b)(8) of the Act requires us to briefly describe and evaluate in any proposed or final regulation that designates critical habitat those activities involving a Federal action that may adversely modify such habitat or that may be affected by such designation. We note that such activities may also jeopardize the continued existence of the species.

Activities that, when carried out, funded, or authorized by a Federal agency, may directly or indirectly destroy or adversely modify critical habitat include, but are not limited to:

(1) Activities that appreciably degrade or destroy the primary constituent elements including, but not limited to: Overgrazing; maintenance of feral ungulates; clearing or cutting of native live trees and shrubs, whether by burning or mechanical, chemical, or other means (*e.g.*, woodcutting, bulldozing, construction, road building, mining, herbicide application);

introducing or enabling the spread of nonnative species; and taking actions that pose a risk of fire;

(2) Activities that alter watershed characteristics in ways that would appreciably reduce groundwater recharge or alter natural, dynamic wetland or other vegetative communities. Such activities may include water diversion or impoundment, excess groundwater pumping, manipulation of vegetation such as timber harvesting, residential and commercial development, and grazing of livestock that degrades watershed values;

(3) Rural residential construction that includes concrete pads for foundations and the installation of septic systems in wetlands where a permit under section 404 of the Clean Water Act would be required by the Corps;

(4) Recreational activities that appreciably degrade vegetation;

(5) Mining of sand or other minerals;

(6) Introducing or encouraging the spread of nonnative plant species into critical habitat units; and

(7) Importation of nonnative species for research, agriculture, and aquaculture, and the release of biological control agents that would have unanticipated effects on the listed species and the primary constituent elements of their habitats.

If you have questions regarding whether specific activities will likely constitute adverse modification of critical habitat, contact the Field Supervisor, Pacific Islands Ecological Services Field Office (see **ADDRESSES** section). Requests for copies of the regulations on listed plants and animals, and inquiries about prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Branch of Endangered Species/Permits, 911 N.E. 11th Ave., Portland, OR 97232-4181 (telephone 503/231-2063; facsimile 503/231-6243).

#### *Analysis of Managed Lands Under Section 3(5)(A)*

The need for "special management considerations or protections" of the essential habitat features (primary constituent elements) included in a designation is required by the definition of critical habitat in section 3(5)(A) of the Act. If the primary constituent elements are being adequately managed, then they do not need "special management considerations or protections." Adequate management or protection is provided by a legally operative plan that addresses the maintenance and improvement of the essential elements and provides for the long-term conservation of the species.

We consider a plan adequate when it:

(1) Provides a conservation benefit to the species (*i.e.*, the plan must maintain or provide for an increase in the species' population or the enhancement or restoration of its habitat within the area covered by the plan); (2) provides assurances that the management plan will be implemented (*i.e.*, those responsible for implementing the plan are capable of accomplishing the objectives, have an implementation schedule, and have adequate funding for the management plan); and, (3) provides assurances that the conservation plan will be effective (*i.e.*, it identifies biological goals, has provisions for reporting progress, and lasts for a duration sufficient to implement the plan and achieve the plan's goals and objectives). If an area is covered by a plan that meets these criteria, it does not constitute critical habitat as defined by the Act because the primary constituent elements found there are not in need of special management or protection.

Currently occupied and historically known sites containing one or more of the primary constituent elements considered essential to the conservation of these 47 plant species were examined to determine the adequacy of special management considerations or protection and, consequently, whether such areas meet the definition of critical habitat under section 3(5)(A). We reviewed all available management information on these plants at these sites, including published reports and surveys, annual performance and progress reports, management plans, grants, memoranda of understanding and cooperative agreements, DOFAW planning documents, internal letters and memos, biological assessments and environmental impact statements, and section 7 consultations. We reviewed all biological information received during the public comment periods, public meeting, and public hearing. When clarification was required on the information provided to us, we followed up by telephone. We also met with staff from the Hawaii District DOFAW office to discuss management activities they are conducting on the island of Hawaii.

In determining whether a management plan or agreement provides adequate management or protection, we first consider whether that plan provides a conservation benefit to the species. We considered the following threats and associated recommended management actions:

(1) The factors that led to the listing of the species, as described in the final rules for listing each of the species. Effects of clearing and burning for agricultural purposes and of invasive

nonnative plant and animal species have contributed to the decline of nearly all endangered and threatened plants in Hawaii (Cuddihy and Stone 1990; Howarth 1985; Loope 1998; Scott *et al.* 1986; Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997, 1998a, 1998b, 1999; Smith 1985; Stone 1985; Vitousek 1992; Wagner *et al.* 1985).

Current threats to these species include nonnative grass- and shrub-carried wildfire; browsing, digging, rooting, and trampling from feral ungulates (including goats, cattle, and pigs); direct and indirect effects of nonnative plant invasions, including alteration of habitat structure and microclimate; and disruption of pollination and gene-flow processes by adverse effects of mosquito-borne avian disease on forest bird pollinators, direct competition between native and nonnative insect pollinators for food, and predation of native insect pollinators by nonnative hymenopteran insects (ants). In addition, physiological processes such as reproduction and establishment, continue to be negatively affected by fruit- and flower-eating pests such as nonnative arthropods, mollusks, and rats, and photosynthesis and water transport are affected by nonnative insects, pathogens, and diseases. Many of these factors interact with one another, thereby compounding effects. Such interactions include nonnative plant invasions altering wildfire regimes; feral ungulates carrying weeds and disturbing vegetation and soils, thereby facilitating dispersal and establishment of nonnative plants; and numerous nonnative insect species feeding on native plants, thereby increasing their vulnerability and exposure to pathogens and disease (Bruegmann *et al.* 2001; Cuddihy and Stone 1990; D'Antonio and Vitousek 1992; Howarth 1985; Mack 1992; Scott *et al.* 1986; Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997, 1998a, 1998b, 1999; Smith 1985; Tunison *et al.* 1992);

(2) The recommendations from the HPPRCC in its 1998 report to us ("Habitat Essential to the Recovery of Hawaiian Plants"). As summarized in this report, recovery goals for endangered Hawaiian plant species cannot be achieved without the effective control of nonnative species threats, wildfire, and land use changes; and

(3) The management actions needed for assurance of survival and ultimate recovery of these plants. These actions are described in our recovery plans for these 47 species (Service 1994, 1995a, 1996a, 1996b, 1996c, 1997a, 1998a, 1998b, 1998c, 1999), in the 1998

HPPRCC report to us, and in various other documents and publications relating to plant conservation in Hawaii (Cuddihy and Stone 1990; Mueller-Dombois 1985; Smith 1985; Stone 1985; Stone *et al.* 1992).

In general, taking all of the above recommended management actions into account, the following management actions are important in providing a conservation benefit to the species: feral ungulate control; wildfire management; nonnative plant control; rodent control; invertebrate pest control; maintenance of genetic material of the endangered and threatened plant species; propagation, reintroduction, and augmentation of existing populations into areas essential for the recovery of the species; ongoing management of the wild, outplanted, and augmented populations; maintenance of natural pollinators and pollinating systems, when known; habitat management and restoration in areas essential for the recovery of the species; monitoring of the wild, outplanted, and augmented populations; rare plant surveys; and control of human activities/access (Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997, 1998a, 1998b, 1999). On a case-by-case basis, these actions may rise to different levels of importance for a particular species or area, depending on the biological and physical requirements of the species and the location(s) of the individual plants.

As shown in Table 2, the 47 species of plants are found on Federal, State, and private lands on the island of Hawaii. Information received in response to our public notices; meetings with Hawaii District DOFAW staff; the May 28, 2002, proposal; public comment periods; and the October 29 and 30, 2002, public hearings; as well as information in our files, indicated that there is limited ongoing conservation management action for these plants, except as noted below. Without management plans and assurances that the plans will be implemented, we are unable to find that the lands in question do not require special management or protection.

#### *Lands Under U.S. Army Jurisdiction*

The Army has one installation under its jurisdiction on the island of Hawaii: Pohakuloa Training Area (PTA). All of the PTA lands are administered by the Army Garrison, Hawaii, for various types of routine military training. The following discussion analyzes current management plans for lands under U.S. Army jurisdiction on the island of Hawaii and assesses whether they meet

the Service's requirements for adequate management or protection.

#### *(1) Plan Provides Conservation Benefit to the Species*

The Sikes Act Improvements Act of 1997 (Sikes Act) requires each military installation that includes land and water suitable for the conservation and management of natural resources starting November 17, 2001 to complete an Integrated Natural Resources Management Plan (INRMP). An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found there. Each INRMP includes an assessment of the ecological needs on the installation, including needs to provide for the conservation of listed species; a statement of goals and priorities; a detailed description of management actions to be implemented to provide for these ecological needs; and a monitoring and adaptive management plan. Bases that have completed and approved INRMPs that adequately address the needs of the species may not meet the definition of critical habitat discussed above, because they may not require special management or protection. We would not include these areas in critical habitat designations if they meet the following three criteria: (1) A current INRMP must be complete and provide a conservation benefit to the species, (2) there must be assurances that the conservation management strategies will be implemented, and (3) there must be assurances that the conservation management strategies will be effective, by providing for periodic monitoring and revisions as necessary. If all of these criteria are met, then the lands covered under the plan would not meet the definition of critical habitat because special management is not needed.

Critical habitat was proposed at PTA for 10 of the 47 species addressed in this rule (*Asplenium fragile* var. *insulare*, *Hedyotis coriacea*, *Neraudia ovata*, *Portulaca sclerocarpa*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense*). Critical habitat was proposed for two additional species (*Isodendron hosakae* and *Vigna o-wahuensis*) on lands the Army is in the process of acquiring. The Army has completed an INRMP (Army 2001) and an Ecosystem Management Plan (Army 1998) for PTA. These plans encompass management actions that will benefit the 10 listed plant species for which critical habitat has been proposed on current Army lands and they have written a letter committing to amend

their INRMP to cover the 3 species on lands the Army is in the process of acquiring as part of the Transformation of the 2nd Brigade 25th Infantry Division (Transformation). They have a completed Wildland Fire Management Plan (WFMP) for MMR (Army 2000). The goal of the WFMP is to reduce the threat of wildfire which adversely affects threatened and endangered species on PTA. The Army also provides summary reports regarding the natural resources management projects performed under the Ecosystems Management Program for PTA (Evans 1998; Evans 1999; Schnell 1998; Schnell 1999; Sherry 1999; RCUH 1997; RCUH 1998; USAG—HI 2000). These reports provide information on management actions which have been implemented.

The INRMP describes specific actions for PTA, including anticipated implementation schedules. It includes many ongoing and proposed actions designed to address the variety of threats faced by these plant species at appropriate scales: species-specific, small areas, and installationwide. The list of ongoing and proposed actions detailed in the INRMP focuses management activities into the areas of wildfire management, nonmilitary human land use, feral ungulate control, invasive plant control, and other nonnative species control. As an example, some of the management actions that address feral ungulate control include: (1) The establishment and evaluation of permanent ungulate monitoring programs; (2) maintaining ungulate exclosure fencing; (3) using small-scale fencing to protect individuals and groupings of critically endangered plants; (4) removal of ungulates from fenced areas; (5) continuing semiannual aerial censuses of ungulates with support from the National Park Service; and (6) using hunter-generated ungulate harvest data to monitor ungulate population trends. In addition, management actions for control of nonnative plant species include: (1) development of a Targeted Alien Plant Taxa list used to prioritize control efforts; (2) control of *Pennisetum setaceum* near rare plant locations; (3) control of *Salsola kali* (Russian thistle) when infestations; (4) continuing to control of *Solanum pseudocapsicum* (Jerusalem cherry); and (5) updating the Target Alien Plant Taxa list as species and priorities change. The INRMP also includes propagating and outplanting threatened and endangered plant species back into areas that are managed for ungulates, weeds, and fire (Army 2001). Other important activities in the INRMP include: (1) Conducting field

surveys to identify new populations of threatened and endangered plant species in previously unsurveyed areas and areas of suitable habitat; (2) maintaining a GIS database updated with results of field surveys; (3) determining effects of military actions on threatened and endangered plants species through monitoring known populations of threatened and endangered plant species; (4) evaluating and determining plant propagation needs and storage facilities; and (5) identifying research needs regarding pollination biology and establishment of a GIS database to store data to be used to monitor threatened and endangered plant species (Army 2001).

In 1998 PTA constructed a greenhouse with automatic climate controls affected by temperature and wind speed. Adjacent to the greenhouse is a plant holding compound used to provide an opportunity for plants scheduled for outplanting to adapt to conditions more similar to those they will encounter when they are moved to completely natural environments. All 12 of the listed species are being propagated at the facility. More common native species are propagated for revegetation projects. In addition to the propagation efforts, seeds are collected for storage at the National Seed Storage Laboratory at Colorado State University. These seeds will be critical to restoration of listed species in the event none remain in the wild. PTA staff periodically conduct germination tests on some of these seeds.

Currently there are several fenced areas on PTA that are managed for threatened and endangered plants. These include 755 ha (1,864 ac) of Kipuka Kalawamauna; 2,026 ha (5,004 ac) of Kipuka Alala; 202 ha (50 ac) of Puu Kapele; and 14 ha (33 ac) of *Silene hawaiiensis* habitat. Temporary emergency exclosures have been placed around individuals of *Hedyotis coriacea*, *Neraudia ovata*, *Portulaca sclerocarpa*, *Schiedea hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Tetramolopium arenarium* and *Zanthoxylum hawaiiense*.

The comprehensive list of ongoing and proposed management activities detailed in the INRMP addresses each of the management actions detailed above that the Service considers important in providing a conservation benefit to the species; therefore, the plan provides a conservation benefit to the species.

#### (2) Provides Assurance the Plan Will Be Implemented

In terms of providing assurances that the management plan will be

implemented, the INRMP provides implementation schedules and identifies funding needs for each installation through the year 2006, when the 5-year update is due. Examples of those programs identified for funding include the Ecosystem Management Actions, Saddle Road Realignment Support, Biodiversity and Ecosystem Integrity, Pest Management, and Conservation Education and Outreach. The Army has committed to increased funding for their wildland fire program to ensure proactive fire management that will benefit threatened and endangered plant species through increased protection of habitat on their lands. They have also committed to continued funding of actions that benefit habitat restoration, species stabilization, and threat abatement (Anderson, *in litt.* 2003). Apart from these specific efforts, however, the Army has a statutory obligation to manage its lands in accordance with its INRMP, and we have no reason to believe that this will not happen.

#### (3) Plan Provides Assurances That the Conservation Plan Will Be Effective

The plan does provide assurances that the conservation effort will be effective. The Army will fund and engage in activities that have been demonstrated to benefit threatened and endangered species (*e.g.*, ungulate and invasive weed control). In addition to the extensive monitoring provisions contained in the INRMP and provided by the reporting procedures, the Army has agreed to amend its existing INRMP to include additional management actions for listed plants and their habitat at PTA. Based upon this information, activities will be revised to provide for the optimum conservation benefit to the listed plant species and their habitat (Col. David L. Anderson, Army, *in litt.* 2003). Thus, the Army will monitor the effectiveness of its management actions and modify them, as necessary, to ensure their effectiveness.

Thus, the Service has determined that lands on the island of Hawaii which fall under U.S. Army jurisdiction do not meet the definition of critical habitat in the Act. According to the Service's published recovery plans, the major extinction threats to island of Hawaii plants involve the persistent and expanding presence of alien species and their associated impacts. In general, for most of these species there is less relative concern associated with Federal activities or proposed development. Recovery of these listed species will require active management such as plant propagation and reintroduction, management of fire risk, alien species

removal, and ungulate and rat management. Failure to implement these management measures, all of which require active intervention and participation, virtually assures the extinction of these species. The Army is carrying out many of these actions on their lands, in some cases to a degree that surpasses that of other Federal, State, and private landowners in Hawaii. We are, therefore, not designating critical habitat on these lands. Should the status of these commitments change, the Service will reconsider whether these lands meet the definition of critical habitat. If the definition is met, we have the authority to propose to amend critical habitat to include identified areas at that time (16 U.S.C. 1533(a)(3)(B); 50 CFR 424.14(g)). Although these areas are removed from the final critical habitat designation, the number of populations for which habitat on PTA provides is applied toward the overall conservation goal of 8 to 10 populations for each species because these lands will be managed under the INRMP consistent with recovery goals.

#### *Analysis of Impacts Under Section 4(b)(2)*

Section 4(b)(2) of the Act requires us to designate critical habitat on the basis of the best scientific and commercial information available, and to consider the economic and other relevant impacts of designating a particular area as critical habitat. We may exclude areas from critical habitat upon a determination that the benefits of such exclusions outweigh the benefits of specifying such areas as critical habitat. We cannot exclude such areas from critical habitat when such exclusion will result in the extinction of the species concerned.

#### *Economic Impacts*

Following the publication of the proposed critical habitat designation on May 28, 2002, a draft economic analysis was prepared to estimate the potential direct and indirect economic impacts associated with the designation, in accordance with the recent decision in *N.M. Cattlegrowers Ass'n v. U.S. Fish and Wildlife Serv.*, 248 F.3d 1277 (10th Cir. 2001). The draft analysis was made available for review on December 18, 2002 (67 FR 77464). We accepted comments on the draft analysis until the comment period closed on January 17, 2003.

Our draft economic analysis evaluated the potential direct and indirect economic impacts associated with the proposed critical habitat designation for the 41 plant species from the island of Hawaii over the next 10 years. Direct

impacts are those related to consultations under section 7 of the Act. They include the cost of completing the section 7 consultation process and potential project modifications resulting from the consultation. Indirect impacts are secondary costs and benefits not directly related to operation of the Act. Examples of indirect impacts include potential effects to property values, redistricting of land from agricultural or urban to conservation, and social welfare benefits of ecological improvements.

The categories of potential direct and indirect costs considered in the analysis included the costs associated with: (1) Conducting section 7 consultations, including incremental consultations and technical assistance; (2) modifications to projects, activities, or land uses resulting from the section 7 consultations; (3) uncertainty and public perceptions resulting from the designation of critical habitat including potential effects on property values and potential indirect costs resulting from the loss of hunting opportunities and the interaction of State and local laws; and (4) potential offsetting beneficial costs associated with critical habitat, including educational benefits. The most likely economic effects of critical habitat designation are on activities funded, authorized, or carried out by a Federal agency (*i.e.*, direct costs).

Following the close of the comment period on the draft economic analysis, an addendum was completed that incorporated public comments on the draft analysis and made other changes as necessary. These changes were primarily the result of modifications made to the proposed critical habitat designation based on biological information received during the comment periods.

The draft economic analysis and addendum addressed the impact of the proposed critical habitat designation that may be attributable coextensively to the listing of the species. Because of the uncertainty about the benefits and economic costs resulting solely from critical habitat designations, the Service believes that it is reasonable to estimate the economic impacts of a designation utilizing this single baseline. It is important to note that the inclusion of impacts attributable coextensively to the listing does not convert the economic analysis into a tool to be used in deciding whether or not a species should be added to the Federal list of threatened and endangered species.

Together, the draft economic analysis and the addendum constitute our final economic analysis. The final economic analysis estimates that, over the next 10

years, the designation (co-extensive with the listing) may result in potential direct economic effects from implementation of section 7 ranging from approximately \$46.6 million to \$62.7 million in quantifiable costs. This decrease of approximately \$6.6 million to \$9.1 million from the draft economic analysis's estimated potential direct economic effects from implementation of section 7 results primarily from the exclusion of proposed units Hawaii C, D5, M1, M2, M3, M4, N1, N2, P, V, and BB from final designation and the significant reduction in size of the remaining proposed units because they lacked the primary constituent elements or were not essential to the conservation of the species. Overall, the largest portion of this estimate includes impacts on Army land that was proposed as critical habitat but has been removed from the final designation. Therefore, the direct cost of designating critical habitat for these 41 plant species will be far less than this estimate.

While our final economic analysis includes an evaluation of potential indirect costs associated with the designation of critical habitat for 41 plant species on the island of Hawaii, some types of costs are unquantifiable. The costs that are provided are speculative in the sense that there is no certainty as to their being incurred, but we believe the numbers represent a reasonable range of costs for the specific actions in question, should they occur in whole or in part. The final economic analysis concludes that efforts to redistrict land as a result of this designation are likely to occur, but that there is no way of determining in advance the outcome of this process with respect to specific parcels, or of possible related litigation. However, such landowners may have economic costs associated with voluntary agreements to restrict development, and contesting redistricting. For land not planned for development, the analysis concluded that it is reasonably foreseeable that some landowners would see lower property values, restrictions on agricultural activity and costs to contest redistricting. In total, the costs associated with redistricting or the threat of redistricting could range from \$22 to 28 million. The final economic analysis also concludes there is an undetermined probability of costs ranging from \$48.9 to \$96.5 million associated with obtaining State and county development approvals, and includes costs associated with a loss or delay of these approvals. Some of these costs, however, may overlap with a portion of the redistricting costs (*i.e.*,

agreements to voluntarily restrict development to avoid redistricting). The final economic analysis estimates that landowners may spend between \$50,000 and \$181,000 to investigate the implications of critical habitat on their land. The economic analysis also estimates that the critical habitat designation could cost between \$175,000 and \$525,000 for State and county environmental review (conducting a State Environmental Impact Statement (EIS) instead of an Environmental Assessment), although some of these costs may be incurred in any case, as some projects might require an EIS without critical habitat designation.

The final economic analysis also discusses most economic benefits in qualitative terms rather than providing quantitative estimates because of the lack of information available to estimate the economic benefits of endangered species preservation and ecosystem improvements. While the quantitative estimates provided in the analysis are speculative, the economic analysis estimates that federally funded section 7 related project modifications could generate an undetermined percentage of \$83 million to \$109 million over 10 years.

A more detailed discussion of our economic analysis is contained in the draft economic analysis and the addendum. Both documents are available for inspection at the Pacific Islands Fish and Wildlife Office (see **ADDRESSES** section).

No critical habitat units in the proposed rule were excluded or modified because of economic impacts because the cost of the designation is not expected to be significant. The likely direct cost impact of designating critical habitat on Hawaii for the 41 plant species is estimated to be between \$4.7 and \$6.3 million per year over the next 10 years. This estimate, however, includes areas that were proposed as critical habitat but have been excluded under section 4(b)(2) of the Act (see below). Therefore, the anticipated direct costs of designating critical habitat of these 41 species is less.

Approximately 337 ha (833 ac) of State and private lands within two proposed critical habitat units (proposed Units Y1 and Y2) are excluded because the economic impacts of their inclusion outweigh the benefits provided by a designation of critical habitat. The economic analysis indicates that activities already planned for these two proposed units, including the State VOLA master planned community with over 1,000 units of affordable housing, the Kaloko Properties projects and the

Kealakehe 2020 environmental remediation project could incur direct costs of over \$5 million and indirect costs ranging between \$87 and \$104 million. While there is no certainty that any or all of these indirect costs would be incurred, these figures are illustrative of the order of magnitude of the indirect impacts that could occur from the designation.

#### (1) Benefits of Inclusion

These areas proposed for development or other uses are within proposed units Y1 and Y2. Proposed unit Y1 absent this exclusion would consist of 426 acres of private land as critical habitat for *Isodendron pyriform* and 405 largely identical acres of private land for *Neraudia ovata*. It is currently unoccupied by *Isodendron pyriform*, and contains 2 *Neraudia ovata* plants. Proposed unit Y2 absent this exclusion would consist of 406 acres of State land for *Isodendron pyriform* and 334 largely identical acres for *Neraudia ovata*. It is currently occupied by 8 individual *Isodendron pyriform* plants, and is unoccupied by *Neraudia ovata*.

Critical habitat for *I. pyriform* was designated on Oahu (habitat for three populations), Molokai (habitat for one population), Maui (habitat for two populations); for *N. ovata* on two other locations in Hawaii. Habitat is also provided for four populations of this species on the excluded lands at PTA, as discussed later in this section. (See "Descriptions of Critical Habitat Units").

If these areas were designated as critical habitat, any Federal agency which proposed to approve, fund or undertake any action which might adversely modify the critical habitat would be required to consult with us. This is commonly referred to as a "Federal nexus" for requiring the consultation. If the area in question were not occupied by the plants, this consultation would not be required absent the critical habitat designation. If the action affected an area occupied by the plants, consultation would be required even without the critical habitat designation. As indicated above, these two units are each occupied by one small population of one species of the listed plants.

The draft economic analysis and final addendum indicate only one project associated with the exclusions within the pre-exclusion boundaries of these proposed units that is likely to have the required Federal nexus, environmental remediation of an old landfill by the non-profit Kealakehe Ahupua'a 2020 organization (K2020). The landfill

adjoins the pre-exclusion boundaries of proposed unit Y2 on 3 sides, and has internal fires. K2020 plans to secure Federal grants to remediate the site, including extinguishing the fires.

This will require use of unoccupied habitat within the proposed boundary of unit Y2 for the landfill material while the remediation is conducted. The economic analysis further indicates that this project will be to the long-term benefit to the listed plants by reducing the possibilities of wildfires. However, it is anticipated that as mitigation for the temporary loss of this portion of the critical habitat, the K202 group would be required to obtain funding to manage two preserves to be established elsewhere within this proposed unit (see "Benefits of Exclusion" below) at a cost of \$5.1 million over the next 10 years.

Apart from this project a critical habitat designation will not directly protect the areas proposed for exclusion from any planned development, due to the lack of any known or anticipated "Federal nexus" for such development. However, the plants themselves are protected against "take" under State law, and thus the areas in which the plants are currently found are unlikely to be developed.

Another possible benefit of a critical habitat designation is education of landowners and the public regarding the potential conservation value of these areas. This may focus and contribute to conservation efforts by other parties by clearly delineating areas of high conservation values for certain species. However, we believe that this educational benefit has largely been achieved. These units have already been identified through the proposal and final designation. In addition, the State has included a preserve for listed plants within its VOLA development project which will contribute to the long-term educational benefit of conserving the habitat of these species (see "Benefits of Exclusion" below).

In summary, we believe that a critical habitat designation for these two plant species would provide relative low additional Federal regulatory benefits. Except for the project discussed above, there is no Federal activity which might trigger the section 7 consultation process for these species known or anticipated for the lands to be excluded. The additional educational benefits which might arise from critical habitat designation are largely accomplished through the notice and comments which accompanied the development of this regulation, and the proposed critical habitat is known to the landowners. In addition, the State is planning for a

preserve for the areas occupied by *N. ovata* in proposed Unit Y2, which will provide ongoing educational benefits.

## (2) Benefits of Exclusion

There are three development projects currently planned within the pre-exclusion boundaries of proposed Units Y1 and Y2 which could suffer significant economic impacts due to indirect effects of the critical habitat designation. In addition, the \$5.1 million in project modification costs to the K2020 landfill remediation project discussed above would likely be shifted from the State or from housing developers to the non-profit K2020 group.

The Housing and Community Development Corporation of Hawaii has since 1990 had a master-planned community development project known as "Villages at Laiopua" (VOLA), much of which is within the pre-exclusion boundary of proposed unit Y2. This includes a planned 1,700 homes within the area proposed for designation, of which 1,020, or 60%, would be classified as "affordable housing". The State of Hawaii has already invested \$30 million in infrastructure costs, including roads, utilities, a High School, planning and expanding the local wastewater treatment plant, and some of the project has been constructed.

The plan includes two areas totaling 38 acres to be set aside as preserves for the listed plants. As noted above, the final addendum to our economic analysis indicates it would likely cost \$5.1 million over the next 10 years to manage these preserves. Absent the development being largely constructed, it is not likely that these plants would benefit from the management envisioned for the preserves.

Critical habitat provides primarily prohibitive regulatory benefits. But in Hawaii, simply preventing "harmful activities" will not slow the extinction of listed plant species (see detailed discussion under "Queen Liliuokalani Trust", below). Establishment of plant preserves as planned here provide positive benefits to the species. In addition, in June 2002, the State enacted legislation allowing State entities to enter into Safe Harbor agreements and Habitat Conservation Plans for three designated areas, including the VOLA project. Absent the exclusion, it is unlikely the State would pursue either of these conservation options.

In addition, there are real but undeterminable possibilities that designation of these areas as critical habitat would lead to loss or significant restriction of the project through actions not under the control of the Federal

government but resulting from the critical habitat designation. These include redistricting of land, rezoning and other regulatory approvals, and litigation related to both.

Hawaii has state-wide land classifications of Urban, Rural, Agricultural and Conservation, with restrictions on what type of activities can be conducted within the different classifications. The State Department of Land and Natural Resources commented on this proposal that they would be required to initiate rezoning of lands designated as critical habitat into the "Conservation" classification, which prohibits development.

While there is a low probability that the State Land Use Commission would finally vote to redistrict the lands proposed for the VOLA project, that possibility exists. In addition, there could well be litigation designed to either force the Commission to act or to have a court make the decision.

If the project were unable to proceed, the Housing and Community Development Corporation would lose the \$30 million in sunk costs, and the affordable housing units that would have been constructed. Although the final addendum to the economic analysis assigns a cost to the loss of the affordable units of \$4.8 million, there could well be considerable non-monetary social costs as well, particularly inasmuch as the available information indicates that there are no other affordable housing projects planned within the next 10 years.

The second project within the excluded areas is known as the Kaloko Properties/Kaloko Town Center. This project has been underway since 1987, and covers 1,150 acres, of which 335, or 29%, is within the pre-exclusion boundary of the proposed units. The developers have already expended over \$20 million for infrastructure improvements, engineering and related costs, which approximately \$5.8 (by percentage allocation) is associated with the portion of the project within the proposed critical habitat. This project will need both redistricting from the State and rezoning from the county for portions of the land. The final addendum to the economic analysis finds there is a reasonably foreseeable chance that the designation of critical habitat would affect this development.

In the worst-case scenario, the State or county might decide not to grant the discretionary approvals needed for the project—redistricting and rezoning—or might be prevented from doing so by litigation. This could lead to loss of the \$5.8 million in sunk costs for the portion of the property within the

proposed critical habitat, or of the entire \$20 million investment. In addition, there would be an estimated loss of future profits from the land proposed for inclusion within the critical habitat of between \$39 to \$78 million. Using a present value discount, this loss would range between \$17 and \$34 million. There could also be the loss of all project revenues in the event the inability to utilize the lands within the critical habitat designation caused the failure of the entire project.

Alternatively, in an effort to avoid those situations, the developer might offer additional restrictions on the development. The final addendum estimates, with admitted imprecision, that these costs might range from \$1.1 to \$2 million for the portion of the project within the proposed designation.

The possibility of significant economic impacts to this project, while not certain, clearly exist. As noted above, we cannot find offsetting benefits from the designation of critical habitat in these two units which exceed the benefits of avoiding these possible economic costs.

The last project for which we are excluding areas for economic reasons is the environmental remediation of an old landfill by the non-profit K2020 organization discussed above. The landfill adjoins the pre-exclusion boundaries of proposed unit Y2 on 3 sides, and has internal fires. K2020 plans to secure Federal grants to remediate the site, including extinguishing the fires.

This will require use of unoccupied habitat within the boundary of proposed unit Y2 for the landfill material while the remediation is conducted. The economic analysis further indicates that this project will be to the long-term benefit to the listed plants by reducing the possibilities of wildfires. However, it is anticipated that as mitigation for the temporary loss of this portion of the critical habitat, the K202 group would be required to obtain funding to manage two preserves to be established in connection with the VOLA project, at a cost of \$5.1 million over the next 10 years. Requiring this non-profit group to mitigate for use of unoccupied critical habitat to remediate an environmental problem, when the remediation will ultimately benefit the species, does not provide an overall conservation benefit to the species. This funding could well come from funds otherwise intended for conservation purposes in Hawaii, or the cost could cause the group to abandon the project.

### (3) The Benefits of Exclusion Outweigh the Benefits of Inclusion

The VOLA project has already been troubled by litigation and defaulting developers; additional regulatory or legal uncertainties arising from this designation could well cause further delays or kill the project altogether. If this were to occur, the Housing and Community Development Corporation would lose the \$30 million in sunk costs, and the affordable housing units that would have been constructed. Although the final addendum to the economic analysis assigns a cost to the loss of the affordable units of \$4.8 million, there could well be considerable non-monetary social costs as well, particularly inasmuch as the available information indicates that there are no other affordable housing projects planned within the next 10 years.

We do not find that the benefits from the designation of critical habitat for lands within the VOLA project, as discussed above, exceed the benefits of avoiding the possible economic and social costs which could well arise from this designation.

For the Kaloko Properties/Kaloko Town Center, there is also the real possibility that the designation of critical habitat could lead to loss of necessary regulatory approvals. This in turn could lead to loss of the \$5.8 million in sunk costs for the portion of the property within the proposed critical habitat, or of the entire \$20 million investment. In addition, there would be an estimated loss of future profits from the land proposed for inclusion within the critical habitat of between \$39 to \$78 million. Using a present value discount, this loss would range between \$17 and \$34 million. (There could also be the loss of all project revenues in the event the inability to utilize the lands within the critical habitat designation caused the failure of the entire project.)

Alternatively, in an effort to avoid those situations, the developer might offer additional restrictions on the development. The final addendum estimates, with admitted imprecision, that these costs might range from \$1.1 to \$2 million for the portion of the project within the proposed designation.

We do not find that the benefits from the designation of critical habitat for lands within the VOLA project, as discussed above, exceed the benefits of avoiding the possible economic costs which could well arise from this designation.

We note that the developers of this project contacted us after the close of

the comment period offering to undertake a number of actions designed to provide conservation benefits to the species. Specifically, the offer included: (1) To set aside 100 to 130 acres within the proposed unit Y2; (2) enter into good faith negotiations with the Federal, State or county entities for acquisition of the area; (3) agree to enter into a Safe Harbor agreement with us; and (4) to enter into a memorandum of understanding or cooperative agreement to address habitat protection, monitoring and management actions for the remainder of their property relating to these species (and Blackburn's sphinx moth).

Due to the court-ordered date by which this designation must be completed, we were unable to conclude such an agreement prior to issuing this notice and regulation. If we had been able to do so, this is the type of agreement for which we have found in other cases that the conservation benefits of the agreement exceed the benefits of designation and thus warrant exclusion (*See* discussions below). We have generally not made exclusions under section 4(b)(2) based on offers of conservation agreements, and we are not doing so here. However, we do believe the ability to pursue this proposal, and a Safe Harbor agreement with the State, are secondary benefits of the exclusions, in that neither would likely remain a possibility without the exclusions. A decision by the State and the developers to follow through on this offer might well be in both their and the species best interest.

We also note that while preparing an original critical habitat proposal and designation is extremely costly and time-consuming, a revision to a designation, where all of the appropriate biological and economic information is already available, could be relatively easy. We will closely monitor the status of the listed plants within this exclusion and will be prepared to take necessary actions in the event their situation warrants it.

For the non-profit K2020 organization, the designation of critical habitat could add an additional \$5.1 million in direct costs to their effort to remediate a burning old landfill, as discussed above. Requiring this non-profit group to raise and expend \$5.1 million for use of unoccupied critical habitat to remediate an environmental problem, when the remediation will ultimately benefit the species, does not provide an overall conservation benefit to the species. This funding could well come from funds otherwise intended for conservation purposes in Hawaii, or the cost could cause the group to abandon the project. We accordingly believe the

benefit of excluding the lands needed for the remediation effort, thus saving the group the \$5.1 million cost and making it more likely that the landfill will be remediated, exceed the benefit of designating these lands as critical habitat.

### (4) Exclusion of These Units Will Not Cause Extinction of the Species

Proposed units Y1 and Y2 on State and private lands provide occupied and unoccupied habitat for two species: *Isodendron pyrifolium* and *Neraudia ovata*. According to our published recovery plans, recovery of these two species will require reproducing, self-sustaining populations located in a geographic array across the landscape, with population numbers and population locations of sufficient robustness to withstand periodic threats caused by natural disaster or biological threats (Service 1996, 1998). The highest priority recovery tasks include active management, such as plant propagation and reintroduction, fire control, nonnative species removal, and ungulate fencing. Failure to implement these active management measures on this and other units, all of which require voluntary landowner support and participation, virtually assures the extinction of these species in the wild. Many of these types of conservation actions in this area of the island of Hawaii will be carried out as part of a partnership with the Service and by actions taken on the landowner's initiative. These activities, which are described in more detail below, require substantial voluntary cooperation.

For both species, we conclude, based on all of the information available to us, that the projects proposed for the areas to be excluded will not adversely impact existing populations of either listed species. In addition, the Hawaii Housing and Community Development Corporation has proposed the creation of preserves for the plant with the VOLA development, which would be actively managed for the benefit of the plants. As noted below in detail, active management is an essential need of these species, one which cannot be accomplished through a critical habitat designation alone. Finally, we note that in Hawaii State law protected Federally listed plants against direct take, a protection not found in the ESA.

If a critical habitat designation reduces the likelihood that voluntary conservation activities will be carried out on the island of Hawaii, and at the same time fails to confer a counterbalancing positive regulatory or educational benefit to the species, then the benefits of excluding such areas



from critical habitat outweigh the benefits of including them. Although, the results of this type of evaluation will vary significantly depending on the landowners, geographic areas, and species involved, we believe the State and private lands in proposed units Hawaii Y1 and Y2 merit this evaluation.

#### Other Impacts

##### U.S. Army Lands

As described in the "Analysis of Managed Lands Under Section 3(5)(A)" section above, based on our evaluation of the adequacy of special management and protection that is provided in the Army's INRMP for PTA (Department of the Army 2002) for the plant species addressed in this proposal which are found on Army land, in accordance with section 3(5)(A)(i) of the Act, we have not included the Army's PTA in this final designation of critical habitat. However, to the extent that special management considerations and protection may be required for this area and it would meet the definition of critical habitat according to section 3(5)(A)(i), it is properly excluded from designation under section 4(b)(2) of the Act, based on the following analysis.

As explained below, we believe the benefits of designating critical habitat for the 12 species at PTA (*Asplenium fragile* var. *insulare*, *Hedyotis coriacea*, *Isodendron hosakea*, *Neraudia ovata*, *Portulaca sclerocarpa*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, *Vigna o-wahuensis*, and *Zanthoxylum hawaiiense*) and the lands being acquired as part of their "Transformation" to a Stryker Brigade Combat Team are relatively low and outweighed by the benefits of excluding these lands from critical habitat. We also have concerns that a critical habitat designation may negatively impact the Army's ability to effectively carry out a recently proposed training and equipment conversion program on the island of Hawaii.

The Army's PTA, including the lands being acquired for "Transformation," is occupied habitat for 12 species, as referenced above. A total of 28,384 ha (70,138 ac) are excluded from final critical habitat, all of which is considered occupied by one or more listed species.

According to our published recovery plans, recovery of these 12 species will require reproducing, self-sustaining populations located in a geographic array across the landscape, with population numbers and population locations of sufficient robustness to

withstand periodic threats caused by to natural disaster or biological threats (Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997a, 1998a, 1998b, 1998c, 1999). The highest priority recovery tasks include proactive management such as plant propagation and reintroduction, fire control, nonnative species removal, and ungulate fencing. Failure to implement these active management measures, all of which require voluntary landowner support and participation, increases the likelihood that species will go extinct or not recover. The Army is undertaking many of these types of conservation actions on their land on the island of Hawaii as part of the implementation of the INRMP for PTA. These activities, which are described in more detail in the "Analysis of Managed Lands Under Section 3(5)(A)" section, require substantial financial obligations by the Army and cooperation with other agencies, landowners, and local residents.

The following analysis describes the likely positive and negative impacts of a critical habitat designation on Army land compared to the likely positive and negative impacts of a critical habitat exclusion of that land. The Service paid particular attention to the following issues: to what extent a critical habitat designation would confer additional regulatory, educational, and social benefits; and to what extent would critical habitat interfere with the Army's ongoing proactive conservation actions.

##### (1) Benefits of Designating U.S. Army Lands as Critical Habitat

Pohakuloa Training Area contains habitat essential to the conservation of the 12 species listed above. The primary regulatory benefit provided by a critical habitat designation on Army land is the requirement under section 7 of the Act that any actions authorized, funded, or carried out by the Army would not destroy or adversely modify any critical habitat, which includes an evaluation on the effects of the action on recovery of the species. However, as discussed above, all of the critical habitat proposed at PTA is occupied by listed species and thus section 7 consultation would already be required.

In addition, any net benefit of this aspect of critical habitat has been significantly minimized by the Army's commitment to coordinate with the Service on any of its activities that may adversely affect areas whether occupied or unoccupied by listed species that are considered essential to their conservation (*i.e.*, proposed as critical habitat) (Anderson, *in litt.* March 20, 2003). In fact, for the current

consultation at PTA, which includes the areas being acquired for "Transformation," the Army is evaluating impacts of its ongoing and future training activities on habitat considered essential to the conservation, including habitat unoccupied by listed species.

Moreover, the section 7 mandate to avoid destroying critical habitat does not extend to requiring plant reintroductions or other proactive conservation measures (*e.g.*, ungulate control) considered essential to the conservation of the species. As discussed above, the major threat to these species is the persistent and expanding presence of alien species. Failure to implement proactive management measures such as alien species removal and ungulate and rat management, as well as management of fire risk and plant propagation and reintroduction, may result in extinction of these species even with a critical habitat designation. These actions are, however, included in the Army's INRMP for PTA and will provide tangible benefits that will reduce the likelihood of extinction and increase the chances of recovery.

Another potential benefit of a critical habitat designation on this Army land is the education of the Army and the general public concerning the conservation value of this land. While we believe these educational benefits are important for the conservation of these species, we believe it has already been achieved through the Army's INRMP (for example, most of the INRMP's biologically sensitive areas overlap with proposed critical habitat), publication of the proposed critical habitat rule, the many public and interagency meetings that have been held to discuss the proposal, and discussion contained in this final rule.

In sum, the Army will manage for the conservation of all of these species through their INRMP process; this management will confer significant conservation benefits to the species that would not necessarily result from the section 7 consultation process. In addition, the Army has agreed to coordinate with the Service on any actions that may affect essential habitat areas (whether occupied or unoccupied by the listed species) even if these areas are not designated as final critical habitat. Taken together, these two management commitments by the Army lead the Service to conclude that any additional incremental regulatory benefits provided by a final critical habitat designation on Army lands would be relatively small.

## (2) Benefits of Excluding U.S. Army Lands From Critical Habitat

When evaluating the potential negative impacts of a critical habitat designation and the potential benefits of excluding Army land from final critical habitat, the Service considered whether critical habitat designation would affect Army's military mission at PTA.

As noted above, these plants will need actions that proactively remove existing threats and that include propagation and reintroduction into unoccupied areas if they are to recover. Neither section 7 consultations nor a critical habitat designation would necessarily result in the implementation of actions needed for recovery of these species.

The Army is engaged in or has committed to engage in a wide variety of proactive conservation management activities that are set out in the "Analysis of Managed Lands Under Section 3(5)(A)" section of this rule.

The Service also considered whether a final critical habitat designation would negatively impact the Army's military mission. Overall, the Service believes it has been able to work closely and in a positive collaborative fashion with the Army to minimize potential negative impacts to the Army's military training activities as a consequence of Endangered Species Act regulation.

However, the 2nd Brigade of the 25th Infantry Division (Light) based at PTA has recently been selected to participate in the experimental "Transformation" of its force to a lighter rapidresponse force known as a Stryker Brigade Combat Team. The Army has stated that a final critical habitat designation may lead to disruption in training and a delay of construction of required training facilities if the Army has to consult on the impacts to newly designated critical habitat. The active training areas allow the troops to attain skills to respond to enemy fire quickly and accurately and to train in offensive operations. The natural and physical attributes of the training areas in Hawaii realistically mirror the battlefield conditions found in other nations in the Pacific region. As these training conditions are not found anywhere else in the continental United States, the Army states that it is imperative that the utilization of the military training installations in Hawaii not be impeded by additional requirements associated with section 7 consultations on critical habitat designations.

## (3) The Benefits of Excluding Army Lands From Critical Habitat Outweigh the Benefits of Inclusion

Based on the above considerations, and in accordance with section 4(b)(2) of the Act, we have determined that the benefits to national security of excluding the Army's PTA from critical habitat, as set forth above, outweigh the benefits of including this land in critical habitat for the 12 species listed above. We have carefully weighed the relative benefits of each option.

Although these areas within Army land are removed from the final critical habitat designation, the Service still considers them essential to the conservation of these species. The number of populations for which the habitat on these installations provides is applied towards the overall recovery goal of 8 to 10 populations for each species (see discussion below), and it is anticipated that these lands will be managed under the Army's INRMP for PTA consistent with the conservation goals for these species.

## (4) Exclusion of This Unit Will Not Cause Extinction of the Species

For both the three endemic (*Isodendron hosakea*, *Neraudia ovata*, and *Silene hawaiiensis*) and the nine multi-island species (*Asplenium fragile* var. *insulare*, *Hedyotis coriacea*, *Portulaca sclerocarpa*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, *Vigna owahuensis*, and *Zanthoxylum hawaiiense*), the Service concludes that the Army's mission and management plan (e.g., INRMP) will provide more net conservation benefits than would be provided if these areas were designated as critical habitat. This management plan, which is described above, will provide tangible conservation benefits that will reduce the likelihood of extinction for the listed plants in these areas of the island of Hawaii and increase their likelihood of recovery. Further, all of this area is occupied by all 12 species and thereby benefits from the section 7 protections of the Act. The exclusion of these areas will not increase the risk of extinction to any of these species, and it may increase the likelihood these species will recover by encouraging other landowners to implement discretionary conservation activities as the Army has done.

In addition, critical habitat is being designated on other areas of the island of Hawaii for the three endemic species, and critical habitat has been designated elsewhere on the island, and/or designated or proposed on other islands,

for eight of the remaining nine multi-island species consistent with the guidance in recovery plans. These other designations identify conservation areas for the maintenance and expansion of the existing populations.

Critical habitat is not designated for *Tetramolopium arenarium* on the island of Hawaii because the areas containing the physical and biological features essential to the conservation of this species are on excluded lands at PTA. Critical habitat was not designated on Maui because we were not able to identify the physical and biological features that are considered essential to the conservation of this species on the island of Maui.

In sum, the above analysis concludes that the exclusion of these lands will not cause extinction and should in fact improve the chances of recovery for all 12 species.

## Private Lands

### Kamehameha Schools

The portion of proposed units Hawaii G, W, and Z on Kamehameha Schools lands is occupied habitat for six species: *Bonamia menziesii*, *Cyanea stictophylla*, *Delissea undulata*, *Phyllostegia racemosa*, *Phyllostegia velutina*, and *Pleomele hawaiiensis* and unoccupied habitat for three species: *Argyroxiphium kauense*, *Cyanea shipmanii*, and *Neraudia ovata*. According to our published recovery plans, recovery of these species will require reproducing, self-sustaining populations located in a geographic array across the landscape, with population numbers and population locations of sufficient robustness to withstand periodic threats caused by natural disaster or biological threats (Service 1994, 1995a, 1996a, 1996b, 1996c, 1997a, 1998a, 1998b, 1998c, 1999). The highest priority recovery tasks include active management such as plant propagation and reintroduction, fire control, nonnative species removal, and ungulate fencing. Failure to implement these active management measures, all of which require voluntary landowner support and participation, virtually assures the extinction of these species. Many of these types of conservation actions in these areas of the island of Hawaii are carried out as part of Kamehameha School's participation with landowner incentive-based programs and by actions taken on the landowner's initiative. These activities, which are described in more detail below, require substantial voluntary cooperation by Kamehameha Schools and other cooperating landowners and local residents.

The following analysis describes the likely conservation benefits of a critical habitat designation compared to the conservation benefits without critical habitat designation. We paid particular attention to the following issues: To what extent a critical habitat designation would confer regulatory conservation benefits on these species; to what extent the designation would educate members of the public such that conservation efforts would be enhanced; and whether a critical habitat designation would have a positive, neutral, or negative impact on voluntary conservation efforts on this privately owned land as well as other non-Federal lands on the island of Hawaii that could contribute to recovery.

If a critical habitat designation reduces the likelihood that voluntary conservation activities will be carried out on the island of Hawaii, and at the same time fails to confer a counterbalancing positive regulatory or educational benefit to the species, then the benefits of excluding such areas from critical habitat outweigh the benefits of including them. Although the results of this type of evaluation will vary significantly depending on the landowners, geographic areas, and the species involved, we believe the Kamehameha Schools lands on the island of Hawaii merit this evaluation.

#### (1) Benefits of Inclusion

Critical habitat in the Kamehameha Schools portion of units Hawaii G, W, and Z was proposed for the following species: *Argyroxiphium kauense*, *Bonamia menziesii*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Delissea undulata*, *Neraudia ovata*, *Phyllostegia racemosa*, *Phyllostegia velutina*, and *Pleomele hawaiiensis*. The primary direct benefit of inclusion of these lands as critical habitat would result from the requirement under section 7 of the Act that Federal agencies consult with us to ensure that any proposed Federal actions do not destroy or adversely modify critical habitat.

The benefit of a critical habitat designation would ensure that any actions funded by or permits issued by a Federal agency would not likely destroy or adversely modify any critical habitat. Without critical habitat, some site-specific projects might not trigger consultation requirements under the Act in areas where species are not currently present; in contrast, Federal actions in areas occupied by listed species would still require consultation under section 7 of the Act.

Historically, we have conducted only two formal and 21 informal consultations under section 7 on the

island of Hawaii for any of the 41 plant species. Only two consultations involved Kamehameha Schools lands, both of which were intra-Service consultations on conservation projects. One consultation was regarding a project to restore Opaepa Pond; however, none of the 47 species at issue were involved. The other consultation was regarding restoring dryland forest. The proposed restoration actions were found to benefit two species at issue here, *Bonamia menziesii* and *Nototrichium breviflorum*. As a result of the low level of previous Federal activity on Kamehameha Schools lands on the island, and after considering that the likely future Federal activities that might occur on these lands would be minimal and associated with Federal funding for conservation activities, it is our opinion that there is likely to be a low number of future Federal activities that would negatively affect habitat on Kamehameha Schools lands. A Federal nexus is anticipated in association with the finalization of a Safe Harbor Agreement and issuance of an enhancement of survival permit; however, these activities will have a net conservation benefit for the species concerned. Therefore, we anticipate little additional regulatory benefit from including this portion of units Hawaii G, W, and Z in critical habitat beyond what is already provided for by the existing section 7 nexus for habitat areas occupied by the listed extant species.

Another possible benefit is that the designation of critical habitat can serve to educate the public regarding the potential conservation value of an area, and this may focus and contribute to conservation efforts by other parties by clearly delineating areas of high conservation value for certain species. Information about the nine species for which critical habitat was proposed in this portion of units Hawaii G, W, and Z that reaches a wide audience, including other parties engaged in conservation activities, could have a positive conservation benefit. This result has been achieved through an exhaustive process that involved dozens of public and interagency meetings, media outreach including front-page articles in major newspapers, and several publications in the **Federal Register**. Final species-specific maps identifying habitat areas essential to the conservation of these species on Kamehameha Schools lands have been prepared and will be provided to Kamehameha Schools and other interested parties. These maps will ensure Kamehameha Schools is completely informed regarding what

precise areas are important to which species.

In addition, we believe that education of relevant sectors of the public is being achieved through the existing management and education efforts carried out by Kamehameha Schools and their conservation partners. Kamehameha Schools participates in the Olaa-Kilauea Management Partnership along with Federal and State agencies, along with other private landowners, to protect the biological resources of the Olaa-Kilauea area.

In sum, we believe that a critical habitat designation for listed plants on Kamehameha Schools lands would provide a relatively low level of additional regulatory conservation benefits to each of the plant species beyond what is already provided by existing section 7 consultation requirements caused by the physical presence of the nine listed species. Any regulatory conservation benefits would accrue through the benefit associated with additional section 7 consultation associated with critical habitat. Based on a review of past consultations and consideration of the likely future activities in this specific area, we expect little Federal activity that would trigger section 7 consultation to occur on this privately owned land. We also believe that critical habitat designation would provide little additional educational benefit since the conservation value is already known by the landowner, the State, Federal agencies, and private organizations, and the area has been identified as essential to the conservation of nine plant species through publication in the proposed critical habitat rule and this final rule.

#### (2) Benefits of Exclusion

Proactive voluntary conservation efforts are necessary to prevent the extinction and promote the recovery of these species on the island of Hawaii and other Hawaiian islands (Shogren *et al.* 1991; Wilcove and Chen 1998; Wilcove *et al.* 1998). Consideration of this concern is especially important in areas where species have been extirpated and their recovery requires access and permission for reintroduction efforts (Bean 2002; Wilcove *et al.* 1998). For example, three of the nine species associated with proposed units Hawaii G, W, and Z are extirpated from Kamehameha Schools lands, and repopulation is likely not possible without human assistance and landowner cooperation.

Kamehameha Schools is involved in several important voluntary conservation agreements and is currently carrying out some of these

activities for the conservation of these species. They have developed two programs that demonstrate their conservation commitments, Aina Ulu and Malama Aina. The Aina Ulu program implements land based education programs, whereas Malama Aina delivers focused stewardship of natural resources.

Malama Aina has been focused in two distinct areas, Keauhou in Kau District and North-South Kona, with a budget commitment in 2002 of \$1,000,000, not including staff expenses. Kamehameha Schools has more than 25 years of stewardship experience at Keauhou in Kau District, which includes the Olaa-Kilauea Management partnership project entered into on July 6, 1994. This area is within proposed critical habitat unit Hawaii G. The vision for Keauhou is to restore the native ecosystems in order to utilize the entire area for education and cultural enrichment by using sustainable economic ventures to support these programs. Activities within this program include timber certification, large and small mammal control, weed control, koa thinning, propagation and outplanting of both rare and common native plants, inventory, monitoring and data analysis of stewardship efforts, access road improvement, refuse clean up, and the purchase of Keauhou Ranch. Participating partners include: Cultural practitioners (the Edith Kanakaole Foundation and the Polynesian Voyaging Society), ranching and timber interests (Hawaii Forest Industry Association), researchers and scientists (University of Hawaii at Manoa and Hilo, the Zoological Society of San Diego, U.S. Forest Service, Hawaiian Silversword Foundation, and USGS-BRD), educators (Nawahi Charter School), natural resource managers (Olaa-Kilauea Management Group, DOFAW, the Service, HVNP, and The Nature Conservancy of Hawaii (TNCH)). Malama Aina has allocated \$681,000, and Aina Ulu has allocated \$33,000. Preservation of this area conserves critically endangered species of plants and animals in a mix of ecosystems with microenvironments required by some of Hawaii's rarest plants and animals, including endangered forest birds and lobeliads (plants in the family Campanulaceae). This management strategy is consistent with recovery of these species.

Kamehameha's Schools North-South Kona natural resource conservation efforts focus on three distinct areas: Honaunau Forest and Honaunau Uka, Kaupulehu Kauila Lama Forest and Kaupulehu Uka, and Pulehua. Kamehameha Schools started a weed

control program in 2002 in Honaunau Forest and Honaunau Uka. In both the Forest and Uka areas, they will continue the weed control program, along with a timber certification program to write certifiable plans and complete inventories. In the Honaunau Uka area, they will construct an ungulate exclosure fence and issue a contract for a botanical survey, and in the Honaunau Forest the road will be maintained. Funds allocated for the implementation of these projects total \$52,500 to Honaunau Forest and \$29,500 to Honaunau Uka. Kaupulehu Kauila Lama Forest and Kaupulehu Uka lie within the proposed critical habitat unit Hawaii Z. Conservation activities in the Aina Ulu program at Kaupulehu Kauila Lama Forest include an intern program, an outreach coordinator, multimedia curriculum development, small mammal and weed control, road maintenance, installation of self-composting toilets, and precious wood-gathering. Funds allocated for these projects total \$70,700. Malama Aina projects at Kaupulehu Uka include timber certification, large mammal and weed control, ungulate exclosure fencing, inventory, monitoring and data analysis of conservation actions and road maintenance. Funds allocated for those projects total \$101,000. Partners include: Hawaii Forest Industry Association, the Service, DOFAW, local residents, PIA Sports Properties (lessee), U.S. Forest Service, National Tropical Botanical Garden (lessee), and Honokaa High School. Pulehua lies within proposed critical habitat unit Hawaii W. Conservation efforts at Pulehua are in the beginning stages. Conservation projects in 2003 will focus on weed control, with \$7,500 allocated. In 2002, an ungulate control program was initiated, which included \$7,000 to study ungulate issues in Kona. This year's budget includes \$35,000 for ungulate control, with an additional \$40,000 to construct enclosures to measure the success of the control efforts.

Because Kamehameha Schools' goal is to improve habitat for threatened and endangered species, the district is developing a Safe Harbor Agreement with the Service and the State through the Safe Harbor program. The Safe Harbor program encourages proactive management to benefit endangered and threatened species on non-Federal lands by providing regulatory assurances to landowners that no additional Endangered Species Act restrictions will be imposed on future land, water, or resource use for enrolled lands. The Safe Harbor Agreement would include

lands within proposed critical habitat units W and Z. The purpose of Kamehameha Schools' Safe Harbor Agreement is to encourage voluntary restoration and enhancement of habitat for threatened and endangered species, and to enable certain species to be reintroduced onto Kamehameha Schools' lands where such species formerly occurred, including the bird species palila (*Loxoides bailleui*), as well as *Argyroxiphium kauense* and *Delissea undulata*. Some of the conservation activities planned under this Agreement include fencing areas containing mamane (*Sophora chrysophylla*), removal of ungulates, control of ungulates in areas that are not fenced, removal of predators (e.g., rats), and the release of palila into the area. Currently, the Agreement being developed includes only the palila. However, other listed and candidate animal and plant species and other conservation activities will be added in the future (Peter Simmons, Kamehameha Schools, *in litt.* 2003).

As described earlier, Kamehameha Schools has a history of entering into conservation agreements with various Federal and State agencies and private organizations on biologically important portions of their lands. These arrangements have taken a variety of forms. They include partnership commitments such as the Olaa-Kilauea Partnership and the Dryland Forest Working Group. The listed plant species originally included within the Kamehameha Schools portion of proposed units Hawaii G, W, and Z will benefit substantially from their voluntary management actions because of a reduction in ungulate browsing and habitat conversion, a reduction in competition with nonnative weeds, a reduction in risk of fire, and the reintroduction of species currently extirpated from various areas and for which the technical ability to propagate these species currently exists or will be developed in the near future.

The conservation benefits of critical habitat are primarily regulatory or prohibitive in nature. But on the island of Hawaii, simply preventing "harmful activities" will not slow the extinction of listed plant species. Where consistent with the discretion provided by the Act, we believe it is necessary to implement policies that provide positive incentives to private landowners to voluntarily conserve natural resources, and that remove or reduce disincentives to conservation (Michael 2001; Michael, *in press*). Thus, we believe it is essential for the recovery of these nine species to build on continued conservation activities, such as these with a proven

partner, and to provide incentives for other private landowners on the island of Hawaii who might be considering implementing voluntary conservation activities but have concerns about incurring incidental regulatory or economic impacts.

Approximately 80 percent of imperiled species in the United States occur partly or solely on private lands where the Service has little management authority (Wilcove *et al.* 1996). In addition, recovery actions involving the reintroduction of listed species onto private lands require the voluntary cooperation of the landowner (Bean 2002; James 2002; Knight 1999; Main *et al.* 1999; Norton 2000; Shogren *et al.* 1999; Wilcove *et al.* 1998). Therefore, “a successful recovery program is highly dependent on developing working partnerships with a wide variety of entities, and the voluntary cooperation of thousands of non-Federal landowners and others is essential to accomplishing recovery for listed species” (Crouse *et al.* 2002). Because large tracts of land suitable for conservation of threatened and endangered species are mostly owned by private landowners, successful recovery of listed species on the island of Hawaii is especially dependent upon working partnerships and the voluntary cooperation of private landowners.

Kamehameha Schools owns over 6,800 acres of land proposed as critical habitat in the Agricultural District. According to the final economic analysis, if this land were redistricted to the Conservation District, the total potential loss in property value could be more than approximately \$1,997,000. They could also spend over \$50,000 contesting a proposed redistricting. Thus, designation of critical habitat on Kamehameha Schools land could result in an economic impact to the Trust of over \$2 million.

### (3) The Benefits of Exclusion Outweigh the Benefits of Inclusion

Based on the above considerations, we have determined that the benefits of excluding the Kamehameha Schools lands in proposed units Hawaii G, W, and Z as critical habitat outweigh the benefits of including them as critical habitat for *Argyroxiphium kauense*, *Bonamia menziesii*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Delissea undulata*, *Neraudia ovata*, *Phyllostegia racemosa*, *Phyllostegia velutina*, and *Pleomele hawaiiensis*.

This conclusion is based on the following factors:

1. A substantial amount of the Kamehameha Schools lands in proposed units Hawaii G, W, and Z is currently

being managed by the landowner on a voluntary basis in cooperation with us, cultural practitioners (the Edith Kanakaole Foundation and the Polynesian Voyaging Society), ranching and timber interests (Hawaii Forest Industry Association), researchers and scientists (UH Manoa and Hilo, the Zoological Society of San Diego, U.S. Forest Service, Silversward Foundation, and USGS-BRD), educators (Nawahi Charter School), and natural resource managers (Olaa-Kilauea Management Group, DOFAW, HVNP, National Tropical Botanical Garden, and TNCH) to achieve important conservation goals.

2. In the past, Kamehameha Schools has cooperated with Federal and State agencies and private organizations to implement voluntary conservation activities on their lands that have resulted in tangible conservation benefits.

3. Simple regulation of “harmful activities” is not sufficient to conserve these species. Landowner cooperation and support is required to prevent the extinction and promote the recovery of all of the listed species on this island, because of the need to implement proactive conservation actions such as ungulate management, weed control, fire suppression, plant propagation, and outplanting. This need for landowner cooperation is especially acute because the proposed units Hawaii G, W, and Z are unoccupied by three of the nine species. Future conservation efforts, such as translocation of these three plant species back into unoccupied habitat on these lands, will require the cooperation of Kamehameha Schools. Exclusion of Kamehameha Schools lands from this critical habitat designation will help the Service maintain and improve this partnership by formally recognizing the positive contributions of Kamehameha Schools to plant recovery, and by streamlining or reducing unnecessary oversight.

4. Especially given the current partnership agreements between Kamehameha Schools and many other organizations, we believe the benefits of including Kamehameha Schools lands as critical habitat are relatively small. The designation of critical habitat can serve to educate the general public as well as conservation organizations regarding the potential conservation value of an area, but this goal is already being accomplished through the identification of this area in the management agreements described above. Likewise, there will be little Federal regulatory benefit to the species because: (a) There is a low likelihood that these proposed critical habitat units will be negatively affected to any

significant degree by Federal activities requiring section 7 consultation, and (b) these areas are already occupied by six listed species and a section 7 nexus already exists. We are unable to identify any other potential benefits associated with critical habitat for these portions of the proposed units.

5. We believe it is necessary to establish positive working relationships with representatives of the Native Hawaiian community. This approach of excluding critical habitat and entering into a mutually agreeable conservation partnership strengthens this relationship and should lead to conservation benefits beyond the boundaries of Kamehameha Schools land. It is an important long term conservation goal of the Service to work cooperatively with the Native Hawaiian community to help recover Hawaii's endangered species. This partnership with Kamehameha Schools is an important step forward toward this goal.

6. While we didn't find that designating critical habitat on Kamehameha Schools land would have a significant economic impact on them, the potential cost of over \$1.65 million could affect Kamehameha Schools' willingness to continue their conservation partnerships. Even if they did continue to implement conservation activities on their Kamehameha Schools' land, this potential cost may result in a reduction of the amount of funding they would commit to conservation activities.

7. It is well documented that publicly owned lands and lands owned by private organizations alone are too small and poorly distributed to provide for the conservation of most listed species (Bean 2002; Crouse *et al.* 2002). Excluding these Kamehameha Schools lands from critical habitat may, by way of example, provide positive social, legal, and economic incentives to other non-Federal landowners on the island of Hawaii who own lands that could contribute to listed species recovery if voluntary conservation measures on these lands are implemented (Norton 2000; Main *et al.* 1999; Shogren *et al.* 1999; Wilcove and Chen 1998). As resources allow, the Service would be willing to consider future revisions or amendments to this final critical habitat rule if landowners affected by this rule develop conservation programs or partnerships (e.g., Habitat Conservation Plans, Safe Harbor Agreements, conservation agreements) on their lands that outweigh the regulatory and other benefits of a critical habitat designation.

In conclusion, we find that the exclusion of critical habitat in the Kamehameha Schools portions of

proposed units Hawaii G, W, and Z would most likely have a net positive conservation effect on the recovery and conservation of these nine plant species when compared to the positive conservation effects of a critical habitat designation. As described above, the overall benefits to these species of a critical habitat designation on Kamehameha Schools lands are relatively small. In contrast, we believe this exclusion will enhance our existing partnership with Kamehameha Schools, and it will set a positive example and provide positive incentives to other non-Federal landowners who may be considering implementing voluntary conservation activities on their lands. We conclude there is a greater likelihood of beneficial conservation activities occurring in these and other areas of the island of Hawaii without designated critical habitat than there would be with designated critical habitat on these Kamehameha Schools lands.

#### (4) Exclusion of This Unit Will Not Cause Extinction of the Species

In considering whether or not exclusion of Kamehameha Schools lands in proposed units Hawaii G, W, and Z might result in the extinction of any of these nine species, we first considered the impacts to the seven species endemic to the island of Hawaii (*Argyroxiphium kauense*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Neraudia ovata*, *Phyllostegia racemosa*, *Phyllostegia velutina*, and *Pleomele hawaiiensis*), and second to the two species known from the island of Hawaii and one or more other Hawaiian islands (*Bonamia menziesii* and *Delissea undulata*).

These agreements, which are described above, will provide tangible proactive conservation benefits that will reduce the likelihood of extinction for both the seven endemic and the two multi-island species in these areas of the island of Hawaii and increase their likelihood of recovery. Extinction for any of these species as a consequence of this exclusion is unlikely because there are no known threats in these portions of proposed units Hawaii G, W, and Z due to any current or reasonably anticipated Federal actions that might be regulated under section 7 of the Act. Further, these areas are already occupied by six of the nine species and thereby benefit from the section 7 protections of the Act, should such an unlikely Federal threat actually materialize. The exclusion of these Kamehameha Schools lands will not increase the risk of extinction to any of these species, and it may increase the

likelihood these species will recover by encouraging other landowners to implement voluntary conservation activities as Kamehameha Schools has done.

In addition, critical habitat is being designated on other areas of the island of Hawaii for all seven of the endemic species (units Hawaii 10—*Argyroxiphium kauense*—a, Hawaii 24—*Argyroxiphium kauense*—b, Hawaii 25—*Argyroxiphium kauense*—c, Hawaii 30—*Argyroxiphium kauense*—d, Hawaii 1—*Cyanea shipmanii*—a, Hawaii 30—*Cyanea shipmanii*—b, Hawaii 30—*Cyanea shipmanii*—c, Hawaii 15—*Cyanea stictophylla*—a, Hawaii 16—*Cyanea stictophylla*—b, Hawaii 24—*Cyanea stictophylla*—c, Hawaii 30—*Cyanea stictophylla*—d, Hawaii 10—*Neraudia ovata*—a, Hawaii 18—*Neraudia ovata*—d, Hawaii 1—*Phyllostegia racemosa*—a, Hawaii 2—*Phyllostegia racemosa*—b, Hawaii 30—*Phyllostegia racemosa*—c, Hawaii 24—*Phyllostegia velutina*—a, Hawaii 30—*Phyllostegia velutina*—b, Hawaii 7—*Pleomele hawaiiensis*—a, Hawaii 10—*Pleomele hawaiiensis*—b, Hawaii 18—*Pleomele hawaiiensis*—c, and Hawaii 23—*Pleomele hawaiiensis*—d). Critical habitat has also been designated elsewhere on the island of Hawaii (Hawaii 10—*Bonamia menziesii*—a, Hawaii 10—*Delissea undulata*—a, and Hawaii 10—*Delissea undulata*—b) and designated on other islands for the remaining two multi-island species within their historical range consistent with the guidance in recovery plans. Critical habitat has been designated for *Bonamia menziesii* on Kauai (habitat for two populations), Oahu (habitat for four populations), and Maui (habitat for one population) (68 FR 9116; 68 FR 35949; 68 FR 25934). Habitat for one population is in the excluded lands on Lanai (68 FR 1220). We have designated critical habitat for *Delissea undulata* on Kauai (habitat for three populations) (68 FR 9116). These other designations identify conservation areas for the maintenance and expansion of the existing populations.

In sum, the above analysis concludes that an exclusion of Kamehameha Schools lands within proposed units Hawaii G, W, and Z from final critical habitat on the island of Hawaii will have a net beneficial impact with little risk of negative impacts. Therefore, the exclusion of the Kamehameha Schools portions of proposed units Hawaii G, W, and Z will not cause extinction and should in fact improve the chances of recovery for *Argyroxiphium kauense*, *Bonamia menziesii*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Delissea undulata*, *Neraudia ovata*, *Phyllostegia racemosa*,

*Phyllostegia velutina*, and *Pleomele hawaiiensis*.

#### Queen Liliuokalani Trust

The southwestern portion of proposed unit Hawaii Y2 on Queen Liliuokalani Trust land is unoccupied habitat for two species: *Isodendron pyriformis* and *Neraudia ovata*. According to our published recovery plans, recovery of these two species will require reproducing, self-sustaining populations located in a geographic array across the landscape, with population numbers and population locations of sufficient robustness to withstand periodic threats caused by natural disaster or biological threats (Service 1996, 1998). The highest priority recovery tasks include active management, such as plant propagation and reintroduction, fire control, nonnative species removal, and ungulate fencing. Failure to implement these active management measures on this and other units, all of which require voluntary landowner support and participation, virtually assures the extinction of these species in the wild. Many of these types of conservation actions in this area of the island of Hawaii will be carried out as part of Queen Liliuokalani Trust's partnership with the Service and by actions taken on the landowner's initiative. These activities, which are described in more detail below, require substantial voluntary cooperation by Queen Liliuokalani Trust.

The following analysis describes the likely conservation benefits of a critical habitat designation compared to the conservation benefits without critical habitat designation. We paid particular attention to the following issues: To what extent a critical habitat designation would confer regulatory conservation benefits on these species; to what extent the designation would educate members of the public such that conservation efforts would be enhanced; and whether a critical habitat designation would have a positive, neutral, or negative impact on voluntary conservation efforts on this privately owned land as well as other non-Federal lands on the island of Hawaii that could contribute to recovery.

If a critical habitat designation reduces the likelihood that voluntary conservation activities will be carried out on the island of Hawaii, and at the same time fails to confer a counterbalancing positive regulatory or educational benefit to the species, then the benefits of excluding such areas from critical habitat outweigh the benefits of including them. Although, the results of this type of evaluation will vary significantly depending on the

landowners, geographic areas, and species involved, we believe the Queen Liliuokalani Trust lands in proposed unit Hawaii Y2 merit this evaluation.

#### (1) Benefits of Inclusion

Critical habitat in the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 was proposed for *Isodendron pyrifolium* and *Neraudia ovata*. The primary direct benefit of inclusion of this portion of proposed unit Hawaii Y2 as critical habitat would result from the requirement under section 7 of the Act that Federal agencies consult with us to ensure that any proposed Federal actions do not destroy or adversely modify critical habitat.

Historically, we have conducted two formal and 21 informal consultations under section 7 on the island of Hawaii for any of the 47 plant species. None were for Queen Liliuokalani Trust land. As a result of the low level of previous Federal activity on Queen Liliuokalani Trust land, and after considering the likely low probability of Federal activities that might occur on this land (no anticipated Federal permits or funding), we think that there is likely to be a low number of future Federal activities that would negatively affect habitat on the Queen Liliuokalani Trust portion of proposed critical habitat (DEA 2002). Therefore, there is a low regulatory benefit of a critical habitat designation in this area.

Another possible benefit is that the designation of critical habitat can serve to educate the public regarding the potential conservation value of an area, and this may focus and contribute to conservation efforts by other parties by clearly delineating areas of high conservation value for certain species. Any information about these two species and their habitats that reaches a wide audience, including other parties engaged in conservation activities, could have a positive conservation benefit.

While we believe this educational outcome is important for *Isodendron pyrifolium* and *Neraudia ovata*, we believe it has mostly been achieved. Through the proposal of critical habitat, proposed unit Hawaii Y2, including the portion that lies within Queen Liliuokalani Trust land, has been identified as essential to the conservation of two of the 47 plant species addressed in this rule. In addition, the proposed conservation activities to be conducted within proposed unit Hawaii Y2, assisted by the Service, demonstrates that the landowner is already aware of the importance of this area for the

conservation of these two species. It is anticipated that other portions of the general public will likewise be better informed of the value of this area as Queen Liliuokalani Trust implements conservation activities on this land.

In sum, we believe that a critical habitat designation for listed plants on Queen Liliuokalani Trust land would provide a relatively low level of additional regulatory conservation benefits to *Isodendron pyrifolium* and *Neraudia ovata*. Any regulatory conservation benefits would accrue through the benefit associated with section 7 consultation associated with critical habitat. Based on a review of past consultations and consideration of the likely future activities in this specific area, we determined that there is little Federal activity expected to occur on this privately owned land that would trigger section 7 consultation.

#### (2) Benefits of Exclusion

While the economic analysis concludes the designation of critical habitat on Queen Liliuokalani Trust land would not prevent them from developing their property, the analysis assumes it is reasonably foreseeable that the designation could cause a delay in development approvals as additional environmental studies may be conducted, and State and county officials investigate the implications of critical habitat on the property. The value of the loss of this potential delay is estimated to be between \$13.8 and \$21.6 million.

In addition, proactive voluntary conservation efforts are necessary to prevent the extinction and promote the recovery of these listed plant species on the island of Hawaii and other Hawaiian islands (Shogren *et al.* 1999; Wilcove and Chen 1998; Wilcove *et al.* 1998). Consideration of this concern is especially important in areas where species have been extirpated and their recovery requires access and permission for reintroduction efforts (Bean 2002; Wilcove *et al.* 1998). For example, since both species associated with proposed unit Y2 are extirpated from Queen Liliuokalani Trust land, repopulation is likely not possible without human assistance and landowner cooperation.

Under the terms of its January 17, 2003, proposal to the Service, Queen Liliuokalani Trust has agreed to implement a voluntary conservation partnership with the Service which will benefit these species. The conservation partnership includes the following: (1) The Trust is willing to partner with us on a propagation project for the *Isodendron pyrifolium* under a Service cost-sharing agreement. The Trust will

contribute up to \$10,000 toward the propagation research project to be conducted by an expert acceptable to both Queen Liliuokalani Trust and the Service. The trust will also integrate this effort with its cultural and educational programs with children and develop a curriculum similar to one at Kaala Farms in Waianae on Oahu, an island where *Isodendron pyrifolium* was historically found; (2) the Trust agrees to set aside for outplanting 21 ha (53 ac) of land, consisting of 10 ha (25 ac) in the northern portion of the Queen Liliuokalani Trust property and 11 ha (28 ac) in the southeast portion. The Trust will also allow for the reintroduction of *Isodendron pyrifolium*, *Neraudia ovata*, and other endangered species that may be found and/or reintroduced on the property into the designated 22 ha (53 ac). These conservation measures are consistent with recovery of these species.

We believe that both of the species for which proposed unit Hawaii Y2 was originally proposed will benefit from these management actions. The primary benefits are the voluntary propagation and eventual reintroduction of species currently extirpated from this area.

The conservation benefits of critical habitat are primarily regulatory or prohibitive in nature. But, on the island of Hawaii, simply preventing "harmful activities" will not slow the extinction of listed plant species (Bean 2002). Where consistent with the discretion provided by the Act, we believe it is necessary to implement policies that provide positive incentives to private landowners to voluntarily conserve natural resources, and that remove or reduce disincentives to conservation (Wilcove *et al.* 1998). We believe that a voluntary conservation agreement has the highest likelihood of success if critical habitat is not designated as currently proposed because the landowner believes there is an unacceptable risk that the critical habitat designation will result in a decrease in Queen Liliuokalani Trust's ability to remain economically viable. If so, they would lose the ability to generate enough income for programs that benefit orphan and destitute Hawaiian children. We believe that the landowner's concerns over these potential negative impacts, should critical habitat be designated, would affect its voluntary conservation efforts, which we believe are necessary to conserve these species.

Thus, we believe it is essential for the recovery of *Isodendron pyrifolium* and *Neraudia ovata* to instigate voluntary conservation activities such as these that would otherwise not have occurred



on this property and to provide positive incentives for other private landowners on the island of Hawaii who might be considering implementing voluntary conservation activities but have concerns about incurring incidental regulatory or economic impacts.

Approximately 80 percent of imperiled species in the United States occur partly or solely on private lands where the Service has little management authority (Wilcove *et al.* 1996). In addition, recovery actions involving the reintroduction of listed species onto private lands require the voluntary cooperation of the landowner (Bean 2002; James 2002; Knight 1999; Main *et al.* 1999; Norton 2000; Shogren *et al.* 1999; Wilcove *et al.* 1998). Therefore, "a successful recovery program is highly dependent on developing working partnerships with a wide variety of entities, and the voluntary cooperation of thousands of non-Federal landowners and others is essential to accomplishing recovery for listed species" (Crouse *et al.* 2002). Because large tracts of land suitable for conservation of threatened and endangered species are owned by private landowners, successful recovery of listed species on the island of Hawaii is especially dependent upon working partnerships and the voluntary cooperation of non-Federal landowners. Without additional voluntary conservation efforts for these two species, recovery will not occur.

### (3) The Benefits of Exclusion Outweigh the Benefits of Inclusion

Based on the above considerations, we have determined that the benefits of excluding the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 from critical habitat outweigh the benefits of including it as critical habitat for *Isodendron pyriform* and *Nerudia ovata*.

This conclusion is based on the following factors:

1. The Queen Liliuokalani Trust has agreed to implement voluntary conservation measures for *Isodendron pyriform* and *Nerudia ovata* on currently unoccupied habitat within Queen Liliuokalani Trust's portion of proposed unit Hawaii Y2.

2. Simple regulation of "harmful activities" is not sufficient to conserve these species. Critical habitat designation would not encourage, and may discourage, reintroductions of these species to these lands. Landowner cooperation and support will be required to prevent the extinction and promote the recovery of all of the listed island-endemic species caused by the need to implement proactive conservation actions such as ungulate

management, weed control, fire suppression, plant propagation, and outplanting. This need for landowner cooperation is especially acute because proposed unit Hawaii Y2 is unoccupied by both of these species. Future conservation efforts, such as reintroduction of these plant species back onto these lands, will require the cooperation of Queen Liliuokalani Trust. Exclusion of Queen Liliuokalani Trust's land from this critical habitat designation will help the Service maintain and improve the voluntary cooperation of Queen Liliuokalani Trust by formally recognizing the positive contributions of Queen Liliuokalani Trust to plant conservation, and by streamlining or reducing unnecessary regulatory oversight. A critical habitat designation absent this cooperation would provide little meaningful conservation benefit to these species because the land would likely remain unoccupied.

3. Given the agreement between the landowner and us, as well as other planned conservation activities on their property, we believe the overall regulatory and educational benefits of including this portion of the unit as critical habitat are relatively small. The designation of critical habitat can serve to educate the general public as well as conservation organizations regarding the potential conservation value of an area, but this goal has been effectively accomplished through the identification of this area in the January 17, 2003, proposal described above. Likewise, there will be little Federal regulatory benefit to the species because (a) there is a low likelihood that this proposed critical habitat unit will be negatively affected to any significant degree by Federal activities requiring section 7 consultation, and (b) the fear that a critical habitat designation on this property will harm the ability of this landowner to generate funds to benefit orphan and destitute Hawaiian children, and any positive educational benefit of designation is negatively impacted when the impression is given that conservation goals can undermine the philanthropic goals of the landowner. We are unable to identify any other potential benefits associated with critical habitat for this portion of the proposed unit.

4. We believe it is necessary to establish positive working relationships with representatives of the Native Hawaiian community. This approach of excluding critical habitat and entering into a mutually agreeable conservation partnership strengthens this relationship and should lead to conservation benefits beyond the

boundaries of Queen Liliuokalani Trust land. The Service has an important long term conservation goal to work cooperatively with the Native Hawaiian community to help recover Hawaii's endangered species. The partnership with Queen Liliuokalani Trust, as articulated in the Trust's letter to us, is an important step forward toward this goal.

5. While we didn't find designating critical habitat on Queen Liliuokalani Trust land would prevent the Trust from proceeding with their proposed development or have a significant economic impact on them, the potential cost of up to \$21.6 million due to possible delays in obtaining State and county approvals and completing the development could affect their willingness to continue their conservation partnerships. Even if they did continue to implement conservation activities on their land, this potential cost may result in a reduction of the amount of funding available for implementing conservation activities. In addition, Queen Liliuokalani Trust uses revenue from its land holding to provide care for orphans and destitute children (with a preference to children of Native Hawaiian ancestry). This potential reduction in revenue could have significant social and cultural impacts on the community.

6. It is well documented that publicly owned lands, lands owned by conservation organizations and privately owned lands alone, are too small and poorly distributed to provide for the conservation of most listed species (Bean 2002, Crouse *et al.* 2002). Excluding these privately owned lands from critical habitat may, by way of example, provide positive social, legal, and economic incentives to other non-Federal landowners on the island of Hawaii who own lands that could contribute to listed species recovery if voluntary conservation measures on these lands are implemented (Norton 2000; Main *et al.* 1999; Shogren *et al.* 1999; Wilcove and Chen 1998).

In conclusion, we find that the exclusion of critical habitat in the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 would have a net positive conservation effect on the recovery and conservation of *Isodendron pyriform* and *Nerudia ovata* when compared to the conservation effects of a critical habitat designation. As described above, the overall benefits to these species of a critical habitat designation on the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 are relatively small. We conclude there is a greater likelihood of beneficial conservation

activities occurring in this area of the island of Hawaii without designated critical habitat than there would be with designated critical habitat in this location. We reached this conclusion because the landowner has agreed to implement voluntary conservation efforts on their lands without critical habitat designation. Therefore, we conclude that the benefits of excluding this portion of proposed unit Hawaii Y2 from critical habitat for *Isodendron pyriformis* and *Neraudia ovata* outweigh the benefits of including it.

#### (4) Exclusion of This Unit Will Not Cause Extinction of the Species

In considering whether or not exclusion of the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 might result in the extinction of either of these two species, we first considered the impacts to the species endemic to the island of Hawaii, *Neraudia ovata*, and second to *Isodendron pyriformis*, which is known from the island of Hawaii and other Hawaiian islands.

For both the endemic and the multi-island species, we conclude that the voluntary conservation measures to be provided by Queen Liliuokalani Trust and the Service will provide more net conservation benefits than would be provided by designating the portion of proposed unit Hawaii Y2 as critical habitat. These conservation measures, which are described above, will provide tangible proactive conservation benefits that will reduce the likelihood of extinction for the two listed plants in this area of the island of Hawaii and increase their likelihood of recovery. Extinction for either of these species as a consequence of this exclusion is unlikely because there are no known threats in this portion of proposed unit Hawaii Y2 due to any current or reasonably anticipated Federal actions that might be regulated under section 7 of the Act. Implementation of the conservation measures by Queen Liliuokalani Trust, and the exclusion of their portion of proposed unit Hawaii Y2, have the greatest likelihood of preventing extinction of these two species, especially *Neraudia ovata*, which is endemic to the island of Hawaii.

In addition, critical habitat is being designated on other areas of the island of Hawaii for *Neraudia ovata* (Hawaii 10—*Neraudia ovata*—a and Hawaii 18—*Neraudia ovata*—d), and critical habitat has been designated elsewhere in the state for *Isodendron pyriformis*. We

have designated critical habitat for *Isodendron pyriformis* within its historical range on Oahu (habitat for three populations), Molokai (habitat for one population), and Maui (habitat for two populations) (68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In addition, habitat for two populations is within the area excluded from critical habitat on Lanai (68 FR 1220, January 9, 2003). These other designations identify conservation areas for the maintenance and expansion of the existing populations.

In sum, the above analysis concludes that an exclusion of Queen Liliuokalani Trust land within proposed unit Hawaii Y2 from final critical habitat on the island of Hawaii will have a net beneficial impact with little risk of negative impacts. Therefore, the exclusion of the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 will not cause extinction and should in fact improve the chances of recovery for *Isodendron pyriformis* and *Neraudia ovata*.

#### Other Private Landowners

As resources allow, the Service would be willing to consider future revisions or amendments to this final critical habitat rule if other landowners affected by this rule develop conservation programs or partnerships (e.g., Habitat Conservation Plans, Safe Harbor Agreements, conservation agreements, etc.) on their lands that outweigh the regulatory and educational benefits of a critical habitat designation.

#### Taxonomic Changes

At the time we listed *Delissea undulata*, *Hibiscus brackenridgei*, *Mariscus fauriei*, *Mariscus pennatifolius*, and *Phyllostegia parviflora*, we followed the taxonomic treatments in Wagner *et al.* (1990), the widely used and accepted *Manual of the Flowering Plants of Hawaii*. Subsequent to the final listing, we became aware of new taxonomic treatments of these species. Also, in the recently published *Hawaii's Ferns and Fern Allies* (Palmer 2003), *Asplenium fragile* var. *insulare* has undergone a taxonomic revision. Due to the court-ordered deadlines, we are required to publish this final rule to designate critical habitat on the island of Hawaii before we can prepare and publish a notice of taxonomic changes for these six species. We plan to publish a taxonomic change notice for these six species after we have published the final critical habitat designation on the island of Hawaii.

#### Summary of Recovery Populations for 255 Hawaiian Plants

During the public comment periods on the proposed designations and nondesignations of critical habitat for plants from the islands of Kauai, Niihau, Lanai, Maui, Molokai, Northwestern Hawaiian Islands, Oahu, and the island of Hawaii, we received several comments regarding the difficulty of commenting in an informed manner on critical habitat for species occurring on more than one island because the proposed rules did not provide information on critical habitat proposed on other islands for multi-island species. To address this concern, on August 20, 2002, we reopened simultaneous comment periods for the proposed designations and nondesignations of critical habitat for plant species on the islands of Kauai, Niihau, Maui, Molokai, and the Northwestern Hawaiian Islands until September 30, 2002, and for plant species on the islands of Hawaii and Oahu until November 30, 2002. The new comment periods allowed all interested parties to review all the proposals together and submit written comments. A comment period for the proposed designations and nondesignations of critical habitat for plant species on Lanai opened on July 15, 2002, and closed on August 30, 2002, overlapping with the reopened comment periods for the islands mentioned above.

As outlined in the above section "Criteria Used to Identify Critical Habitat," the overall recovery goal stated in the recovery plans for each of these species includes the establishment of 8 to 10 populations with a minimum of 100 mature reproducing individuals per population for long-lived perennials; 300 mature reproducing individuals per population for short-lived perennials; and 500 mature reproducing individuals per population for annuals. There are some specific exceptions to this general recovery goal of 8 to 10 populations for species that are believed to be very narrowly distributed on a single island. To be considered recovered, the populations of a multi-island species should be distributed among the islands of its known historic range. In this final critical habitat rule, we include a table that summarizes the distribution of recovery populations by island for each of the 255 species at issue (Table 5).

TABLE 5.—SUMMARY OF ISLAND DISTRIBUTION OF RECOVERY POPULATIONS FOR 255 LISTED HAWAIIAN PLANTS

Species	Island Distribution							Totals
	Kauai	Oahu	Molokai	Lanai	Maui	Hawaii	Niihau Kahoolawe NWHI	
<i>Abutilon eremitopetalum</i> .....	.....	.....	.....	*8	.....	.....	.....	8
<i>Abutilon sandwicense</i> .....	.....	10	.....	.....	.....	.....	.....	10
<i>Acaena exigua</i> † .....	0	.....	.....	.....	0	.....	.....	0
<i>Achyranthes mutica</i> .....	20	.....	.....	.....	.....	10	.....	10
<i>Adenophorus periers</i> .....	4	1	4	*1	20	1	.....	11
<i>Alectryon macrococcus</i> .....	2	2	1	*4	.....	.....	.....	9
<i>Alsinidendron lychnoides</i> .....	10	.....	.....	.....	.....	.....	.....	10
<i>Alsinidendron obovatum</i> .....	.....	*18	.....	.....	.....	.....	.....	18
<i>Alsinidendron trinerve</i> .....	.....	*17	.....	.....	.....	.....	.....	17
<i>Alsinidendron viscosum</i> .....	9	.....	.....	.....	.....	.....	.....	9
<i>Amaranthus brownii</i> .....	.....	.....	.....	.....	.....	.....	1 1 (Niihoa) .....	1 8 1
<i>Argyroxiphium kauense</i> .....	.....	.....	.....	.....	.....	*18	.....	1 7 8
<i>Argyroxiphium sandwicense</i> ssp. <i>macrocephalum</i> .....	.....	.....	.....	.....	5 1	.....	.....	5 1
<i>Asplenium fragile</i> var. <i>insulare</i> .....	.....	.....	.....	.....	*2	*8	.....	10
<i>Bidens micrantha</i> ssp. <i>kalealaha</i> .....	.....	.....	.....	3	7	.....	.....	10
<i>Bidens wiebkei</i> .....	.....	.....	*9	.....	.....	.....	.....	9
<i>Bonamia menziesii</i> .....	2	4	20	*1	1	1	.....	9
<i>Brighamia insignis</i> .....	9	.....	.....	.....	.....	.....	1 (Niihau) .....	10
<i>Brighamia rockii</i> .....	.....	.....	4	*3	3	.....	.....	10
<i>Canavalia molokaiensis</i> .....	.....	.....	*10	.....	.....	.....	.....	10
<i>Cenchrus agrimonoides</i> .....	.....	7	.....	*1	2	20	0 (NWHI) .....	10
<i>Centaurium sebaeoides</i> .....	4	2	1	*1	2	.....	.....	10
<i>Chamaesyce celastroides</i> var. <i>kaenana</i> .....	.....	17	.....	.....	.....	.....	.....	17
<i>Chamaesyce deppeana</i> .....	.....	12	.....	.....	.....	.....	.....	12
<i>Chamaesyce halemanui</i> .....	10	.....	.....	.....	.....	.....	.....	10
<i>Chamaesyce herbstii</i> .....	.....	17	.....	.....	.....	.....	.....	17
<i>Chamaesyce kuwaleana</i> .....	.....	17	.....	.....	.....	.....	.....	17
<i>Chamaesyce rockii</i> .....	.....	*10	.....	.....	.....	.....	.....	10
<i>Clermontia drepanomorpha</i> .....	.....	.....	.....	.....	.....	16	.....	16
<i>Clermontia lindseyana</i> .....	.....	.....	.....	.....	2	8	.....	10
<i>Clermontia oblongifolia</i> ssp. <i>brevipes</i> .....	.....	.....	7	.....	.....	.....	.....	7
<i>Clermontia oblongifolia</i> ssp. <i>mauiensis</i> .....	.....	.....	.....	*3	7	.....	.....	10
<i>Clermontia peleana</i> .....	.....	.....	.....	.....	20	.....	.....	10
<i>Clermontia pyrularia</i> .....	.....	.....	.....	.....	.....	16	.....	16
<i>Clermontia samuelii</i> .....	.....	.....	.....	.....	15	.....	.....	15
<i>Colubrina oppositifolia</i> .....	.....	3	.....	.....	3	4	.....	10
<i>Ctenitis squamigera</i> .....	1	1	1	*1	*5	20	.....	9
<i>Cyanea acuminata</i> .....	.....	*10	.....	.....	.....	.....	.....	10
<i>Cyanea asarifolia</i> .....	10	.....	.....	.....	.....	.....	.....	10
<i>Cyanea copelandii</i> ssp. <i>copelandii</i> † .....	.....	.....	.....	.....	.....	0	.....	0
<i>Cyanea copelandii</i> ssp. <i>haleakalaensis</i> .....	.....	.....	.....	.....	8	.....	.....	8
<i>Cyanea crispa</i> .....	.....	*10	.....	.....	.....	.....	.....	10
<i>Cyanea dunbarii</i> .....	.....	.....	10	.....	.....	.....	.....	10
<i>Cyanea glabra</i> .....	.....	.....	.....	.....	10	.....	.....	10
<i>Cyanea grimesiana</i> ssp. <i>grimesiana</i> .....	.....	*4	2	*2	.....	.....	10.	8
<i>Cyanea grimesiana</i> ssp. <i>obatae</i> .....	.....	*8	.....	.....	.....	.....	.....	8
<i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> .....	.....	.....	.....	.....	.....	18	.....	18
<i>Cyanea hamatiflora</i> ssp. <i>hamatiflora</i> .....	.....	.....	.....	.....	8	.....	.....	8
<i>Cyanea humboltiana</i> .....	.....	*10	.....	.....	.....	.....	.....	10
<i>Cyanea koolauensis</i> .....	.....	*10	.....	.....	.....	.....	.....	10
<i>Cyanea lobata</i> .....	.....	.....	.....	*3	7	.....	.....	10
<i>Cyanea longiflora</i> .....	.....	*10	.....	.....	.....	.....	.....	10
<i>Cyanea macrostegia</i> ssp. <i>gibsonii</i> .....	.....	.....	.....	*8	.....	.....	.....	8
<i>Cyanea mannii</i> .....	.....	.....	*10	.....	.....	.....	.....	10
<i>Cyanea mceldowneyi</i> .....	.....	.....	.....	.....	15	.....	.....	15
<i>Cyanea pinnatifida</i> .....	.....	14	.....	.....	.....	.....	.....	14
<i>Cyanea platyphylla</i> .....	.....	.....	.....	.....	.....	9	.....	9
<i>Cyanea procera</i> .....	.....	.....	*10	.....	.....	.....	.....	10
<i>Cyanea recta</i> .....	10	.....	.....	.....	.....	.....	.....	10
<i>Cyanea remyi</i> .....	10	.....	.....	.....	.....	.....	.....	10
<i>Cyanea shipmanii</i> .....	.....	.....	.....	.....	.....	17	.....	17
<i>Cyanea stictophylla</i> .....	.....	.....	.....	.....	.....	10	.....	10
<i>Cyanea st.-johnii</i> .....	.....	*10	.....	.....	.....	.....	.....	10
<i>Cyanea superba</i> .....	.....	8	.....	.....	.....	.....	.....	8
<i>Cyanea truncata</i> .....	.....	10	.....	.....	.....	.....	.....	10
<i>Cyanea undulata</i> .....	15	.....	.....	.....	.....	.....	.....	15
<i>Cyperus trachysanthos</i> .....	6	3	20	20	.....	.....	30 (Niihau) .....	9
<i>Cyrtandra crenata</i> .....	.....	0	.....	.....	.....	.....	.....	0

TABLE 5.—SUMMARY OF ISLAND DISTRIBUTION OF RECOVERY POPULATIONS FOR 255 LISTED HAWAIIAN PLANTS—  
Continued

Species	Island Distribution							Totals
	Kauai	Oahu	Molokai	Lanai	Maui	Hawaii	Niihau Kahoolawe NWHI	
<i>Cyrtandra cyaneoides</i> .....	10							10
<i>Cyrtandra dentata</i> .....		*8						8
<i>Cyrtandra giffardii</i> .....						10		10
<i>Cyrtandra limahuliensis</i> .....	10							10
<i>Cyrtandra munroi</i> .....				*3	7			10
<i>Cyrtandra polyantha</i> .....		15						15
<i>Cyrtandra subumbellata</i> .....		17						17
<i>Cyrtandra tintinnabula</i> .....						9		9
<i>Cyrtandra viridiflora</i> .....		*8						8
<i>Delissea rhytidosperma</i> .....	16							16
<i>Delissea rivularis</i> .....	13							13
<i>Delissea subcordata</i> .....		10						10
<i>Delissea undulata</i> .....	3				<sup>2</sup> 0	*5	<sup>2</sup> 0 (Niihau) .....	8
<i>Diellia erecta</i> .....	1	1	1	*1	3	2		9
<i>Diellia falcata</i> .....		*10						10
<i>Diellia pallida</i> .....	13							13
<i>Diellia unisora</i> .....		16						16
<i>Diplazium molokaiense</i> .....	1	1	1	*1	6			10
<i>Dubautia herbstobatae</i> .....		16						16
<i>Dubautia latifolia</i> .....	17							17
<i>Dubautia pauciflora</i> .....	14							1,64
<i>Dubautia plantaginea</i> ssp. <i>humilis</i> .....					16			16
<i>Eragrostis fosbergii</i> .....		11						11
<i>Eugenia koolauensis</i> .....		*6	2					8
<i>Euphorbia haeleeeleana</i> .....	6	4						10
<i>Exocarpos luteolus</i> .....	10							10
<i>Flueggea neowawraea</i> .....	4	*2	1		*1	2		10
<i>Gahnia lanaiensis</i> .....				*8				8
<i>Gardenia mannii</i> .....		*10						10
<i>Geranium arboreum</i> .....					17			17
<i>Geranium multiflorum</i> .....					*8			8
<i>Gouania meyerii</i> .....	5	*5						10
<i>Gouania vitifolia</i> .....		7			1	2		10
<i>Hedyotis cookiana</i> .....	17					<sup>2</sup> 0		17
<i>Hedyotis coriacea</i> .....		2			2	*6		10
<i>Hedyotis degeneri</i> .....		9						9
<i>Hedyotis mannii</i> .....			*4	*2	2			8
<i>Hedyotis parvula</i> .....		*9						9
<i>Hedyotis schlechtendahlia</i> var. <i>remyi</i> .....				*8				8
<i>Hedyotis st.-johnii</i> .....	17							17
<i>Hesperomannia arborescens</i> .....		*6	2	*1	*2			11
<i>Hesperomannia arbuscula</i> .....		5			5			10
<i>Hesperomannia lydgatei</i> .....	65							65
<i>Hibiscadelphus giffardianus</i> .....						11		11
<i>Hibiscadelphus hualalaiensis</i> .....						8		8
<i>Hibiscadelphus woodii</i> .....	15							15
<i>Hibiscus amottianus</i> ssp. <i>immaculatus</i> .....			16					16
<i>Hibiscus brackenridgei</i> .....	<sup>2</sup> 0	3	1	*1	3	1	<sup>3</sup> 0 (Kahoolawe) ....	9
<i>Hibiscus clayi</i> .....	16							16
<i>Hibiscus waimeae</i> ssp. <i>hannerae</i> .....	8							8
<i>Ischaemum byrone</i> .....	3		2		2	3		10
<i>Isodendron hosakae</i> .....						8		8
<i>Isodendron laurifolium</i> .....	4	6						10
<i>Isodendron longifolium</i> .....	6	4						10
<i>Isodendron pyriformis</i> .....	<sup>2</sup> 0	3	1	*2	2	0	<sup>2</sup> 0 (Niihau) .....	8
<i>Kanaloa kahoolawensis</i> .....							16 (Kahoolawe) ....	16
<i>Kokia kauaiensis</i> .....	8							8
<i>Labordia cyrtandrae</i> .....		*10						10
<i>Labordia lydgatei</i> .....	6							6
<i>Labordia tinifolia</i> var. <i>lanaiensis</i> .....				*8				8
<i>Labordia tinifolia</i> var. <i>wahiawaensis</i> .....	14							14
<i>Labordia triflora</i> .....			*8					8
<i>Lepidium arbuscula</i> .....		*10						10
<i>Lipochaeta fauriei</i> .....	16							16
<i>Lipochaeta kamolensis</i> .....					*16			16
<i>Lipochaeta lobata</i> var. <i>leptophylla</i> .....		10						10
<i>Lipochaeta micrantha</i> .....	14							14

TABLE 5.—SUMMARY OF ISLAND DISTRIBUTION OF RECOVERY POPULATIONS FOR 255 LISTED HAWAIIAN PLANTS—Continued

Species	Island Distribution							Totals
	Kauai	Oahu	Molokai	Lanai	Maui	Hawaii	Niihau Kahoolawe NWHI	
<i>Lipochaeta tenuifolia</i> .....		*15						15
<i>Lipochaeta waimeae</i> .....	11							11
<i>Lobelia gaudichaudii</i> ssp. <i>koolauensis</i> .....		*9						9
<i>Lobelia monostachya</i> .....		17						17
<i>Lobelia niihauensis</i> .....	7	*3						10
<i>Lobelia oahuensis</i> .....		10						10
<i>Lysimachia filifolia</i> .....	4	6						10
<i>Lysimachia lydgatei</i> .....					*8			8
<i>Lysimachia maxima</i> .....			10					10
<i>Mariscus fauriei</i> .....			7	20		1		8
<i>Mariscus pennatifolius</i> .....	3	4			2	20	1 (NWHI)	10
<i>Marsilea villosa</i> .....		4	40					64
<i>Melicope adscendens</i> .....					*11			11
<i>Melicope balloui</i> .....					*13			13
<i>Melicope haupuensis</i> .....	17							17
<i>Melicope knudsenii</i> .....	15				*12			17
<i>Melicope lydgatei</i> .....		*10						10
<i>Melicope mucronulata</i> .....			*7		*2			9
<i>Melicope munroi</i> .....			20	*8				8
<i>Melicope ovalis</i> .....					3			3
<i>Melicope pallida</i> .....	3	6						9
<i>Melicope reflexa</i> .....			8					8
<i>Melicope quadrangularis</i> † .....	0						0.	
<i>Melicope saint-johnii</i> .....		13						13
<i>Melicope zahlbruckneri</i> .....						13		13
<i>Munroidendron racemosum</i> .....	10							10
<i>Myrsine juddii</i> .....		*10						10
<i>Myrsine linearifolia</i> .....	9							9
<i>Neraudia angulata</i> .....		*10						10
<i>Neraudia ovata</i> .....						*8		8
<i>Neraudia sericea</i> † .....			6	*1	7		20 (Kahoolawe)	14
<i>Nothoecstrum breviflorum</i> .....						9		9
<i>Nothoecstrum peltatum</i> .....	9							9
<i>Nototrichum humile</i> .....		*8			2			10
<i>Ochrosia kilaueaensis</i> † .....						0		0
<i>Panicum niihauense</i> .....	17							17
<i>Peucedanum sandwicense</i> .....	4	*2	3		2			11
<i>Phlegmariurus mannii</i> .....	20				*8	20		8
<i>Phlegmariurus nutans</i> .....	3	*7						10
<i>Phyllostegia glabra</i> var. <i>lanaiensis</i> † .....				0				0
<i>Phyllostegia hirsuta</i> .....		*9						9
<i>Phyllostegia kaalaensis</i> .....		10						10
<i>Phyllostegia knudsenii</i> .....	13							13
<i>Phyllostegia mannii</i> .....			*8		2			10
<i>Phyllostegia mollis</i> .....		*4	*3		3			10
<i>Phyllostegia parviflora</i> .....		9			20	20		9
<i>Phyllostegia racemosa</i> .....						*10		10
<i>Phyllostegia velutina</i> .....						*10		10
<i>Phyllostegia waimeae</i> .....	11							11
<i>Phyllostegia warshaueri</i> .....						10		10
<i>Phyllostegia wawrana</i> .....	8							8
<i>Plantago hawaiiensis</i> .....						10		10
<i>Plantago princeps</i> .....	4	3	1		2	20		10
<i>Platanthera holochila</i> .....	4	2	*2		2			10
<i>Pleomele hawaiiensis</i> .....						*10		10
<i>Poa mannii</i> .....	10							10
<i>Poa sandwicensis</i> .....	7							7
<i>Poa siphonoglossa</i> .....	10							10
<i>Portulaca sclerocarpa</i> .....				1		*9		10
<i>Pritchardia affinis</i> † .....						0		0
<i>Pritchardia aylmer-robinsonii</i> † .....							0 (Niihau)	0
<i>Pritchardia kaalae</i> † .....		0						0
<i>Pritchardia munroi</i> † .....			0					0
<i>Pritchardia napaliensis</i> † .....	0							0
<i>Pritchardia remota</i> .....							12 (NWHI)	12
<i>Pritchardia schattaueri</i> † .....						0		0
<i>Pritchardia viscosa</i> † .....	0							0

TABLE 5.—SUMMARY OF ISLAND DISTRIBUTION OF RECOVERY POPULATIONS FOR 255 LISTED HAWAIIAN PLANTS—Continued

Species	Island Distribution							Totals
	Kauai	Oahu	Molokai	Lanai	Maui	Hawaii	Niihau Kahoolawe NWHI	
<i>Pteralyxia kauaiensis</i> .....	9							9
<i>Pteris lidgatei</i> .....		*4	3		3			10
<i>Remya kauaiensis</i> .....	10							10
<i>Remya mauiensis</i> .....					*16			16
<i>Remya montgomeryi</i> .....	17							17
<i>Sanicula mariversa</i> .....		16						16
<i>Sanicula purpurea</i> .....		*6			4			10
<i>Schiedea apokremnos</i> .....	9							9
<i>Schiedea haleakalensis</i> .....					12			12
<i>Schiedea helleri</i> .....	17							17
<i>Schiedea hookeri</i> .....		*10			20			10
<i>Schiedea kaalae</i> .....		10						10
<i>Schiedea kauaiensis</i> .....	17							17
<i>Schiedea kealiae</i> .....		14						14
<i>Schiedea lydgatei</i> .....			10					10
<i>Schiedea membranacea</i> .....	7							7
<i>Schiedea nuttallii</i> .....	2	6	2		20			10
<i>Schiedea sarmentosa</i> .....			10					10
<i>Schiedea spergulina</i> var. <i>leiopoda</i> .....	11							11
<i>Schiedea spergulina</i> var. <i>spergulina</i> .....	16							16
<i>Schiedea stellarioides</i> .....	16							16
<i>Schiedea verticillata</i> .....							11(NWHI)	181
<i>Sesbania tomentosa</i> .....	2	2	2	30	2	2	30 (Kahoolawe) 2 (NWHI).	12
<i>Sicyos alba</i> .....						10		10
<i>Silene alexandri</i> .....			*10					10
<i>Silene hawaiiensis</i> .....						*10		10
<i>Silene lanceolata</i> .....	0	*2	2	0		*6		10
<i>Silene perlmanni</i> .....		16						16
<i>Solanum incompletum</i> .....	0		0	*1	0	*9		10
<i>Solanum sandwicense</i> .....	6	*4						10
<i>Spermolepis hawaiiensis</i> .....	2	2	1	*1	2	*2		10
<i>Stenogyne bifida</i> .....			*10					10
<i>Stenogyne campanulata</i> .....	13							13
<i>Stenogyne kanehoana</i> .....		*15						15
<i>Tetramolopium arenarium</i> .....					20	*17		*17
<i>Tetramolopium capillare</i> .....					16			16
<i>Tetramolopium filiforme</i> .....		*16						16
<i>Tetramolopium lepidotum</i> ssp. <i>lepidotum</i> .....		8						8
<i>Tetramolopium remyi</i> .....				*6	3			9
<i>Tetramolopium rockii</i> .....			14					14
<i>Tetraplasandra gymnocarpa</i> .....		*9						9
<i>Trematolobelia singularis</i> .....		16						16
<i>Urera kaalae</i> .....		*9						9
<i>Vigna o-wahuensis</i> .....	0	3	*1	*1	1	4	30 (Kahoolawe) ...	10
<i>Viola chamissoniana</i> ssp. <i>chamissoniana</i> .....		*10						*10
<i>Viola helenae</i> .....	65							65
<i>Viola kauaiensis</i> var. <i>wahiawaensis</i> .....	15							15
<i>Viola lanaiensis</i> .....				*8				8
<i>Viola oahuensis</i> .....		*10						10
<i>Wilkesia hobydi</i> .....	9							9
<i>Xylosma crenatum</i> .....	15							15
<i>Zanthoxylum dipetalum</i> var. <i>tomentosum</i> .....						17		17
<i>Zanthoxylum hawaiiense</i> .....	2		1	0	1	*6		10

\* Including on lands excluded under 4(b)(2)).

† Critical habitat not prudent.

<sup>1</sup> We do not believe that sufficient suitable habitat currently exists to reach the recovery goal of 8 to 10 populations.<sup>2</sup> We are unable to identify any habitat essential to its conservation on the island.<sup>3</sup> Habitat not essential to the conservation of the species.<sup>4</sup> We plan to publish a separate rule to designate critical habitat for the species.<sup>5</sup> Only one population of greater than 50,000 mature individuals is required for recovery of this species.<sup>6</sup> Five to six populations required for recovery.<sup>7</sup> At least 10 populations of 2,000 individuals are required for recovery of this species.<sup>8</sup> At least five populations on Nihoa and one to three additional populations on another island.

This table includes the following information: (1) The number of populations on each island we believe the designated critical habitat or other habitat essential for the conservation of the species can provide for; (2) the species for which we are unable to identify any habitat essential to their conservation (*e.g.*, *Adenophorus periens* on Maui); (3) the species for which sufficient habitat essential to their conservation is not available for at least eight populations (*e.g.*, *Alsinidendron obovatum* on the island of Oahu); the species for which we determined the designation of critical habitat is not prudent (*e.g.*, *Pritchardia kaalae*); proposed critical habitat identified as not essential during the public comment periods and removed from final designation (*e.g.*, proposed critical habitat for *Sesbania tomentosa* on Kahoolawe); the species for which the general recovery goal of 8 to 10 populations does not apply (*e.g.*, *Hesperomannia lydgatei*); and the species whose population recovery goals include habitat that has been excluded from critical habitat designation under section 4(b)(2) of the Act.

#### Required Determinations

##### *Regulatory Planning and Review*

In accordance with Executive Order 12866, the Office of Management and Budget (OMB) has determined that this critical habitat designation is not a significant regulatory action. This rule will not have an annual economic effect of \$100 million or more or adversely affect any economic sector, productivity, competition, jobs, the environment, or other units of government. This designation will not create inconsistencies with other agencies' actions or otherwise interfere with an action taken or planned by another agency. It will not materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients. Finally, this designation will not raise novel legal or policy issues. Accordingly, OMB has not formally reviewed this final critical habitat designation.

##### *Regulatory Flexibility Act (5 U.S.C. 601 et seq.)*

Under the Regulatory Flexibility Act (RFA) (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility

analysis that describes the effect of the rule on small entities (*i.e.*, small businesses, small organizations, and small governmental jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the RFA to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities.

Based on the information in our economic analysis (draft economic analysis and addendum), we are certifying that the critical habitat designation for 41 island of Hawaii plant species will not have a significant effect on a substantial number of small entities because a substantial number of small entities are not affected by the designation.

SBREFA does not explicitly define either "substantial number" or "significant economic impact." Consequently, to assess whether a "substantial number" of small entities is affected by this designation, this analysis considers the relative number of small entities likely to be impacted in the area. Similarly, this analysis considers the relative cost of compliance on the revenues/profit margins of small entities in determining whether or not entities incur a "significant economic impact." Only small entities that are expected to be directly affected by the designation are considered in this portion of the analysis. This approach is consistent with several judicial opinions related to the scope of the RFA (*Mid-Tex Electric Co-Op, Inc. v. F.E.R.C.* and *America Trucking Associations, Inc. v. EPA.*)

Small entities include small organizations, such as independent nonprofit organizations, and small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents, as well as small businesses. By this definition, Federal and State governments and Hawaii County are not a small governmental jurisdictions because its population was 148,677 in 2000.

SBREFA further defines "small organization" as any not-for-profit enterprise that is independently owned and operated and is not dominant in its field. TNCH is a large organization that is dominant in the conservation and land management field on the Big Island. Thus, according to RFA/SBREFA definitions, TNCH is not likely to be considered a small organization.

Kamehameha Schools is the largest charitable trust in Hawaii, as well as the State's largest private landowner; it also has a substantial investment in securities and owns real estate in other states. In 2001, Kamehameha Schools had over \$1 billion in revenues, gains, and other support (Kamehameha Schools 2001). Thus, it is not likely to be considered a small organization.

To determine if the rule would affect a substantial number of small private entities, we consider the number of small entities affected within particular types of economic activities (*e.g.*, housing development, grazing, oil and gas production, timber harvesting) in this particular area/market affected by the regulation. We apply the "substantial number" test individually to each industry to determine if certification is appropriate. In estimating the numbers of small entities potentially affected, we also consider whether their activities have any Federal involvement. Some kinds of activities are unlikely to have any Federal involvement, and so will not be affected by critical habitat designation.

The primary projects and activities by private entities that might be directly affected by the designation that could affect small entities include farming and ranching operations and lending institutions. Based on our draft economic analysis and addendum, there were 1,400 diversified farmers and 470 ranchers in Hawaii County in 2000. The 2000 average annual sales for diversified farmers on the island of Hawaii were \$59,600 per farmer, and the average annual sales for ranchers were \$30,100 per rancher (DBEDT 2002). Since \$8,700 is 15 percent of the average annual sales for a diversified farmer and 29 percent of the average annual sales for a rancher, it is assumed that critical habitat will have a significant economic impact (*i.e.*, 3 percent or more of a business's annual sales) on the farmers or ranchers. However, there are 1,400 diversified farmers and 470 ranchers on the island of Hawaii. Based on the annual sales figures, we can define most of these farmers and ranchers as small businesses (*i.e.*, less than \$750,000 in annual sales). Five farmers or ranchers represent 0.3 percent of the number of diversified farmers and 1 percent of the number of ranchers on the island of Hawaii. This does not equal a substantial number of the small businesses in either the diversified farming or ranching industries.

Our economic analysis also found there are between two and three small lending institutions on the island of Hawaii that may be involved in section 7 consultations regarding HUD loan



programs. Participation in the consultation was estimated to cost \$1,400, and conducting the biological survey was estimated to cost \$3,900, so the total impact was estimated to be \$5,300 per lending institution. The average annual revenues for the two to three small lending institutions is unknown. If they each earn less than \$176,700 in annual sales (\$5,300 divided by 3 percent), the economic impact attributable to critical habitat would be a significant economic impact to the lending institutions (*i.e.*, greater than 3 percent of annual sales). There are currently 26 mortgage lending institutions on the island of Hawaii. Of these, 23 meet the SBA definition of a small business (*i.e.*, less than \$6 million in annual sales) (Dun & Bradstreet 2002). Two to three lending institutions out of 23 (9 to 13 percent) will potentially be subject to a significant economic impact. This does not equal a substantial number of the small lending institutions on the island of Hawaii.

The actual impacts of the final rule may even be smaller. These estimates were based on the proposed designations. However, this final rule designates 92,737 ha (229,147 ac) less than had been proposed, or a 52 percent reduction.

These conclusions are supported by the history of consultations on the island of Hawaii. Since these 41 plant species were listed (between 1991 and 1996), we have conducted 21 informal consultations and only two formal consultations on the island of Hawaii, 11 of which concerned PTA, in addition to consultations on Federal grants to State wildlife programs, which also do not affect small entities. The 21 informal consultations have concerned 10 of the 41 species (*Asplenium fragile* var. *insulare*, *Mariscus fauriei*, *Neraudia ovata*, *Nothocestrum breviflorum*, *Plantago hawaiiensis*, *Pleomele hawaiiensis*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, *Silene hawaiiensis*, and *Solanum incompletum*).

One of the two formal consultations involving the 41 species was conducted with the Army regarding the addition of two firing lanes to Range 8 at PTA. *Silene hawaiiensis*, one of the 41 species, was the only listed species addressed in the biological opinion, which concluded that with implementation of the preferred alternative and accompanying mitigation procedures, the project was not likely to jeopardize the continued existence of the species. The other formal consultation was with the Federal Highway Administration (FHWA) on realignment of and improvements to Saddle Road. *Silene*

*hawaiiensis* and the palila (or honeycreeper, *Loxioides bailleui*), a listed bird, were the two species addressed in the biological opinion, which concluded that with the conservation and mitigation measures built into the project by FHWA, the project was not likely to jeopardize the continued existence of the two species and was not likely to adversely modify critical habitat for the palila. Neither of the two formal consultations directly affected or concerned small entities. In both consultations, we concluded that the preferred alternative for the project, with accompanying conservation and mitigation procedures, was not likely to jeopardize the continued existence of the species. The only ongoing project is the Saddle Road realignment, which does not directly affect small entities. Neither of these formal consultations directly affected or concerned small entities, nor does the ongoing project directly affect small entities. As a result, the requirement to reinstitute consultation for ongoing projects will not affect a substantial number of small entities on the island of Hawaii.

Three of the 21 informal consultations that have been conducted on the island of Hawaii concern the National Park Service's Hawaii Volcanoes National Park: One on fence construction for the purpose of excluding ungulates and regarding three of the 41 species (*Asplenium fragile* var. *insulare*, *Plantago hawaiiensis*, and *Silene hawaiiensis*) as well as 1 listed bird and 2 listed plants not included in the 41 species in today's rule; 1 on use of the Marsokhod planetary rover at Kilauea Volcano's summit regarding *Silene hawaiiensis*; and 1 on outplanting food plants for the endangered Hawaiian nene goose regarding *Sesbania tomentosa* and 2 listed birds. Four informal consultations were conducted with the Army Corps of Engineers (ACOE): 1 for the Defense Environmental Restoration Program on removal of unexploded ordnance from the former Waikoloa Maneuver Area regarding *Portulaca sclerocarpa*; 1 on the Alenaio Stream flood control project in Hilo regarding *Asplenium fragile* var. *insulare* as well as several listed birds and a listed plant not included in today's rule; 1 for the Multi-Purpose Range Complex at PTA regarding *Asplenium fragile* var. *insulare*, *Hedyotis coriacea*, *Silene hawaiiensis*, *Silene lanceolata*, and 1 listed plant not in today's rule; and 1 consultation for the Endangered Species Management Plan for PTA regarding 8 of the 41 species (*Asplenium fragile* var. *insulare*, *Hedyotis coriacea*, *Portulaca*

*sclerocarpa*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense*) and 3 listed plants not in today's rule. Eleven informal consultations were conducted with the Army concerning PTA: 3 on archery hunts regarding *Silene hawaiiensis* and 3 listed plants not in today's rule; 1 on a grenade machine gun range regarding *Asplenium fragile* var. *insulare* and *Silene hawaiiensis*; 1 on a quarry rock crusher regarding *Silene hawaiiensis* and a listed plant not in today's rule; 1 on the proposed acquisition of a Parker Ranch parcel regarding *Silene lanceolata* and a listed plant not in today's rule; 1 on military training regarding *Hedyotis coriacea*, *Portulaca sclerocarpa*, *Silene hawaiiensis*, *Silene lanceolata*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense*; 2 on threats to rare plants from feral ungulates regarding 8 of the 41 species (*Asplenium fragile* var. *insulare*, *Hedyotis coriacea*, *Portulaca sclerocarpa*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense*) as well as 3 listed plants not in today's rule; 1 on the Ecosystem Management Plan regarding 9 of the 41 species (*Asplenium fragile* var. *insulare*, *Hedyotis coriacea*, *Neraudia ovata*, *Portulaca sclerocarpa*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense*) as well as the listed Hawaiian hoary bat and 2 listed plants not in today's rule; and 1 consultation concerning PTA's Ecosystem Management Plan, Endangered Species Management Plan, and Fire Management Plan regarding the same 9 species, bat, and 2 listed plants referred to just above. Two informal consultations were conducted with the FHWA on Kealahou Parkway construction regarding 3 of the 41 species (*Mariscus fauriei*, *Nothocestrum breviflorum*, and *Pleomele hawaiiensis*) as well as 1 listed plant not included in the 41 species in today's rule, and *Pritchardia affinis*, for which we determine that the designation of critical habitat is not prudent in today's rule.

None of these informal consultations directly affected or concerned small entities. In all 21 informal consultations, we concurred with each agency's determination that the project, as proposed or modified, was not likely to adversely affect listed species. The only ongoing projects are Kealahou Parkway and those concerning military training

and management plans at PTA, which do not directly affect small entities. None of these consultations directly affected or concerned small entities, and none of the ongoing projects directly affect small entities. As a result, the requirement to reinitiate consultation for ongoing projects will not affect a substantial number of small entities on the island of Hawaii.

Even where the requirements of section 7 might apply due to critical habitat, based on our experience with section 7 consultations for all listed species, virtually all projects—including those that, in their initial proposed form, would result in jeopardy or adverse modification determinations under section 7—can be implemented successfully with, at most, the adoption of reasonable and prudent alternatives. These measures by definition must be economically feasible and within the scope of authority of the Federal agency involved in the consultation.

For these reasons, we are certifying that the designation of critical habitat for *Achyranthes mutica*, *Adenophorus periens*, *Argyroxiphium kauense*, *Asplenium fragile* var. *insulare*, *Bonania menziesii*, *Clermontia drepanomorpha*, *Clermontia lindseyana*, *Clermontia peleana*, *Clermontia pyrularia*, *Colubrina oppositifolia*, *Cyanea hamatiflora* ssp. *carlsonii*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Delissea undulata*, *Diellia erecta*, *Flueggea neowawraea*, *Gouania vitifolia*, *Hibiscadelphus giffardianus*, *Hibiscadelphus hualalaiensis*, *Hibiscus brackenridgei*, *Ischaemum byrnone*, *Isodendron hosakae*, *Mariscus fauriei*, *Melicope zahlbruckneri*, *Neraudia ovata*, *Nothocestrum breviflorum*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Phyllostegia warshaueri*, *Plantago hawaiiensis*, *Pleomele hawaiiensis*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, *Sicyos alba*, *Silene hawaiiensis*, *Solanum incompletum*, *Vigna o-wahuensis*, and *Zanthoxylum dipetalum* ssp. *tomentosum* will not have a significant economic impact on a substantial number of small entities. Therefore, a regulatory flexibility analysis is not required.

#### *Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 804(2))*

Under the Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 801 *et seq.*), this rule is not a major rule. Our detailed assessment of the economic effects of this designation are described in the draft economic analysis and the final addendum to the economic analysis. Based on the effects identified

in these documents, we believe that this rule will not have an annual effect on the economy of \$100 million or more; will not cause a major increase in costs or prices for consumers, and will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises. Refer to the final addendum to the economic analysis for a discussion of the effects of this determination.

#### *Executive Order 13211*

On May 18, 2001, the President issued Executive Order 13211, on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. Although this rule is a significant regulatory action under Executive Order 12866, it is not expected to significantly affect energy production supply and distribution facilities because no significant energy production, supply, and distribution facilities are included within designated critical habitat. Further, for the reasons described in the economic analysis, we do not believe that designation of critical habitat for the 41 species on the island of Hawaii will affect future energy production. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

#### *Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*)*

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*):

(a) This rule will not “significantly or uniquely” affect small governments. A small Government Agency Plan is not required. Small governments will not be affected unless they propose an action requiring Federal funds, permits, or other authorizations. Any such activities will require that the Federal agency ensure that the action will not adversely modify or destroy designated critical habitat.

(b) This rule will not produce a Federal mandate on State or local governments or the private sector of \$100 million or greater in any year; that is, it is not a “significant regulatory action” under the Unfunded Mandates Reform Act. The designation of critical habitat imposes no obligations on State or local governments.

#### *Takings*

In accordance with Executive Order 12630 (“Government Actions and Interference with Constitutionally

Protected Private Property Rights”), we have analyzed the potential takings implications of designating critical habitat for the 41 species from the island of Hawaii in a takings implications assessment. The takings implications assessment concludes that this final rule does not pose significant takings implications.

#### *Federalism*

In accordance with Executive Order 13132, this final rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with Department of Interior policy, we requested information from appropriate State agencies in Hawaii. This rule imposes no regulatory requirements unless an agency is seeking Federal funding or authorization, so it does not have Federal implications. In addition, this rule will not have substantial direct compliance costs because many of the planned projects that could affect critical habitat have no Federal involvement.

The designations may have some benefit to these governments, in that the areas essential to the conservation of these species are more clearly defined, and the primary constituent elements of the habitat necessary to the survival of the species are specifically identified. While this definition and identification do not alter where and what federally sponsored activities may occur, they may assist these local governments in long-range planning, rather than waiting for case-by-case section 7 consultation to occur.

#### *Civil Justice Reform*

In accordance with Executive Order 12988, the Department of the Interior’s Office of the Solicitor has determined that this rule does not unduly burden the judicial system and does meet the requirements of sections 3(a) and 3(b)(2) of the Order. We have designated critical habitat in accordance with the provisions of the Endangered Species Act. The rule uses standard property descriptions and identifies the primary constituent elements within the designated areas to assist the public in understanding the habitat needs of the 41 plant species from the island of Hawaii.

#### *Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*)*

This rule does not contain any information collection requirements for which OMB approval under the Paperwork Reduction Act is required. An agency may not conduct or sponsor, and a person is not required to respond

to, a collection of information unless it displays a valid OMB control number.

#### National Environmental Policy Act

We have determined that we do not need to prepare an Environmental Assessment and/or an Environmental Impact Statement as defined by the National Environmental Policy Act of 1969 in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act. We published a notice outlining our reason for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This determination does not constitute a major Federal action significantly affecting the quality of the human environment.

#### Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, "Government-to-Government Relations with Native American Tribal Governments" (59 FR 22951) Executive Order 13175 and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. We have determined that there are no Tribal lands essential for the conservation of these 41 plant species. Therefore, designation of critical habitat for these

41 species does not involve any Tribal lands.

#### References Cited

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

#### Authors

The primary authors of this final rule are staff of the Pacific Islands Fish and Wildlife Office (see **ADDRESSES** section).

#### List of Subjects in 50 CFR Part 17

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

#### Regulation Promulgation

■ Accordingly, we hereby 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 § 17.12(h), the List of Endangered and Threatened Plants, as set forth below:

■ a. Under the table's heading FLOWERING PLANTS, by revising the

entries for *Achyranthes mutica*, *Argyroxiphium kauense*, *Bonamia menziesii*, *Clermontia drepanomorpha*, *Clermontia lindseyana*, *Clermontia peleana*, *Clermontia pyrrularia*, *Colubrina oppositifolia*, *Cyanea hamatiflora* ssp. *carlsonii*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Delissea undulata*, *Flueggea neowawraea*, *Gouania vitifolia*, *Hibiscadelphus giffardianus*, *Hibiscadelphus hualalaiensis*, *Hibiscus brackenridgei*, *Ischaemum byrnone*, *Isodendron hosakae*, *Mariscus fauriei*, *Melicope zahlbruckneri*, *Neraudia ovata*, *Nothoecium breviflorum*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Phyllostegia warshaueri*, *Plantago hawaiiensis*, *Pleomele hawaiiensis*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, *Sicyos alba*, *Silene hawaiiensis*, *Solanum incompletum*, *Vigna o-wahuensis*, and *Zanthoxylum dipetalum* ssp. *tomentosum* to read as follows; and

■ b. Under the table's heading FERNS AND ALLIES, by revising the entries for *Adenophorus periens*, *Asplenium fragile* var. *insulare*, and *Diellia erecta* to read as follows.

#### § 17.12 Endangered and threatened plants.

\* \* \* \* \*

(h) \* \* \*

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
FLOWERING PLANTS							
*	*	*	*	*		*	*
<i>Achyranthes mutica.</i>	None .....	U.S.A. (HI) .....	Amaranthaceae .....	E	592	17.99(k) .....	NA
*	*	*	*	*		*	*
<i>Argyroxiphium kauense.</i>	Mauna Loa silversword.	U.S.A. (HI) .....	Asteraceae .....	E	497	17.99(k) .....	NA
*	*	*	*	*		*	*
<i>Bonamia menziesii.</i>	None .....	U.S.A. (HI) .....	Convolvulaceae .....	E	559	17.99(a)(1), (e)(1), (i), and (k).	NA
*	*	*	*	*		*	*
<i>Clermontia drepanomorpha.</i>	Oha wai .....	U.S.A. (HI) .....	Campanulaceae .....	E	595	17.99(k) .....	NA
<i>Clermontia lindseyana.</i>	Oha wai .....	U.S.A. (HI) .....	Campanulaceae .....	E	532	17.99(e)(1) and (k).	NA
*	*	*	*	*		*	*
<i>Clermontia peleana.</i>	Oha wai .....	U.S.A. (HI) .....	Campanulaceae .....	E	532	17.99(k) .....	NA
<i>Clermontia pyrrularia.</i>	Oha wai .....	U.S.A. (HI) .....	Campanulaceae .....	E	532	17.99(k) .....	NA

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
<i>Colubrina oppositifolia</i> .	Kauila .....	U.S.A. (HI) .....	Rhamnaceae .....	E		532 17.99(e)(1), (i), and (k).	NA
<i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> .	Haha .....	U.S.A. (HI) .....	Campanulaceae .....	E		532 17.99(k) .....	NA
<i>Cyanea platyphylla</i> .	Haha .....	U.S.A. (HI) .....	Campanulaceae .....	E		595 17.99(k) .....	NA
<i>Cyanea shipmanii</i>	Haha .....	U.S.A. (HI) .....	Campanulaceae .....	E		532 17.99(k) .....	NA
<i>Cyanea stictophylla</i> .	Haha .....	U.S.A. (HI) .....	Campanulaceae .....	E		532 17.99(k) .....	NA
<i>Cyrtandra giffardii</i>	Haiwale .....	U.S.A. (HI) .....	Gesneriaceae .....	E		532 17.99(k) .....	NA
<i>Cyrtandra tintinnabula</i> .	Haiwale .....	U.S.A. (HI) .....	Gesneriaceae .....	E		532 17.99(k) .....	NA
<i>Delissea undulata</i>	None .....	U.S.A. (HI) .....	Campanulaceae .....	E		593 17.99(a)(1) and (k).	NA
<i>Flueggea neowawraea</i> .	Mehamehame .....	U.S.A. (HI) .....	Euphorbiaceae .....	E		559 17.99(a)(1), (c), (e)(1), (i) and (k).	NA
<i>Gouania vitifolia</i> ...	None .....	U.S.A. (HI) .....	Rhamnaceae .....	E		541 17.99(e)(1), and (k).	NA
<i>Hibiscadelphus giffardianus</i> .	Hau kuahiwi .....	U.S.A. (HI) .....	Malvaceae .....	E		595 17.99(k) .....	NA
<i>Hibiscadelphus hualalaiensis</i> .	Hau kuahiwi .....	U.S.A. (HI) .....	Malvaceae .....	E		595 17.99(k) .....	NA
<i>Hibiscus brackenridgei</i> .	Mao hau hele .....	U.S.A. (HI) .....	Malvaceae .....	E		559 17.99(c), (e)(1), (i), and (k).	NA
<i>Ischaemum byrone</i> .	Hilo ischaemum ..	U.S.A. (HI) .....	Poaceae .....	E		532 17.99(a)(1), (c), (e)(1), and (k).	NA
<i>Isodendron hosakae</i> .	Aupaka .....	U.S.A. (HI) .....	Violaceae .....	T		414 17.99(k) .....	NA
<i>Mariscus fauriei</i> ...	None .....	U.S.A. (HI) .....	Cyperaceae .....	E		532 17.99(c) and (k) ..	NA
<i>Melicope zahlbruckneri</i> .	Alani .....	U.S.A. (HI) .....	Rutaceae .....	E		595 17.99(k) .....	NA
<i>Neraudia ovata</i> ....	None .....	U.S.A. (HI) .....	Urticaceae .....	E		595 17.99(k) .....	NA
<i>Nothoecstrum breviflorum</i> .	Aiea .....	U.S.A. (HI) .....	Solanaceae .....	E		532 17.99(k) .....	NA

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
<i>Phyllostegia racemosa</i> .	Kiponapona .....	U.S.A (HI) .....	Lamiaceae .....	E	595	17.99(k) .....	NA
<i>Phyllostegia velutina</i> .	None .....	U.S.A (HI) .....	Lamiaceae .....	E	595	17.99(k) .....	NA
<i>Phyllostegia warshaueri</i> .	None .....	U.S.A (HI) .....	Lamiaceae .....	E	595	17.99(k) .....	NA
<i>Plantago hawaiiensis</i> .	Laukahi kuahiwi ..	U.S.A (HI) .....	Plantaginaceae .....	E	532	17.99(k) .....	NA
<i>Pleomele hawaiiensis</i> .	Hala pepe .....	U.S.A (HI) .....	Liliaceae .....	E	595	17.99(k) .....	NA
<i>Portulaca sclerocarpa</i> .	Poe .....	U.S.A (HI) .....	Portulacaceae .....	E	532	17.96(b) and 17.99(k).	NA
<i>Sesbania tomentosa</i> .	Ohai .....	U.S.A (HI) .....	Fabaceae .....	E	559	17.99(a)(1), (c), (e)(1), (g), (i), and (k).	NA
<i>Sicyos alba</i> .....	Anunu .....	U.S.A (HI) .....	Cucurbitaceae .....	E	595	17.99(k) .....	NA
<i>Silene hawaiiensis</i>	None .....	U.S.A (HI) .....	Caryophyllaceae .....	T	532	17.99(k) .....	NA
<i>Solanum incompletum</i> .	Popolo ku mai ....	U.S.A (HI) .....	Solanaceae .....	E	559	17.99(k) .....	NA
<i>Vigna o-wahuensis</i> .	None .....	U.S.A (HI) .....	Fabaceae .....	E	559	17.99(e)(1), (i), and (k).	NA
<i>Zanthoxylum dipetalum</i> var. <i>tomentosum</i> .	Ae .....	U.S.A (HI) .....	Rutaceae .....	E	595	17.99(k) .....	NA
FERNS AND ALLIES							
<i>Adenophorus periens</i> .	Pendent kihi fern	U.S.A (HI) .....	Grammitidaceae .....	E	559	17.99(a)(1), (c), (i), and (k).	NA
<i>Asplenium fragile</i> var. <i>insulare</i> .	None .....	U.S.A (HI) .....	Aspleniaceae .....	E	553	17.99(e)(1) and (k).	NA
<i>Diellia erecta</i> .....	Asplenium-leaved diellia.	U.S.A (HI) .....	Aspleniaceae .....	E	559	17.99(a)(1), (c), (e)(1), (i), and (k).	NA

- 3. Amend § 17.99 as set forth below:
- a. By revising the section heading to read as follows; and
- b. By adding new paragraphs (k) and (l) to read as follows.

**§ 17.99 Critical habitat; plants on the islands of Kauai, Niihau, Molokai, Maui, Kahoolawe, Oahu, and Hawaii, HI, and on the Northwestern Hawaiian Islands.**

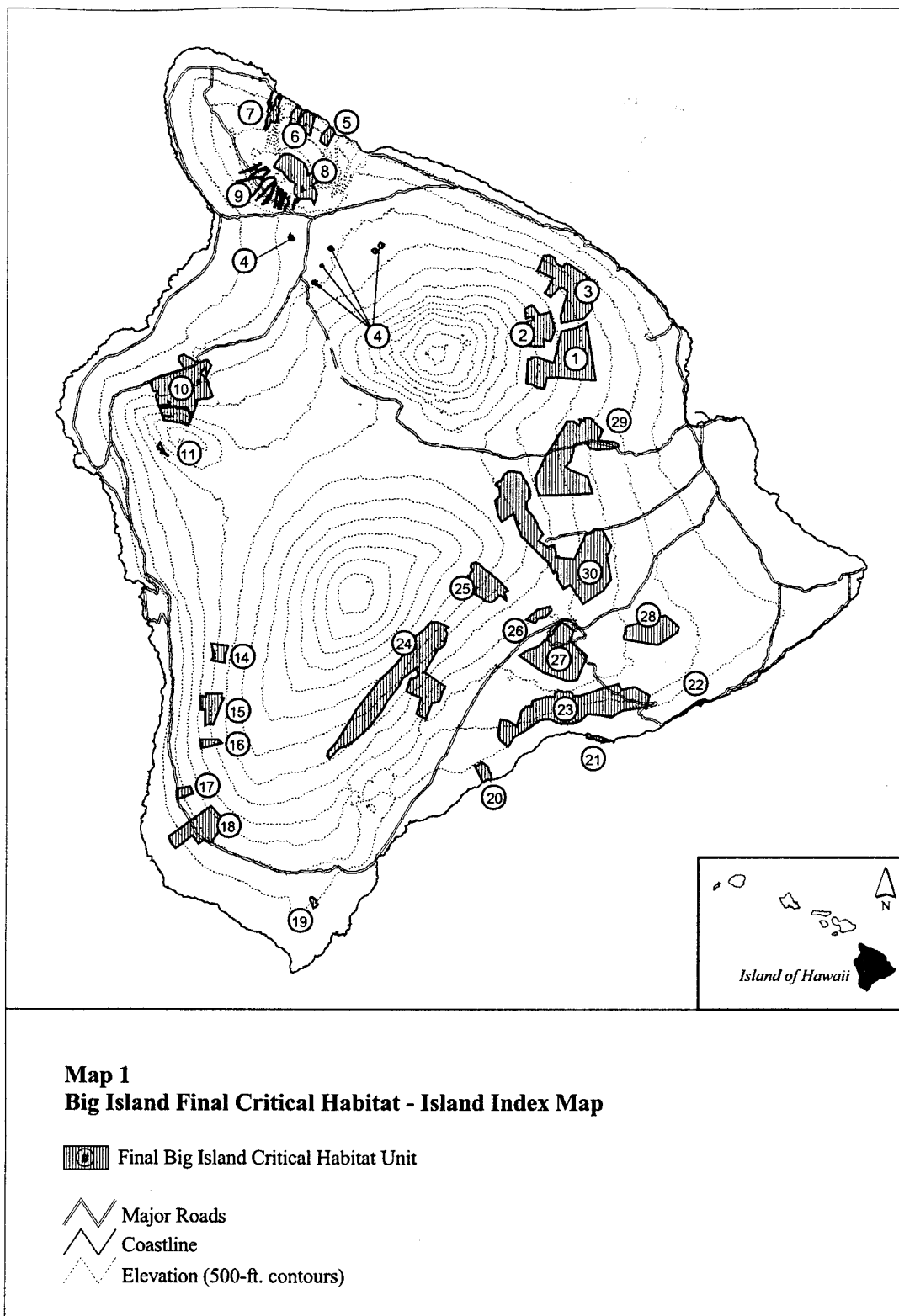
(k) *Maps and critical habitat unit descriptions for the island of Hawaii, HI.* The following sections contain the legal descriptions of the critical habitat units designated for the island of Hawaii. Existing manmade features and structures within the boundaries of the mapped unit, such as buildings, roads, aqueducts and other water system

features (including but not limited to pumping stations, irrigation ditches, pipelines, siphons, tunnels, water tanks, gaging stations, intakes, reservoirs, diversions, flumes, and wells; existing trails), campgrounds and their immediate surrounding landscaped area, scenic lookouts, remote helicopter landing sites, existing fences, telecommunications towers and associated structures and equipment, electrical power transmission lines and distribution and communication facilities and regularly maintained associated rights-of-way and access ways, radars, telemetry antennas, missile launch sites, arboreta and gardens, heiau (indigenous places of

worship or shrines) and other archaeological sites, airports, other paved areas, and lawns and other rural residential landscaped areas do not contain the primary constituent elements described for each species in paragraph (l) of this section and therefore are not included in the critical habitat designations. Coordinates are in UTM Zone 5 with units in meters using North American Datum of 1983 (NAD83). The following map shows the general locations of the 99 critical habitat units designated on the island of Hawaii.

(1) **Note:** Map 1—Index map follows:

**BILLING CODE 4310-55-P**



(2) Hawaii 1—*Clermontia lindseyana*—  
 a (1,337 ha, 3,303 ac)

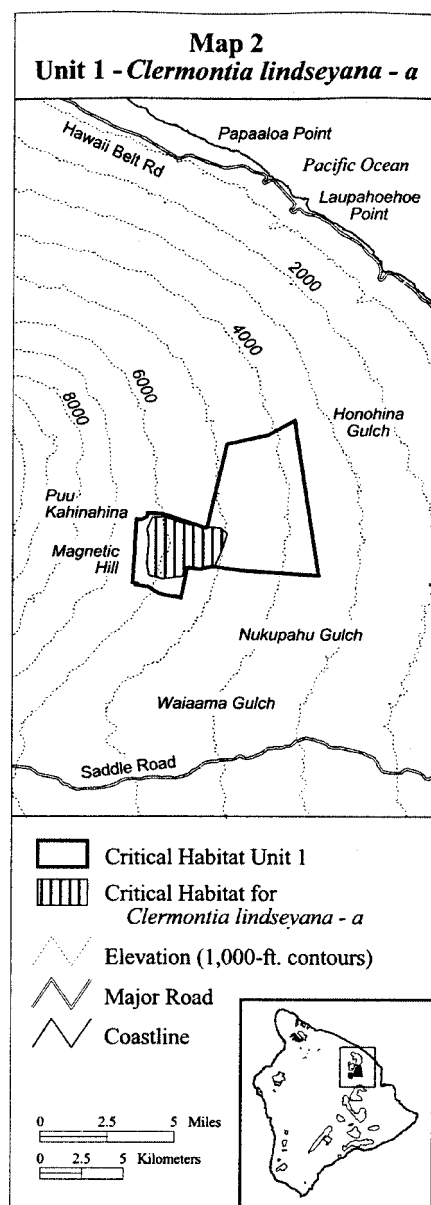
(i) Unit consists of the following 18  
 boundary points: Start at 259287,  
 2189980; 258514, 2190124; 258227,  
 2189531; 257076, 2189405; 256231,

2189611; 256096, 2190304; 256159,  
 2190978; 256258, 2191715; 256132,  
 2192452; 256438, 2193135; 257202,  
 2193171; 258074, 2192865; 259566,  
 2192515; 260015, 2192551; 260564,  
 2192488; 260937, 2192137; 260600,

2191095; 260195, 2190187; return to  
 starting point.

(ii) **Note:** Map 2 follows:

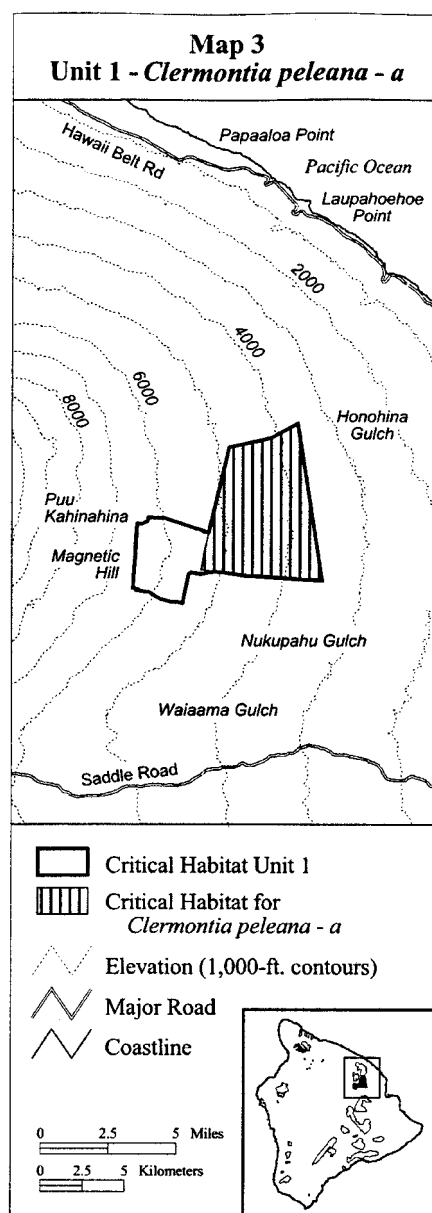




(3) Hawaii 1—*Clermontia peleana*—a  
(4,704 ha, 11,624 ac)

(i) Unit consists of the following seven boundary points: Start at 261799, 2189905; 259290, 2190265; 259437, 2191186; 260905, 2197592; 263380, 2198183; 264962, 2199047; 266443, 2189598; return to starting point.

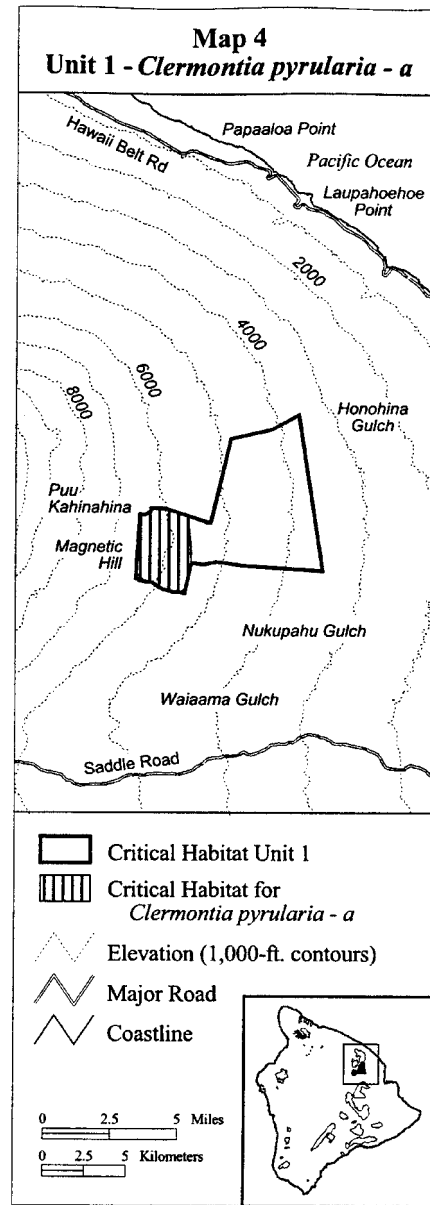
(ii) **Note:** Map 3 follows:



(4) Hawaii 1—*Clermontia pyrularia*—a  
(1,378 ha, 3,405 ac)

(i) Unit consists of the following 21 boundary points: Start at 258551, 2191038; 258529, 2189991; 258210, 2188565; 257890, 2188331; 257487, 2188365; 256896, 2188490; 256215, 2188925; 255931, 2188918; 255675, 2189060; 255456, 2189333; 255283, 2189470; 255306, 2189929; 255346, 2190140; 255408, 2190618; 255387, 2191557; 255496, 2193031; 255782, 2193009; 256122, 2193173; 256270, 2193339; 257054, 2193360; 258360, 2192915; return to starting point.

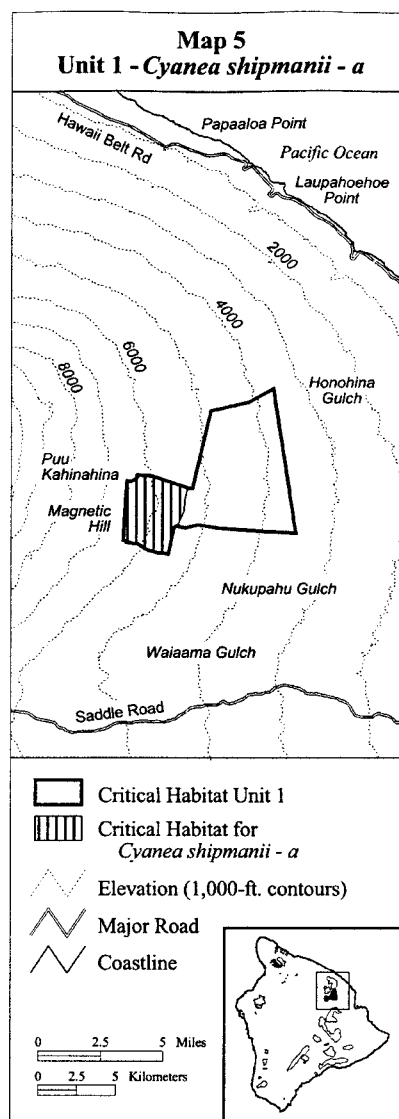
(ii) **Note:** Map 4 follows:



(5) Hawaii 1—*Cyanea shipmanii*—a  
(1,577 ha, 3,898 ac)

(i) Unit consists of the following 15 boundary points: Start at 258782, 2190167; 258548, 2189979; 258183, 2188260; 257434, 2188452; 256928, 2188480; 256188, 2188929; 255258, 2189156; 255505, 2193009; 255781, 2192991; 256152, 2193174; 256156, 2193377; 257053, 2193355; 259425, 2192593; 259263, 2191816; 259174, 2191010; return to starting point.

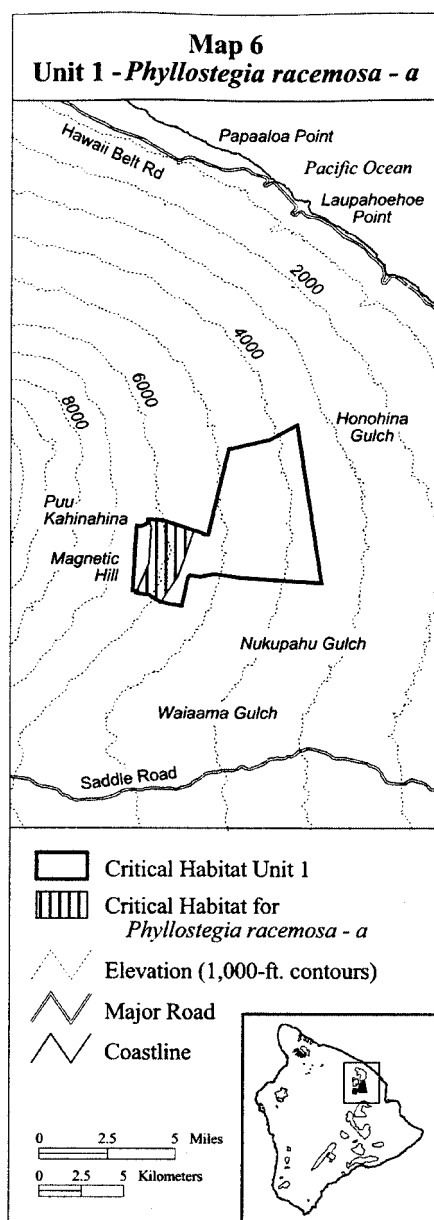
(ii) **Note:** Map 5 follows:



(6) Hawaii 1—*Phyllostegia racemosa*—a  
(938 ha, 2,317 ac)

(i) Unit consists of the following 14 boundary points: Start at 258101, 2190453; 257892, 2189913; 256913, 2188486; 256656, 2188640; 256222, 2188920; 255488, 2189023; 255638, 2189438; 256199, 2190746; 256201, 2190776; 256355, 2192927; 256193, 2193388; 257046, 2193366; 258868, 2192771; 258286, 2190933; return to starting point.

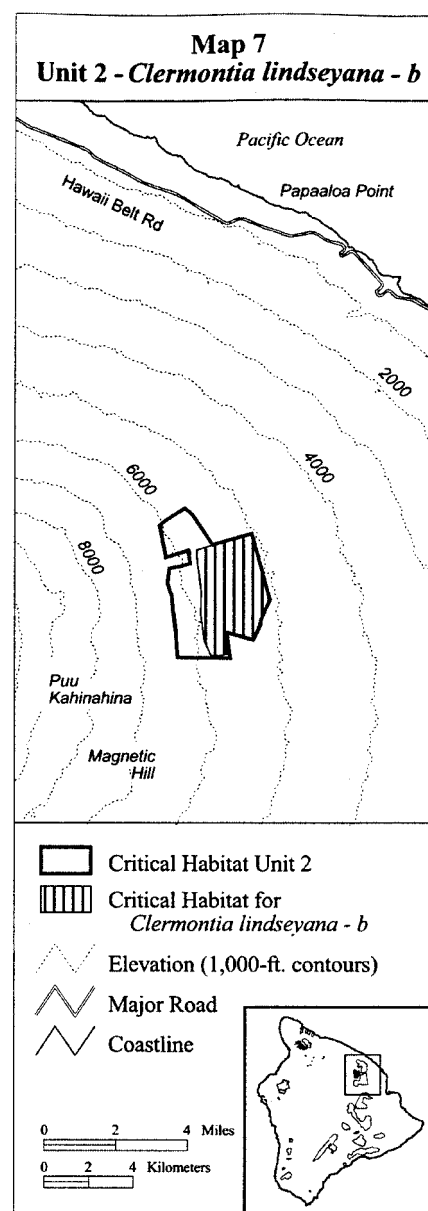
(ii) **Note:** Map 6 follows:



(7) Hawaii 2—*Clermontia lindseyana*—b  
(1,262 ha, 3,119 ac)

(i) Unit consists of the following 11 boundary points: Start at 257292, 2195256; 256959, 2195939; 256806, 2197162; 256815, 2198142; 256627, 2199661; 256609, 2200056; 259081, 2200802; 259908, 2197800; 259126, 2196047; 257939, 2196380; 257957, 2195319; return to starting point.

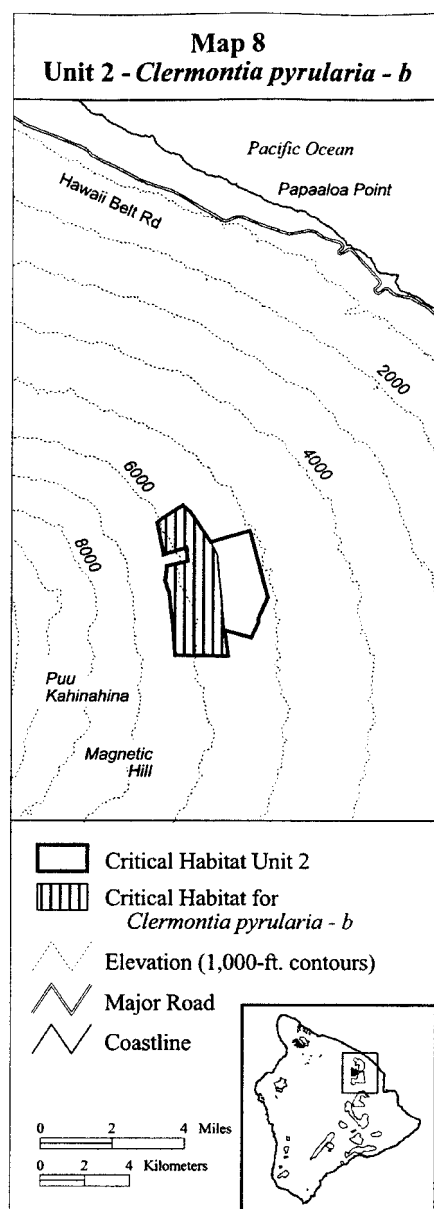
(ii) **Note:** Map 7 follows:



(8) Hawaii 2—*Clermontia pyralaria*—b  
(1,383 ha, 3,418 ac)

(i) Unit consists of the following 20 boundary points: Start at 255651, 2196455; 255597, 2196941; 255516, 2197725; 255512, 2197761; 255468, 2198050; 255421, 2198130; 255299, 2198552; 255372, 2199203; 256335, 2199414; 256242, 2200024; 255213, 2199704; 254946, 2201156; 255168, 2201360; 256079, 2201937; 256430, 2201672; 257336, 2200280; 257616, 2199751; 257968, 2196298; 258088, 2195186; 255745, 2195208; return to starting point.

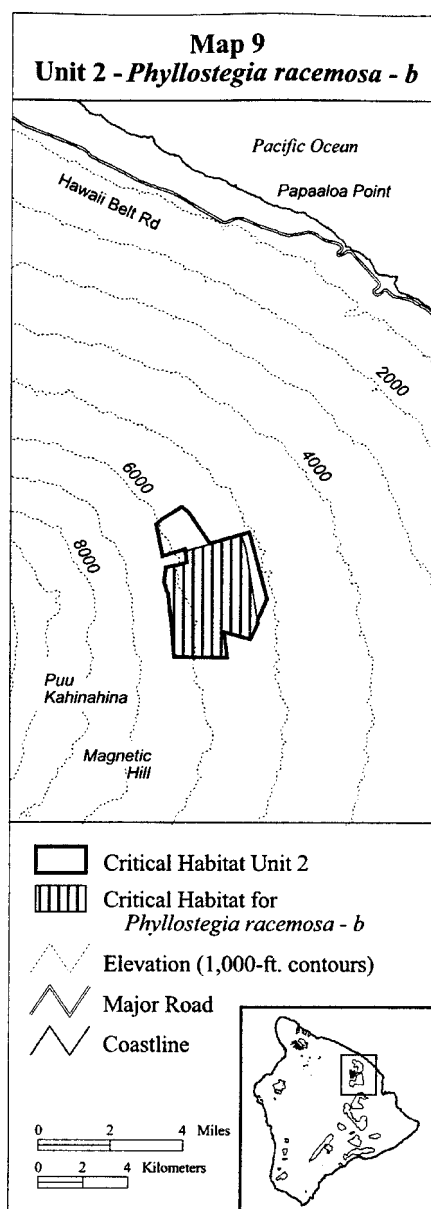
(ii) **Note:** Map 8 follows:



(9) Hawaii 2—*Phyllostegia racemosa*—b  
(1,683 ha, 4,158 ac)

(i) Unit consists of the following 13 boundary points: Start at 258723, 2200661; 258940, 2200060; 259480, 2196687; 259164, 2195977; 257990, 2196313; 258115, 2195161; 255794, 2195189; 255648, 2196936; 255554, 2197804; 255334, 2198495; 255397, 2199185; 256317, 2199426; 256234, 2199928; return to starting point.

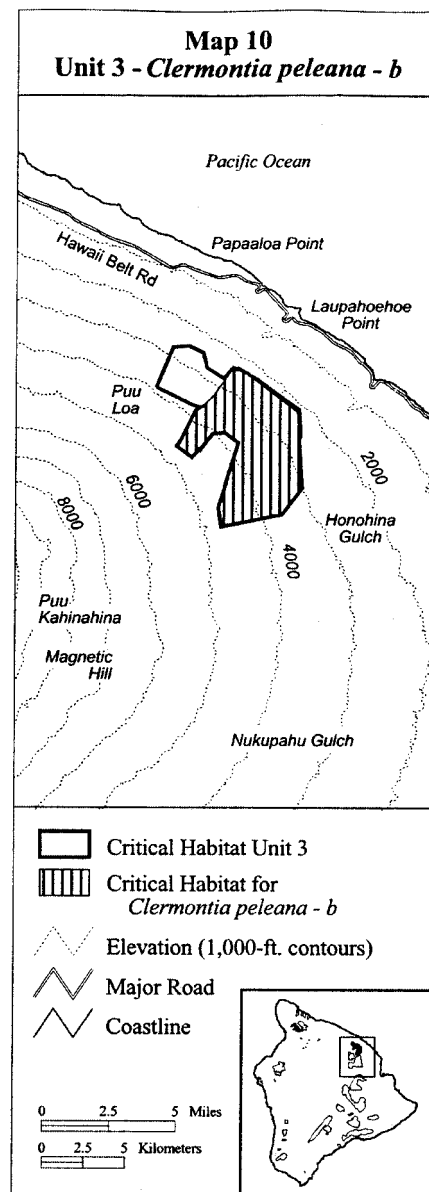
(ii) **Note:** Map 9 follows:



(10) Hawaii 3—*Clermontia peleana*—b  
(4,098 ha, 10,126 ac)

(i) Unit consists of the following 16 boundary points: Start at 265536, 2206014; 265870, 2201356; 264628, 2199741; 260958, 2198980; 260785, 2200155; 262026, 2204132; 261185, 2204813; 260398, 2204759; 259170, 2203211; 258222, 2203945; 258477, 2204289; 259386, 2206126; 259977, 2206520; 260443, 2206955; 261652, 2208710; 262533, 2208323; return to starting point.

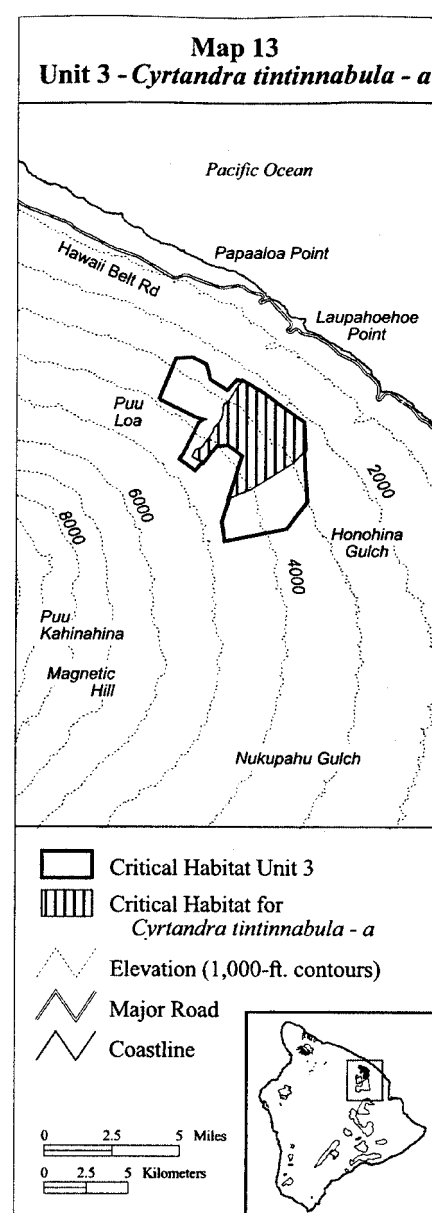
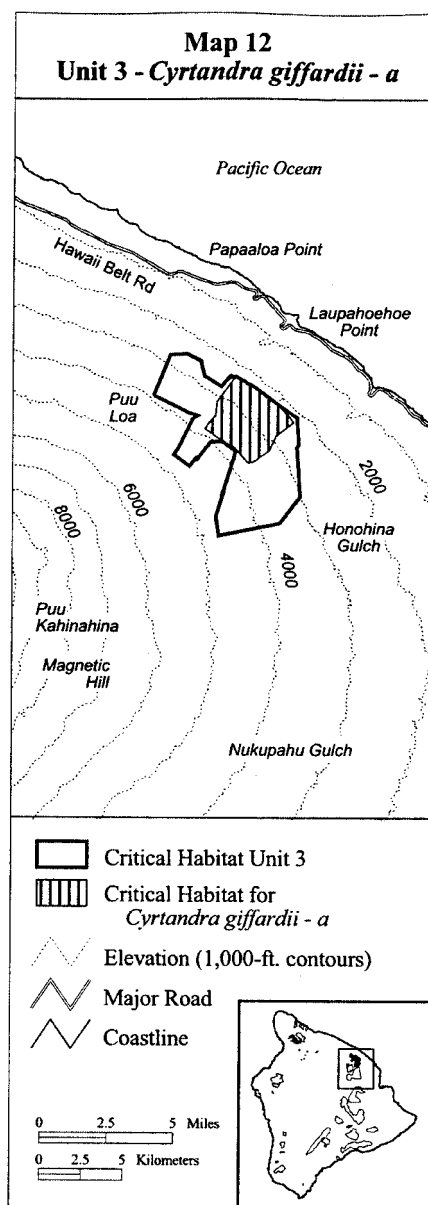
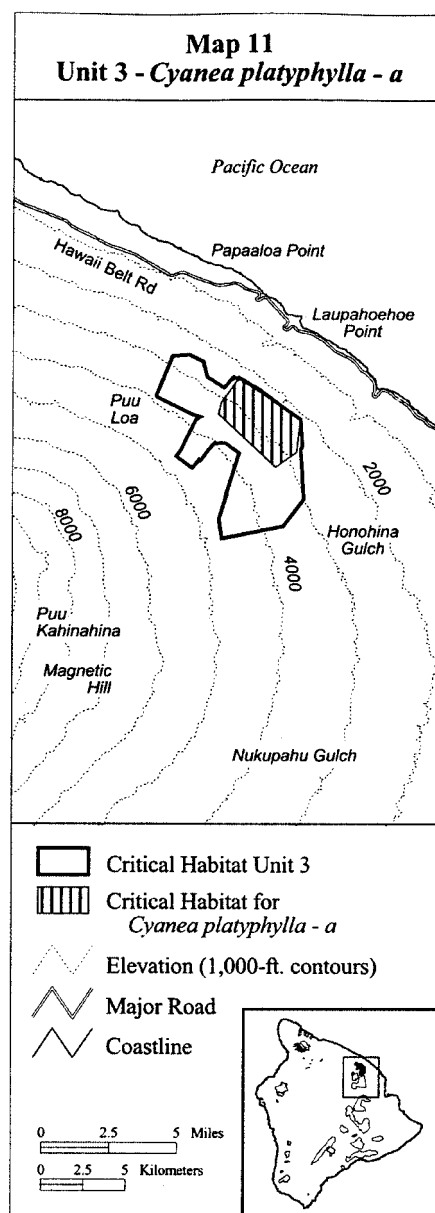
(ii) **Note:** Map 10 follows:



(11) Hawaii 3—*Cyanea platyphylla*—a  
(1,403 ha, 3,467 ac)

(i) Unit consists of the following eight boundary points: Start at 261936, 2208604; 263321, 2207740; 265617, 2206104; 265417, 2204172; 264174, 2203283; 260750, 2206482; 260875, 2207122; 261952, 2208637; return to starting point.

(ii) **Note:** Map 11 follows:



(12) Hawaii 3—*Cyrtandra giffardii*—a  
(1,510 ha, 3,731 ac)

(i) Unit consists of the following 22 boundary points: Start at 263977, 2204191; 263091, 2203511; 262736, 2203406; 261836, 2204431; 261358, 2204610; 261162, 2204774; 261114, 2204782; 260137, 2205484; 260269, 2205773; 260727, 2206307; 260808, 2207135; 261955, 2208667; 262335, 2208492; 262457, 2208405; 262682, 2208256; 262829, 2208171; 263062, 2208031; 264606, 2206914; 264702, 2206732; 265162, 2206251; 265443, 2205871; 264381, 2205051; return to starting point.

(ii) **Note:** Map 12 follows:

(13) Hawaii 3—*Cyrtandra tintinnabula*—a (2,322 ha, 5,738 ac)

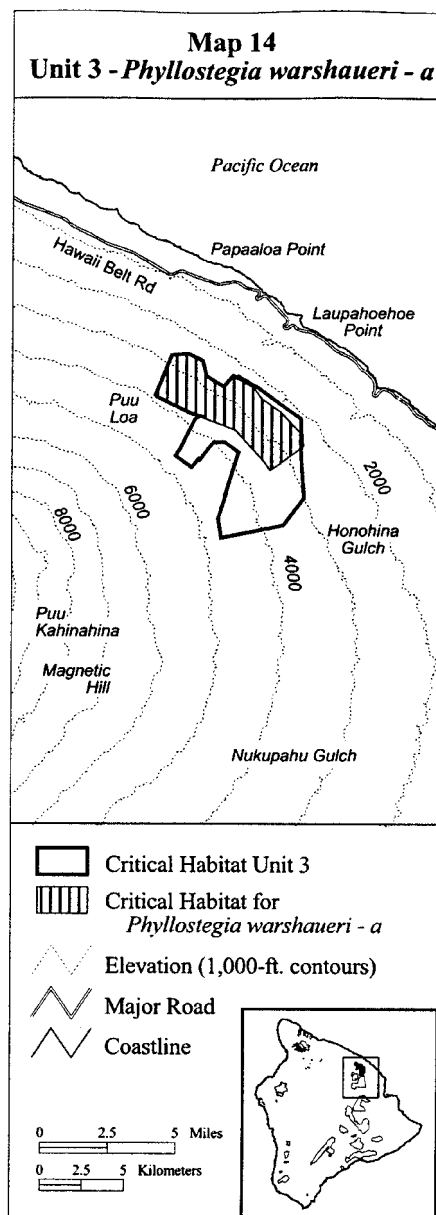
(i) Unit consists of the following 30 boundary points: Start at 261996, 2208648; 262049, 2208624; 263522, 2207698; 265651, 2206158; 265754, 2204527; 265122, 2203759; 262570, 2202152; 261169, 2201554; 261944, 2204127; 261158, 2204766; 260467, 2204723; 260185, 2204367; 260136, 2204327; 260129, 2204298; 259641, 2203682; 259436, 2203822; 258995, 2204073; 259216, 2204499; 259562, 2204625; 259924, 2205129; 260239, 2205570; 260255, 2205790; 260539, 2206042; 260743, 2206373; 260822, 2206782; 260854, 2207176; 261184, 2207475; 261515, 2208026; 261720, 2208326; 261972, 2208593; return to starting point.

(ii) **Note:** Map 13 follows:

(14) Hawaii 3—*Phyllostegia warshaueri*—a (2,471 ha, 6,105 ac)

(i) Unit consists of the following 21 boundary points: Start at 257006, 2207522; 257019, 2207554; 257990, 2209960; 258969, 2210027; 258996, 2210030; 259000, 2210028; 259841, 2209621; 260070, 2208710; 261086, 2208085; 261545, 2208642; 262022, 2208476; 262839, 2208040; 263330, 2207359; 264502, 2206514; 265710, 2205217; 265744, 2204501; 265526, 2204234; 263864, 2203016; 263466, 2203598; 261804, 2205478; 259132, 2206487; return to starting point.

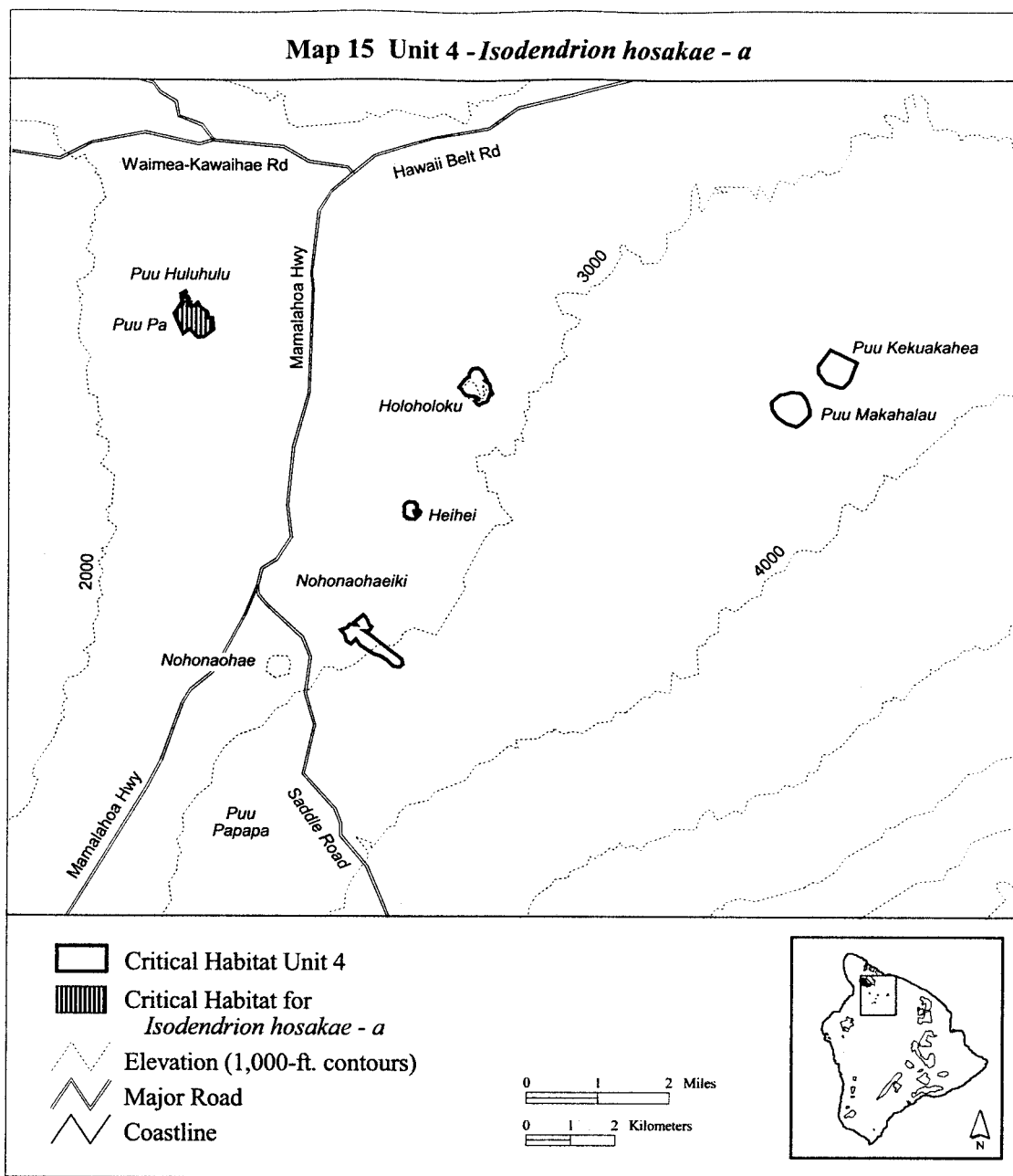
(ii) **Note:** Map 14 follows:



(15) Hawaii 4—*Isodendron hosakae*—a  
(49 ha, 121 ac)

(i) Unit consists of the following 30 boundary points: Start at 216918, 2213235; 217016, 2213305; 217029, 2213274; 217005, 2213247; 217021, 2213158; 217073, 2213172; 217095, 2213120; 217071, 2213088; 217094, 2213045; 217129, 2213041; 217123, 2212977; 217141, 2212945; 217161, 2212966; 217207, 2212974; 217303, 2213051; 217353, 2212944; 217455, 2212885; 217511, 2212825; 217544, 2212704; 217624, 2212704; 217658, 2212443; 217423, 2212270; 217284, 2212268; 217105, 2212451; 216974, 2212346; 216772, 2212797; 216900, 2213009; 216946, 2212994; 216966, 2213060; 216928, 2213088; return to starting point.

(ii) **Note:** Map 15 follows:



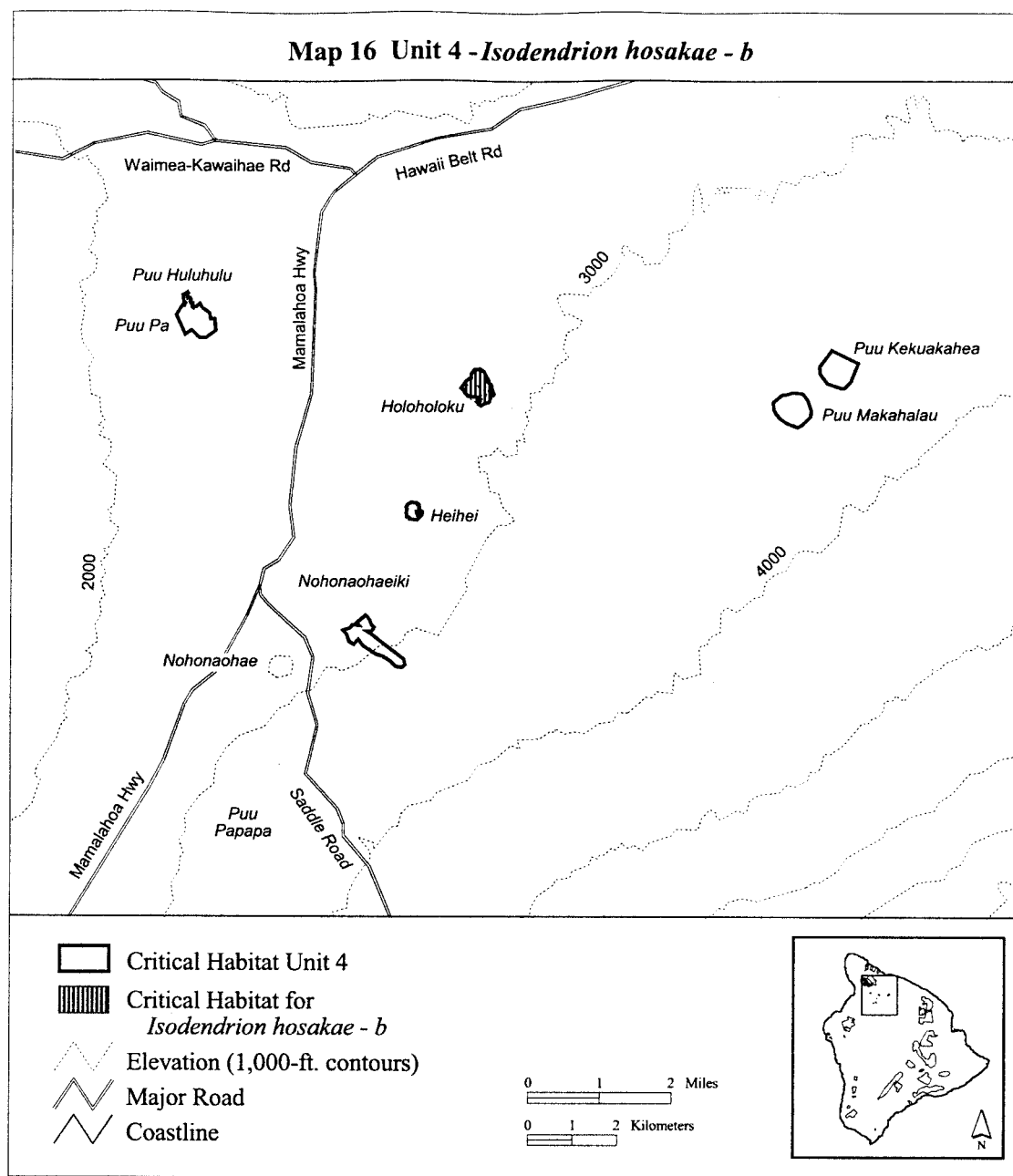
(16) Hawaii 4—*Isodendrion hosakae*—b  
(35 ha, 87 ac)

(i) Unit consists of the following 32 boundary points: Start at 223492, 2211567; 223608, 2211572; 223691, 2211528; 223727, 2211464; 223811, 2211316; 223763, 2211291; 223859,

2211232; 223887, 2211182; 223881, 2211116; 223938, 2211006; 223918, 2210977; 223876, 2210984; 223832, 2210851; 223809, 2210816; 223729, 2210799; 223636, 2210739; 223556, 2210796; 223552, 2210877; 223614, 2210869; 223630, 2210891; 223572, 2210924; 223506, 2210932; 223418,

2210946; 223338, 2210965; 223296, 2211003; 223244, 2211091; 223188, 2211145; 223294, 2211291; 223359, 2211352; 223406, 2211368; 223414, 2211415; 223415, 2211453; return to starting point.

(ii) **Note:** Map 16 follows:



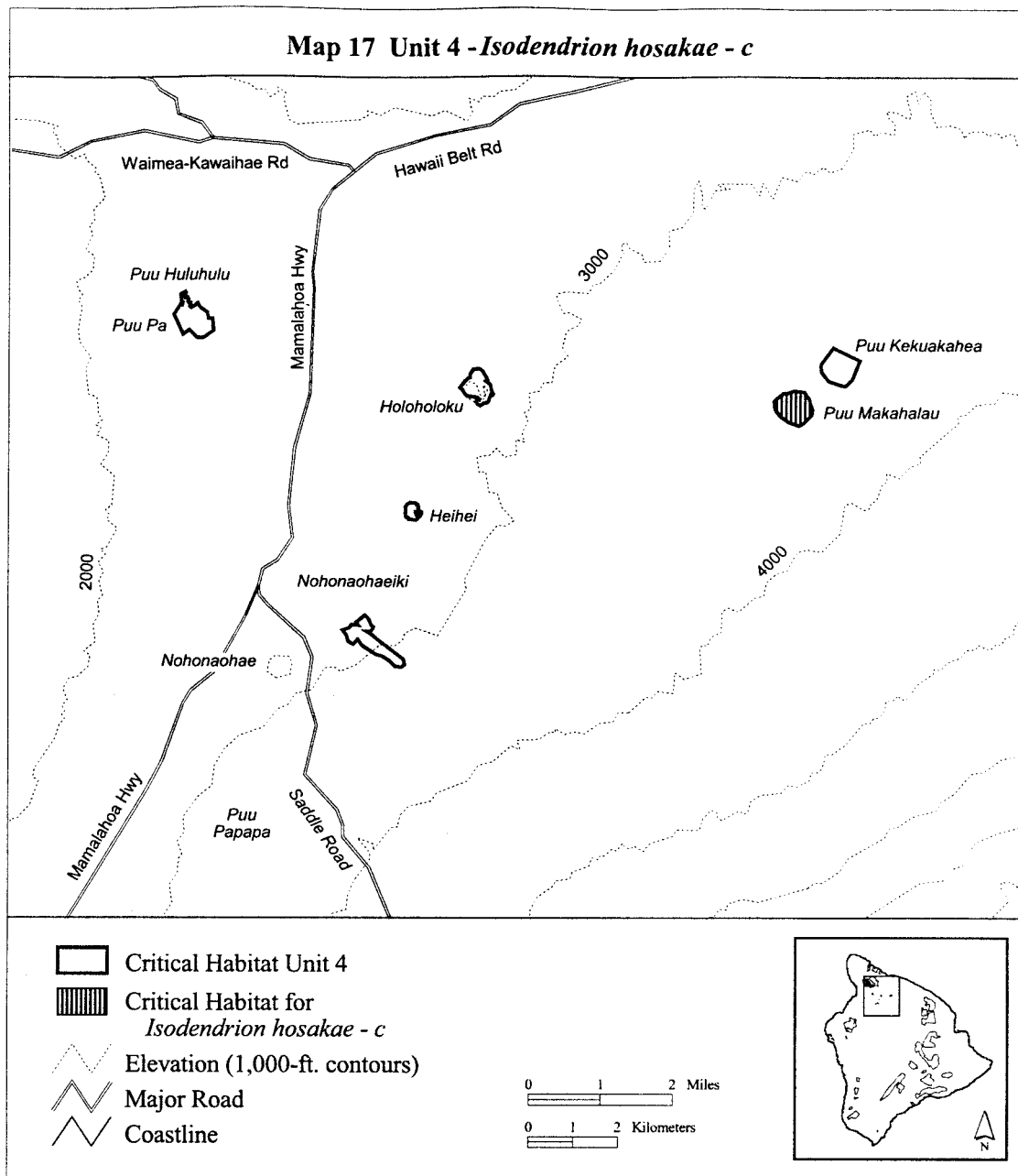
(17) Hawaii 4—*Isodendrion hosakae*—c  
(49 ha, 121 ac)

(i) Unit consists of the following 15  
boundary points: Start at 230256,

2210857; 230438, 2210998; 230517,  
2211001; 230682, 2211057; 230897,  
2211021; 231011, 2210874; 231090,  
2210642; 231078, 2210504; 230899,  
2210322; 230783, 2210259; 230543,

2210360; 230357, 2210475; 230289,  
2210576; 230244, 2210644; 230224,  
2210817; return to starting point.

(ii) **Note:** Map 17 follows:



(18) Hawaii 4—*Isodendrion hosakae*—d  
(49 ha, 121 ac)

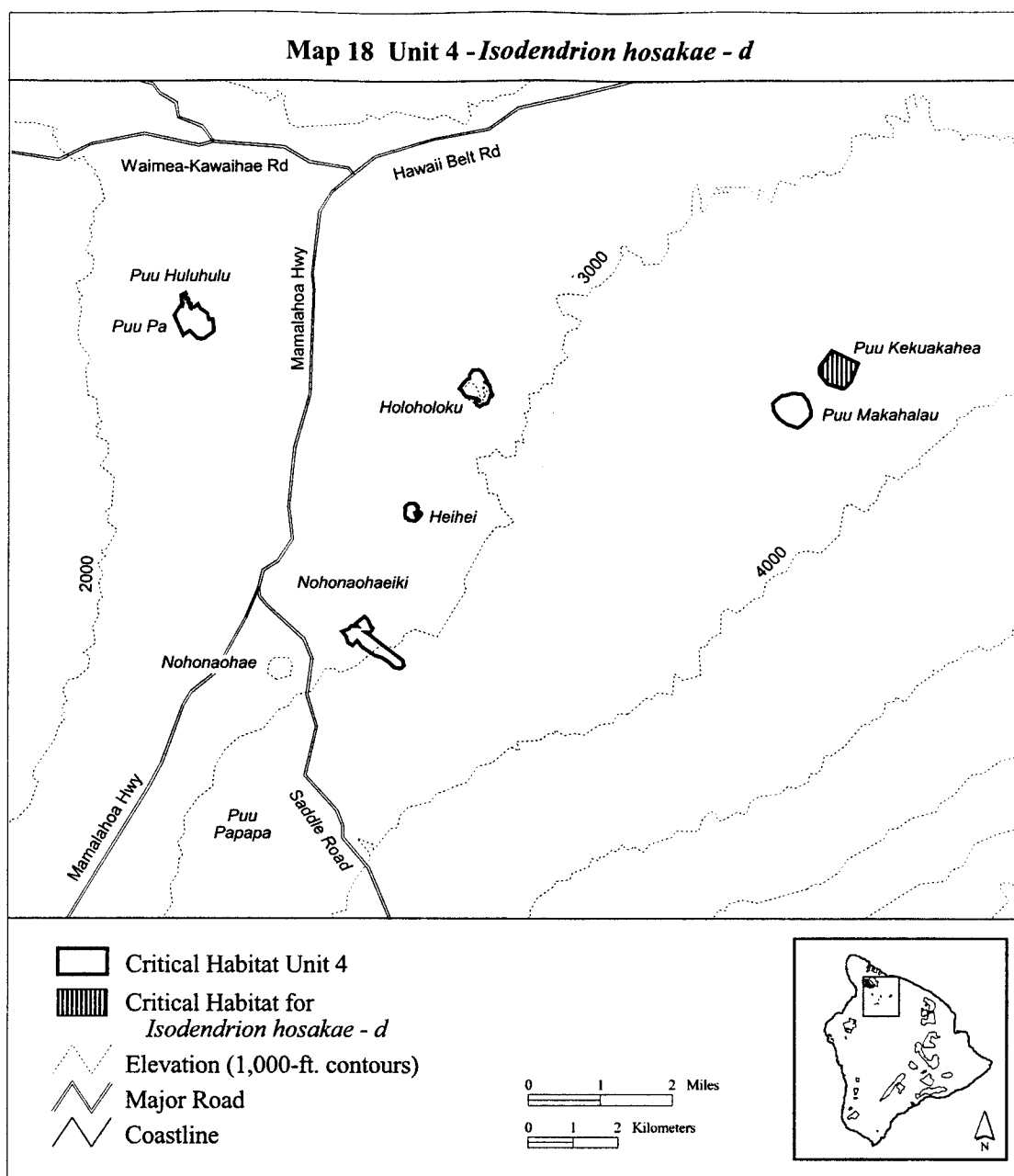
(i) Unit consists of the following nine  
boundary points: Start at 231266,

2211631; 231267, 2211631; 231537,  
2212023; 232139, 2211722; 231979,  
2211293; 231830, 2211149; 231774,

2211152; 231436, 2211271; 231277,  
2211485; return to starting point.

(ii) **Note:** Map 18 follows:





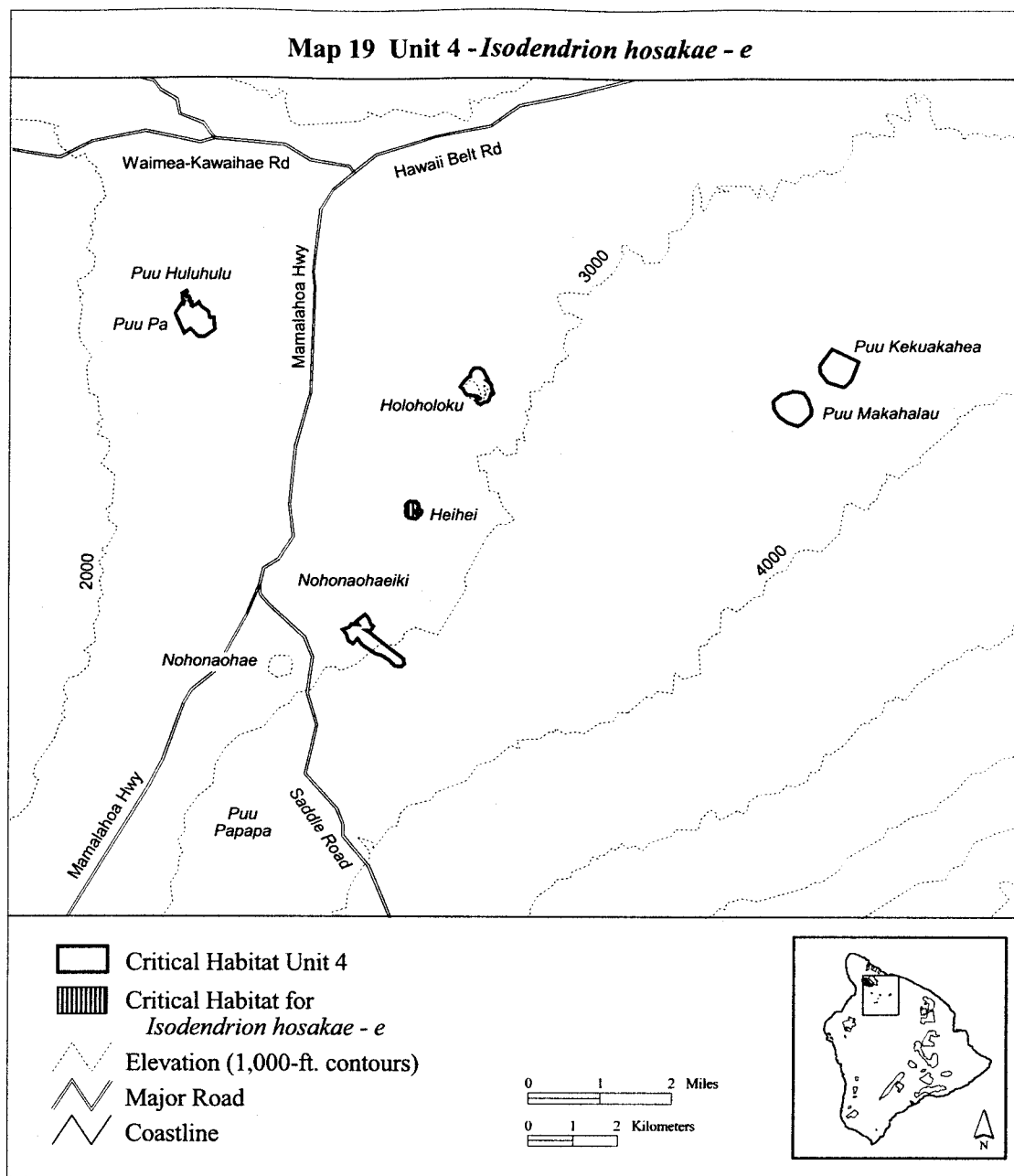
(19) Hawaii 4—*Isodendrion hosakae*—e  
(11 ha, 26 ac)

(i) Unit consists of the following 39 boundary points: Start at 222273, 2208478; 222265, 2208455; 222245, 2208415; 222245, 2208393; 222331, 2208332; 222330, 2208290; 222311, 2208248; 222279, 2208219; 222256,

2208215; 222254, 2208246; 222251, 2208259; 222230, 2208261; 222222, 2208286; 222213, 2208303; 222225, 2208306; 222227, 2208316; 222214, 2208320; 222209, 2208331; 222194, 2208337; 222189, 2208329; 222194, 2208324; 222202, 2208299; 222198, 2208283; 222219, 2208259; 222244, 2208216; 222238, 2208183; 222198,

2208149; 222045, 2208166; 222020, 2208212; 221971, 2208225; 221966, 2208306; 221969, 2208396; 221963, 2208440; 221988, 2208483; 222015, 2208509; 222077, 2208552; 222199, 2208535; 222218, 2208498; 222247, 2208498; return to starting point.

(ii) **Note:** Map 19 follows:



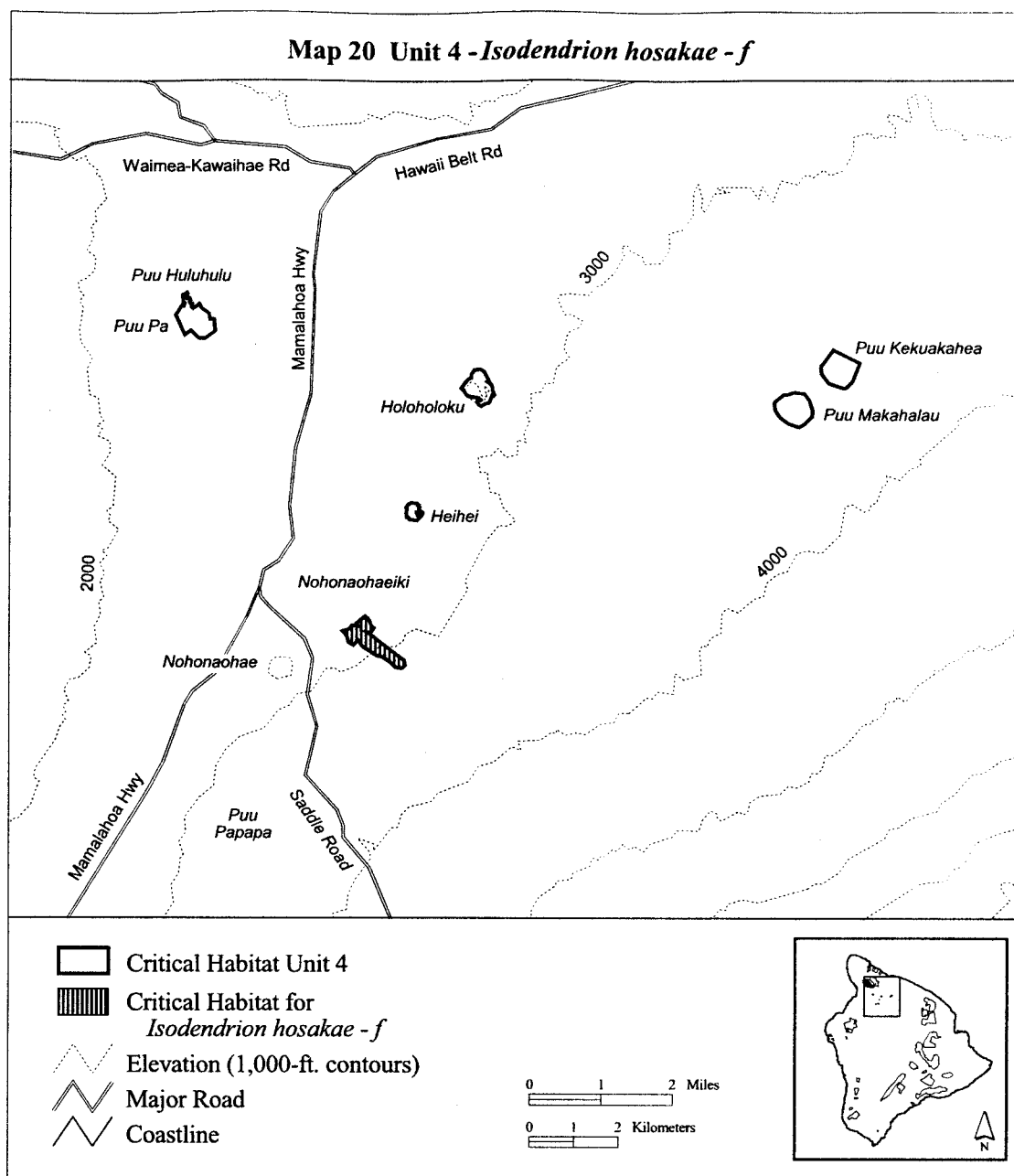
(20) Hawaii 4—*Isodendrion hosakae*—f  
(51 ha, 127 ac)

(i) Unit consists of the following 27  
boundary points: Start at 221456,  
2205056; 221315, 2205089; 220996,  
2205294; 220895, 2205435; 220799,

2205324; 220680, 2205394; 220645,  
2205535; 220550, 2205636; 220701,  
2205687; 220754, 2205770; 220904,  
2205756; 220861, 2205816; 221058,  
2205989; 221139, 2205911; 221195,  
2205756; 221253, 2205717; 221216,  
2205641; 221179, 2205613; 221095,

2205611; 221197, 2205553; 221326,  
2205451; 221675, 2205188; 221929,  
2204996; 221948, 2204869; 221871,  
2204802; 221737, 2204828; 221610,  
2204957; return to starting point.

(ii) **Note:** Map 20 follows:



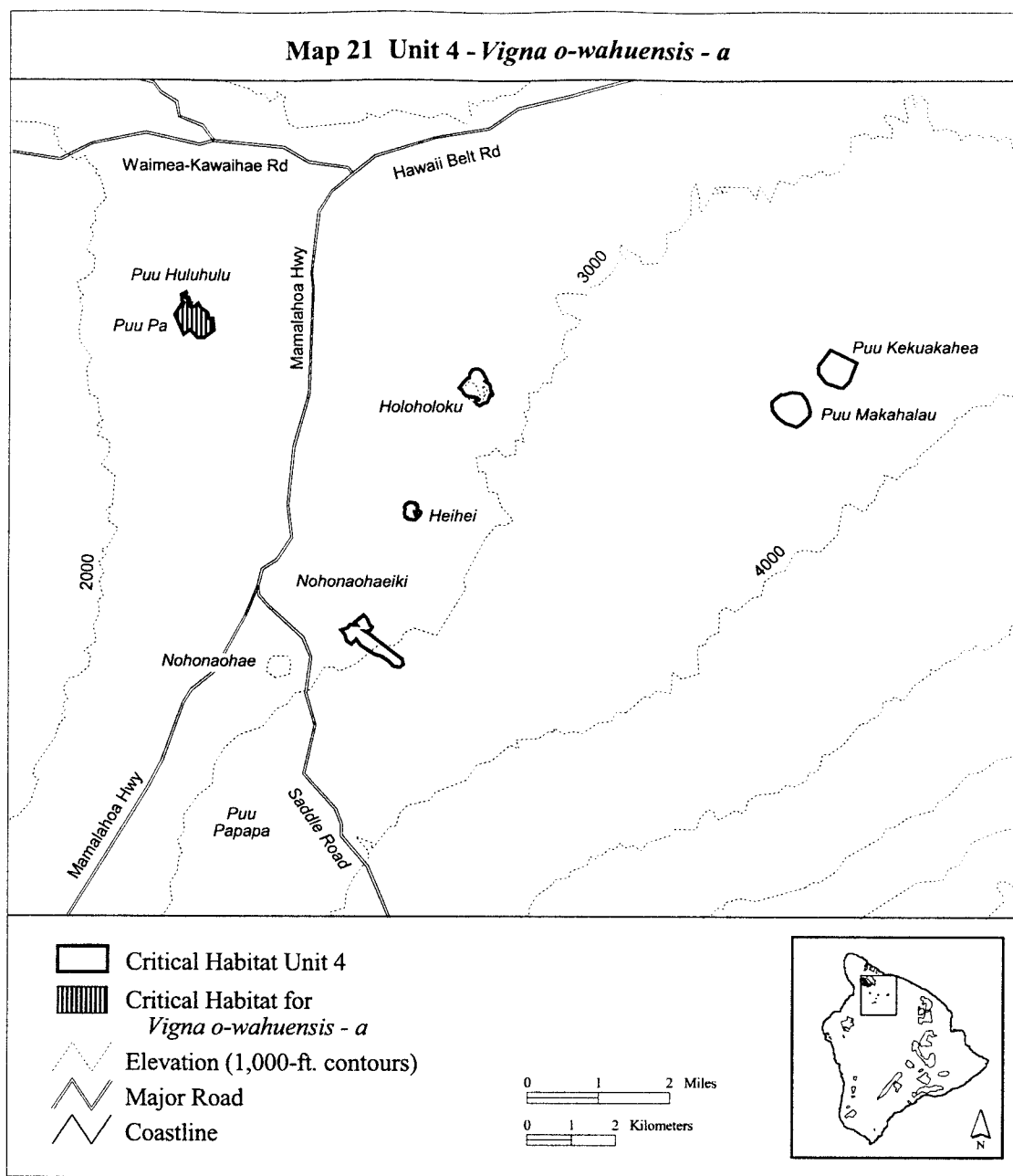
(21) Hawaii 4—*Vigna o-wahuensis*—a (49 ha, 121 ac)

(i) Unit consists of the following 30 boundary points: Start at 216918, 2213235; 217016, 2213305; 217029, 2213274; 217005, 2213247; 217021, 2213158; 217073, 2213172; 217095,

2213120; 217071, 2213088; 217094, 2213045; 217129, 2213041; 217123, 2212977; 217141, 2212945; 217161, 2212966; 217207, 2212974; 217303, 2213051; 217353, 2212944; 217455, 2212885; 217511, 2212825; 217544, 2212704; 217624, 2212704; 217658,

2212443; 217423, 2212270; 217284, 2212268; 217105, 2212451; 216974, 2212346; 216772, 2212797; 216900, 2213009; 216946, 2212994; 216966, 2213060; 216928, 2213088; return to starting point.

(ii) **Note:** Map 21 follows:



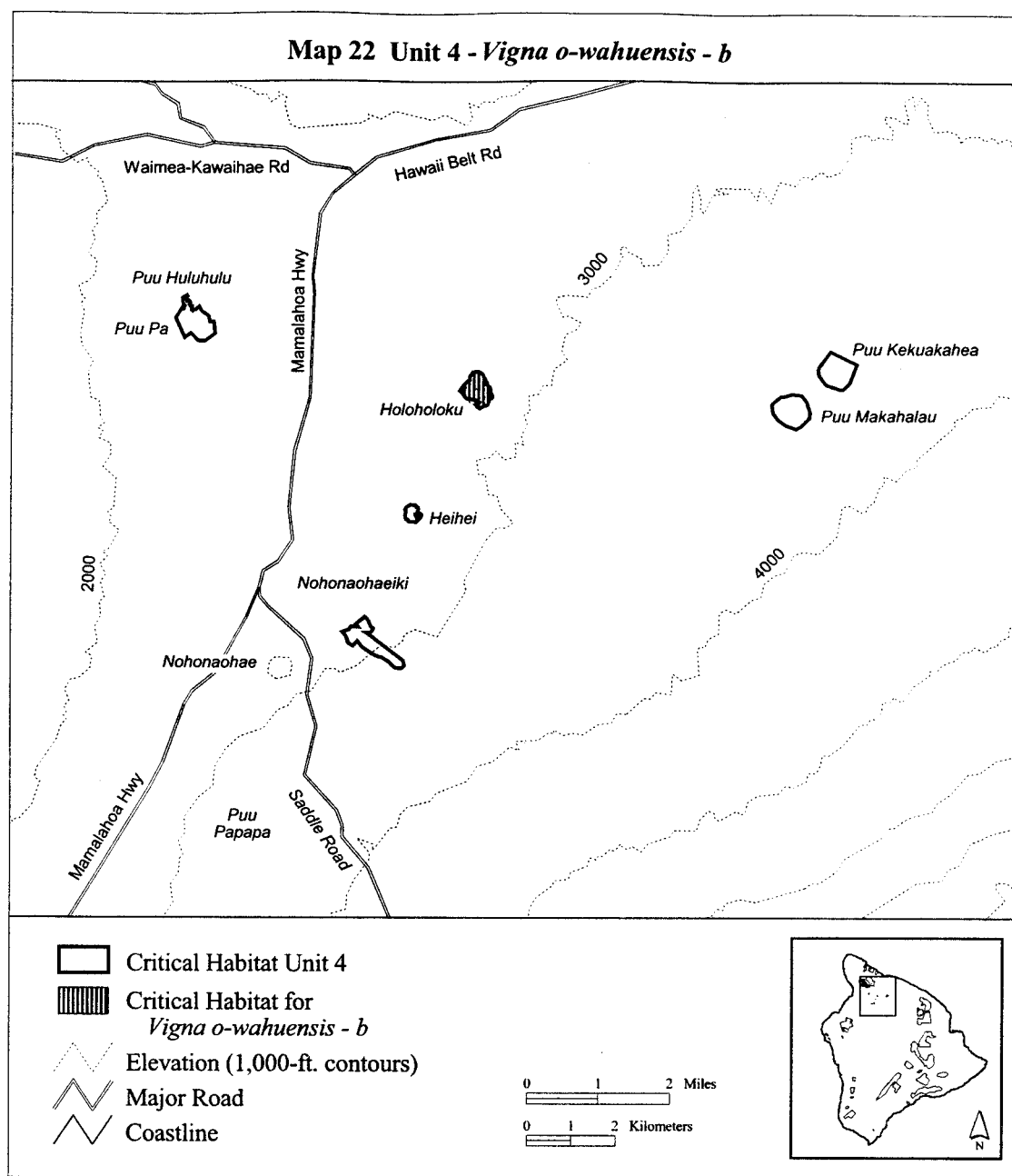
(22) Hawaii 4—*Vigna o-wahuensis*—b  
(35 ha, 87 ac)

(i) Unit consists of the following 32 boundary points: Start at 223492, 2211567; 223608, 2211572; 223691, 2211528; 223727, 2211464; 223811, 2211316; 223763, 2211291; 223859,

2211232; 223887, 2211182; 223881, 2211116; 223938, 2211006; 223918, 2210977; 223876, 2210984; 223832, 2210851; 223809, 2210816; 223729, 2210799; 223636, 2210739; 223556, 2210796; 223552, 2210877; 223614, 2210869; 223630, 2210891; 223572, 2210924; 223506, 2210932; 223418,

2210946; 223338, 2210965; 223296, 2211003; 223244, 2211091; 223188, 2211145; 223294, 2211291; 223359, 2211352; 223406, 2211368; 223414, 2211415; 223415, 2211453; return to starting point.

(ii) **Note:** Map 22 follows:



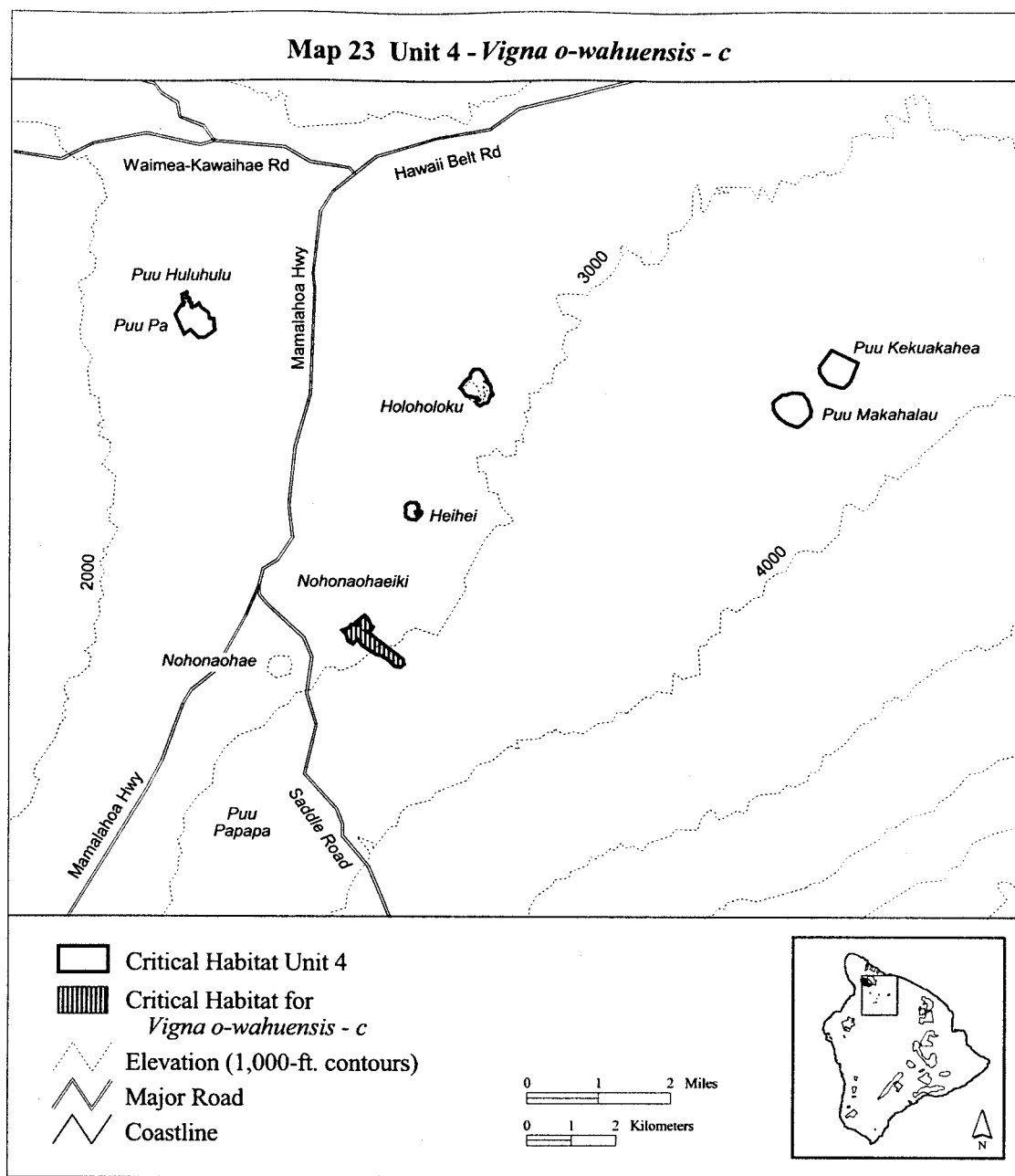
(23) Hawaii 4—*Vigna o-wahuensis*—c  
(51 ha, 127 ac)

(i) Unit consists of the following 27 boundary points: Start at 221456, 2205056; 221315, 2205089; 220996, 2205294; 220895, 2205435; 220799,

2205324; 220680, 2205394; 220645, 2205535; 220550, 2205636; 220701, 2205687; 220754, 2205770; 220904, 2205756; 220861, 2205816; 221058, 2205989; 221139, 2205911; 221195, 2205756; 221253, 2205717; 221216, 2205641; 221179, 2205613; 221095,

2205611; 221197, 2205553; 221326, 2205451; 221675, 2205188; 221929, 2204996; 221948, 2204869; 221871, 2204802; 221737, 2204828; 221610, 2204957; return to starting point.

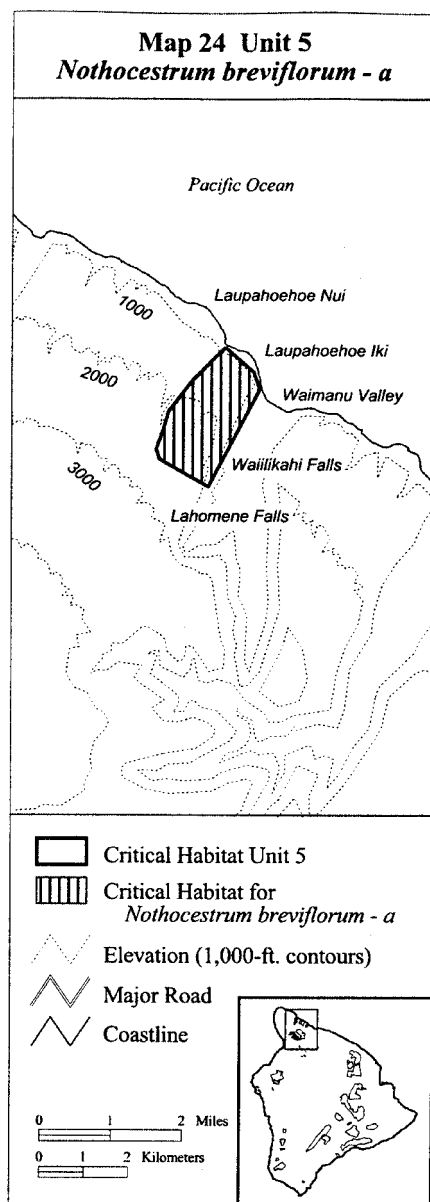
(ii) **Note:** Map 23 follows:



(24) Hawaii 5—*Nothocestrum breviflorum*—a (403 ha, 995 ac)

(i) Unit consists of the following 10 boundary points: Start at 223325, 2230961; 223717, 2230611; 223961, 2230395; 224099, 2230006; 222943, 2227775; 221847, 2228401; 221769, 2228638; 221914, 2229066; 222052, 2229490; 222606, 2230217; return to starting point.

(ii) **Note:** Map 24 follows:

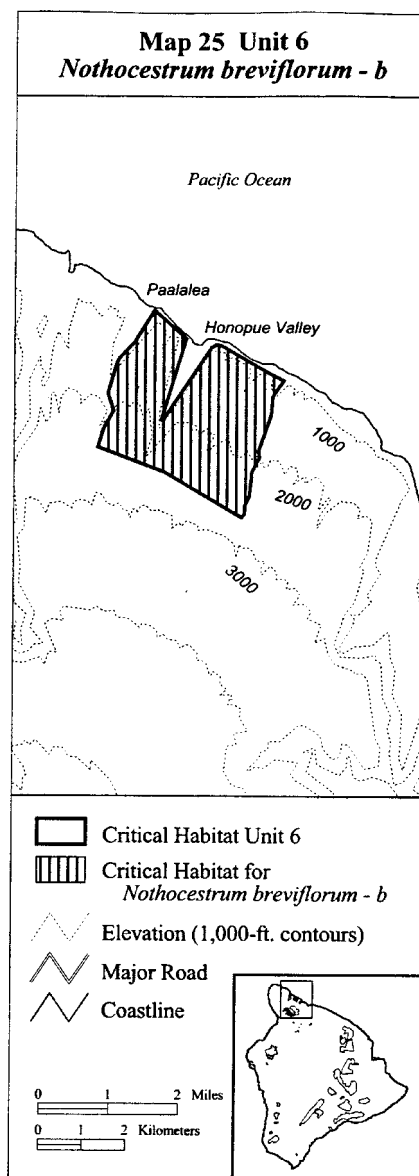


(25) Hawaii 6—*Nothocestrum breviflorum*—b (1,113 ha, 2,750 ac)

(i) Unit consists of the following 29 boundary points: Start at 217283, 2233128; 217629, 2233499; 218093, 2234242; 218828, 2233584; 218277, 2231773; 218266, 2231685; 218291, 2231675; 219411, 2233375; 219521, 2233443; 219655, 2233414; 220288,

2233050; 220656, 2232834; 221080, 2232612; 220999, 2232500; 220822, 2232233; 220802, 2231818; 220498, 2230963; 220529, 2230813; 220350, 2230453; 220296, 2229915; 220205, 2229697; 220190, 2229504; 220122, 2229416; 218354, 2230452; 216792, 2231049; 216919, 2231470; 217150, 2231890; 217026, 2232314; 217214, 2232981; return to starting point.

(ii) **Note:** Map 25 follows:

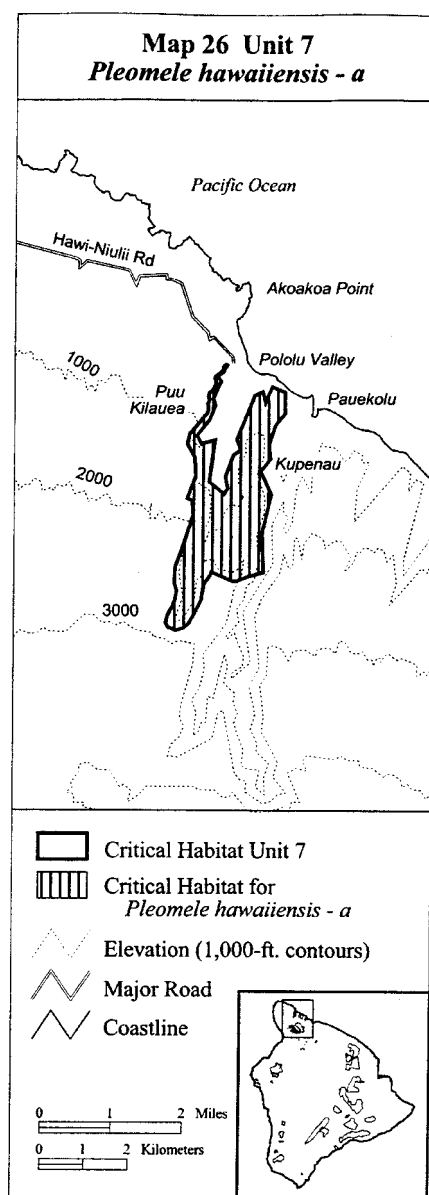


(26) Hawaii 7—*Pleomele hawaiiensis*—a (677 ha, 1,673 ac)

(i) Unit consists of the following 92 boundary points: Start at 213884, 2231521; 213842, 2231562; 213785, 2231427; 213666, 2231261; 213601, 2230893; 213453, 2230596; 213305, 2230350; 213204, 2230269; 213030, 2230210; 212859, 2230290; 212807, 2230381; 212812, 2230467; 212835,

2230541; 212877, 2230637; 212939, 2230736; 213011, 2230905; 213041, 2231129; 212997, 2231275; 213007, 2231651; 213147, 2232011; 213409, 2232858; 213387, 2233177; 213269, 2233218; 213462, 2233730; 213453, 2233976; 213443, 2234090; 213442, 2234162; 213373, 2234284; 213315, 2234388; 213271, 2234480; 213320, 2234721; 213371, 2234760; 213429, 2234835; 213464, 2234878; 213513, 2234943; 213559, 2235003; 213642, 2235106; 213659, 2235121; 213685, 2235147; 213724, 2235205; 213745, 2235328; 213734, 2235407; 213765, 2235497; 213747, 2235588; 213771, 2235662; 213817, 2235706; 213849, 2235729; 213891, 2235850; 213906, 2235884; 213908, 2235940; 213886, 2235998; 213892, 2236033; 214009, 2236115; 214062, 2236170; 214080, 2236202; 214083, 2236227; 214091, 2236260; 214140, 2236304; 214165, 2236296; 214069, 2236123; 213954, 2236053; 214016, 2235921; 213862, 2235537; 213901, 2235357; 213770, 2235029; 213484, 2234675; 213587, 2234485; 213891, 2234567; 213773, 2233608; 214112, 2233331; 214183, 2233458; 214141, 2233713; 214320, 2234212; 214483, 2234338; 214390, 2234581; 214802, 2235593; 214978, 2235684; 215037, 2235434; 215190, 2235808; 215483, 2235675; 215479, 2235179; 215269, 2234894; 215127, 2234463; 215158, 2234131; 214937, 2233848; 215182, 2233321; 214973, 2232427; 215018, 2231531; 214640, 2231432; 214495, 2231365; 214382, 2231329; 214332, 2231335; return to starting point.

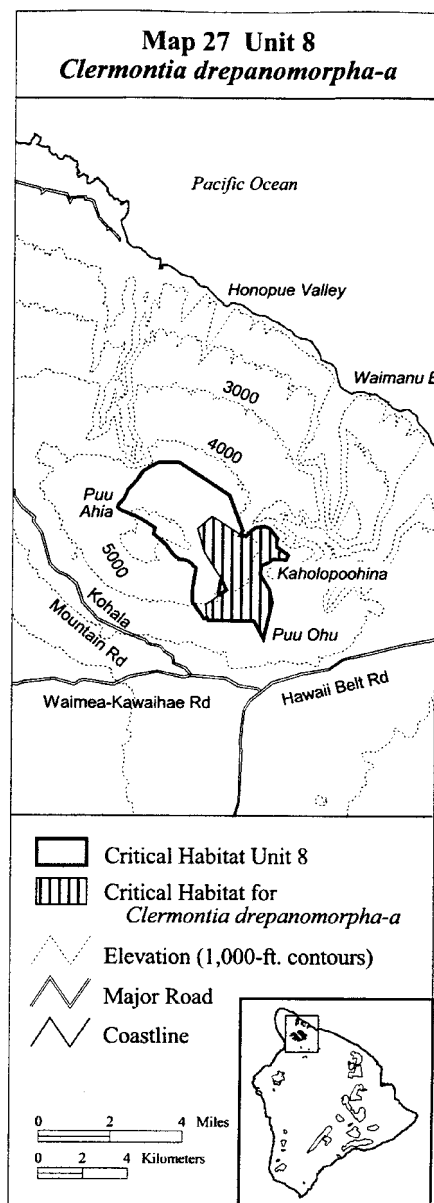
(ii) **Note:** Map 26 follows:



(27) Hawaii 8—*Clermontia drepanomorpha*—a (1,906 ha, 4,709 ac)

(i) Unit consists of the following 30 boundary points: Start at 214766, 2225082; 215176, 2225539; 215405, 2225905; 215716, 2226097; 216131, 2226318; 217035, 2226328; 218354, 2225470; 219286, 2224824; 219895, 2223228; 218899, 2220922; 218806, 2219907; 218769, 2219298; 218197, 2219271; 217672, 2220036; 217653, 2220562; 217819, 2221512; 217520, 2221821; 217378, 2221880; 217229, 2221937; 217063, 2221937; 216768, 2222158; 216463, 2222582; 215919, 2223071; 215956, 2223348; 215550, 2223643; 215070, 2223892; 214393, 2224156; 214299, 2224261; 214335, 2224407; 214570, 2224647; return to starting point.

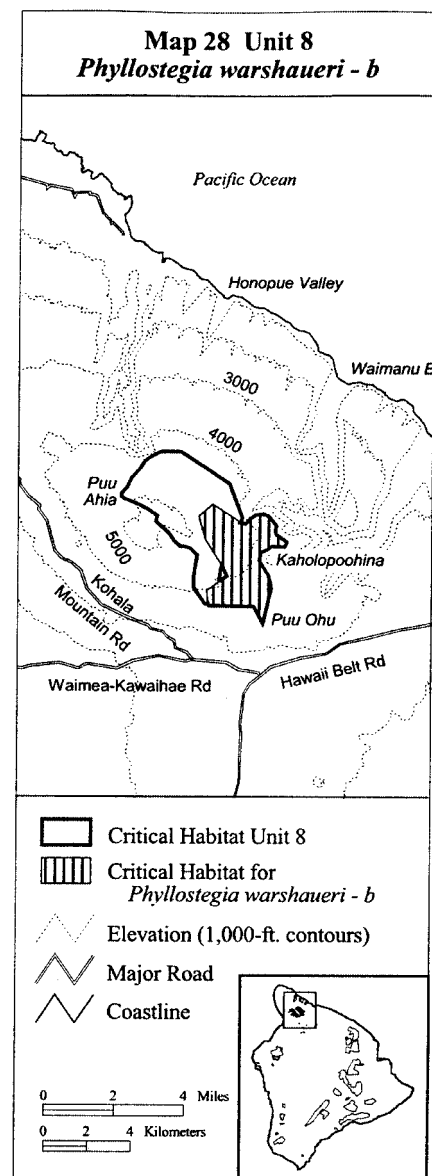
(ii) **Note:** Map 27 follows:



(28) Hawaii 8—*Phyllostegia warshaueri*—b (1,177 ha, 2,908 ac)

(i) Unit consists of the following 27 boundary points: Start at 218326, 2219182; 218265, 2219899; 218572, 2220103; 219186, 2220554; 218961, 2221066; 218183, 2222274; 217900, 2223294; 218531, 2223871; 219842, 2223011; 220052, 2222981; 220255, 2223197; 220513, 2223371; 220883, 2223437; 221142, 2223301; 221469, 2222879; 221431, 2222712; 221443, 2222484; 221956, 2222124; 221860, 2221917; 221276, 2221939; 221020, 2221746; 220775, 2221645; 220679, 2221263; 221125, 2220585; 221255, 2220003; 220857, 2218373; 220445, 2219168; return to starting point.

(ii) **Note:** Map 28 follows:



(29) Hawaii 9—*Achyranthes mutica*—a (63 ha, 157 ac)

(i) Unit consists of the following 82 boundary points: Start at 211908, 2224450; 211840, 2224339; 211562, 2224160; 211477, 2224142; 211418, 2224067; 211356, 2224034; 211319, 2223969; 211271, 2223951; 211220, 2223903; 211172, 2223900; 211144, 2223870; 211106, 2223860; 211053, 2223873; 210980, 2223837; 210916, 2223837; 210864, 2223788; 210802, 2223764; 210694, 2223796; 210650, 2223761; 210578, 2223756; 210489, 2223646; 210425, 2223652; 210359, 2223635; 210254, 2223626; 210218, 2223598; 210154, 2223584; 210056, 2223595; 209922, 2223585; 209805, 2223507; 209521, 2223432; 209365, 2223366; 209228, 2223347; 208930, 2223267; 208835, 2223286; 208830, 2223355; 208907, 2223389; 209205,



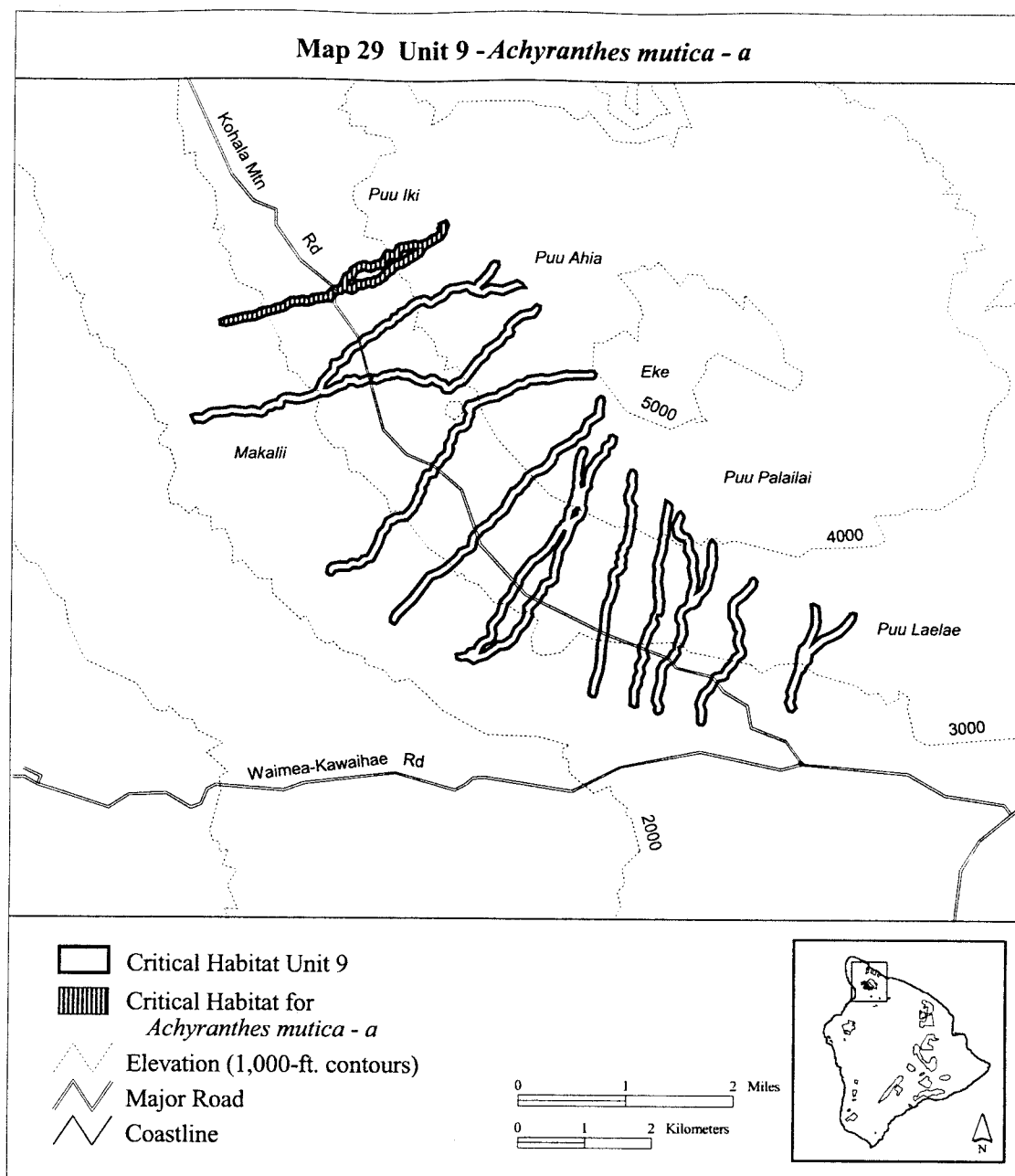
2223465; 209333, 2223482; 209483,  
2223546; 209548, 2223555; 209606,  
2223568; 209652, 2223593; 209761,  
2223619; 209887, 2223699; 209956,  
2223703; 209996, 2223703; 210057,  
2223716; 210148, 2223704; 210219,  
2223742; 210431, 2223770; 210529,  
2223870; 210603, 2223875; 210683,  
2224047; 210751, 2224079; 210773,  
2224145; 210846, 2224182; 210875,  
2224212; 210992, 2224241; 211084,  
2224220; 211131, 2224248; 211225,  
2224269; 211290, 2224395; 211339,  
2224415; 211428, 2224394; 211464,  
2224477; 211515, 2224517; 211607,

2224525; 211733, 2224561; 211824,  
2224547; 211926, 2224590; 211986,  
2224640; 212066, 2224670; 212094,  
2224717; 212088, 2224750; 212115,  
2224806; 212108, 2224823; 212219,  
2224872; 212243, 2224820; 212243,  
2224778; 212216, 2224731; 212213,  
2224684; 212160, 2224595; return to  
starting point.

(ii) Excluding one area bounded by  
the following 31 points (8 ha, 19 ac):  
Start at 211235, 2224062; 211172,  
2224016; 211129, 2224012; 211093,  
2223986; 211042, 2223992; 210945,  
2223954; 210872, 2223952; 210792,

2223885; 210751, 2223908; 210770,  
2223960; 210841, 2223994; 210870,  
2224063; 210928, 2224102; 210992,  
2224116; 211080, 2224094; 211174,  
2224135; 211293, 2224156; 211335,  
2224196; 211345, 2224253; 211373,  
2224282; 211439, 2224272; 211501,  
2224297; 211562, 2224404; 211619,  
2224407; 211657, 2224425; 211731,  
2224441; 211766, 2224436; 211506,  
2224267; 211403, 2224240; 211340,  
2224159; 211274, 2224128; return to  
starting point.

(iii) **Note:** Map 29 follows:



(30) Hawaii 9—*Achyranthes mutica*—b  
(124 ha, 306 ac)

(i) Unit consists of the following 211

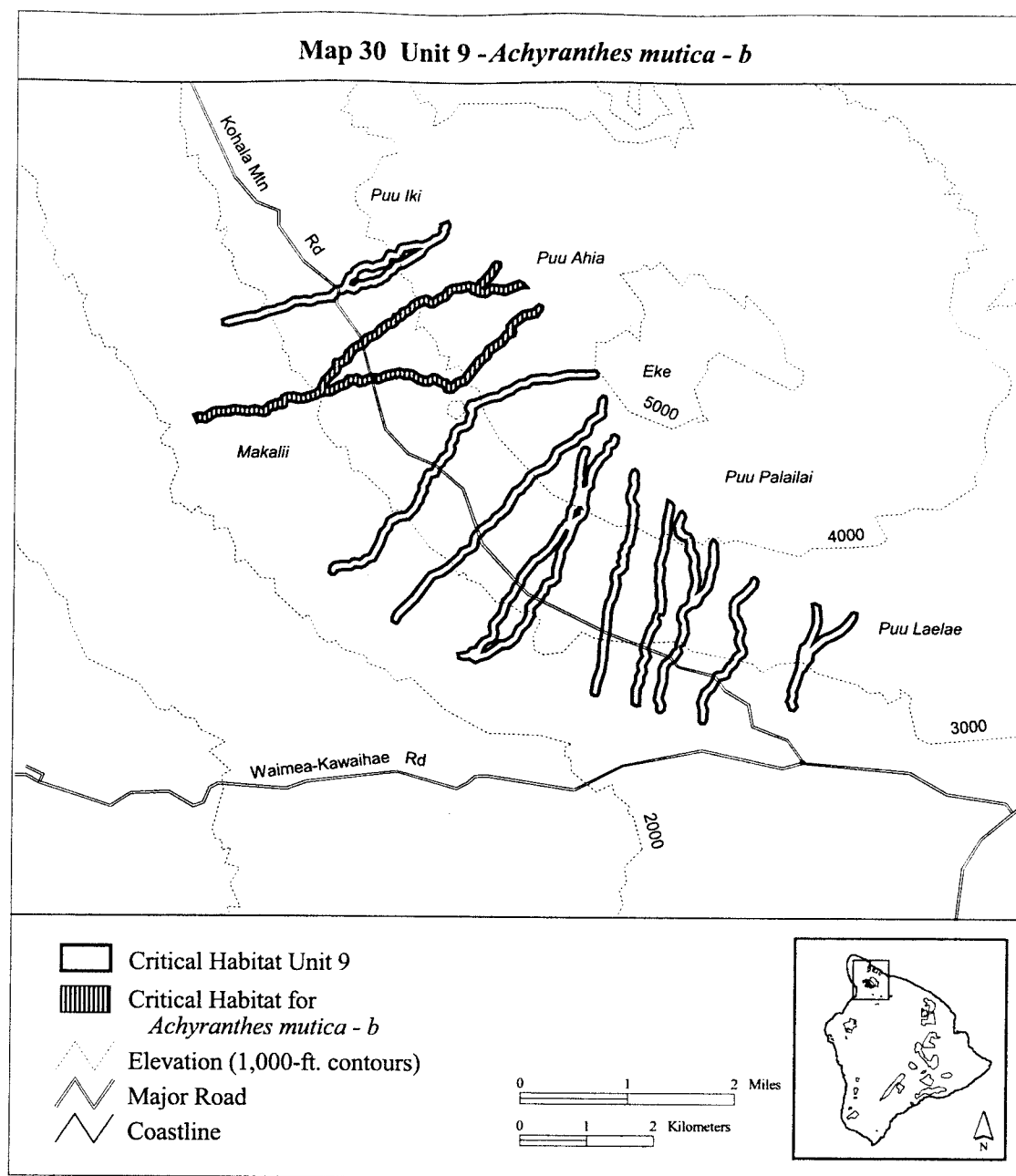
boundary points: Start at 211305,  
2223364; 211375, 2223384; 211403,  
2223445; 211471, 2223464; 211508,  
2223521; 211605, 2223565; 211667,  
2223634; 211757, 2223690; 211885,  
2223733; 211931, 2223724; 211986,  
2223686; 212068, 2223746; 212139,  
2223774; 212198, 2223854; 212277,  
2223900; 212406, 2223912; 212539,  
2223951; 212645, 2223915; 212681,  
2223974; 212720, 2223994; 212836,  
2224123; 212883, 2224222; 212935,  
2224265; 213002, 2224253; 213015,  
2224188; 212983, 2224154; 212926,  
2224043; 212826, 2223931; 212746,  
2223863; 212766, 2223847; 212819,  
2223884; 212890, 2223915; 213075,  
2223887; 213289, 2223971; 213371,  
2223934; 213409, 2223871; 213316,  
2223863; 213077, 2223764; 212894,  
2223794; 212820, 2223740; 212780,  
2223729; 212674, 2223741; 212626,  
2223773; 212579, 2223781; 212533,  
2223829; 212510, 2223825; 212439,  
2223796; 212348, 2223795; 212294,  
2223777; 212205, 2223673; 212125,  
2223641; 212013, 2223563; 211957,  
2223565; 211888, 2223610; 211803,  
2223577; 211717, 2223519; 211686,  
2223470; 211593, 2223426; 211549,  
2223371; 211491, 2223344; 211458,  
2223292; 211397, 2223257; 211323,  
2223241; 211283, 2223193; 211242,  
2223171; 211187, 2223097; 211045,  
2223037; 210978, 2222957; 210854,  
2222894; 210790, 2222817; 210763,

2222740; 210607, 2222645; 210591,  
2222566; 210546, 2222536; 210433,  
2222414; 210413, 2222350; 210443,  
2222344; 210571, 2222422; 210666,  
2222448; 210691, 2222500; 210725,  
2222521; 210793, 2222517; 210852,  
2222539; 210905, 2222517; 210925,  
2222488; 211073, 2222553; 211191,  
2222530; 211279, 2222586; 211348,  
2222589; 211378, 2222610; 211441,  
2222613; 211494, 2222638; 211568,  
2222607; 211619, 2222618; 211712,  
2222598; 211828, 2222527; 211912,  
2222500; 212003, 2222547; 212069,  
2222542; 212147, 2222486; 212228,  
2222467; 212274, 2222404; 212348,  
2222471; 212448, 2222511; 212668,  
2222802; 212761, 2222874; 212802,  
2222963; 213012, 2223108; 213060,  
2223184; 213115, 2223225; 213115,  
2223296; 213180, 2223380; 213342,  
2223505; 213502, 2223538; 213592,  
2223617; 213636, 2223593; 213643,  
2223539; 213565, 2223434; 213394,  
2223394; 213253, 2223285; 213234,  
2223260; 213253, 2223205; 213231,  
2223147; 213152, 2223106; 213084,  
2223011; 212891, 2222882; 212863,  
2222805; 212756, 2222719; 212535,  
2222428; 212497, 2222398; 212412,  
2222369; 212308, 2222279; 212217,  
2222281; 212186, 2222304; 212160,  
2222365; 212097, 2222377; 212025,  
2222427; 211944, 2222384; 211894,  
2222380; 211782, 2222415; 211678,  
2222482; 211644, 2222482; 211575,  
2222486; 211508, 2222513; 211448,  
2222492; 211413, 2222496; 211386,  
2222474; 211328, 2222470; 211194,

2222417; 211089, 2222433; 210981,  
2222380; 210899, 2222365; 210832,  
2222399; 210774, 2222396; 210736,  
2222348; 210624, 2222314; 210481,  
2222229; 210331, 2222220; 210250,  
2222177; 210082, 2222125; 209980,  
2222118; 209833, 2222142; 209813,  
2222131; 209804, 2222071; 209776,  
2222040; 209729, 2222030; 209675,  
2222040; 209640, 2222012; 209577,  
2222003; 209527, 2221938; 209471,  
2221916; 209325, 2221943; 209234,  
2221919; 209020, 2221948; 208952,  
2221925; 208760, 2221918; 208599,  
2221816; 208492, 2221827; 208460,  
2221817; 208410, 2221927; 208484,  
2221948; 208565, 2221936; 208676,  
2222014; 208732, 2222035; 208927,  
2222043; 209015, 2222068; 209236,  
2222040; 209325, 2222064; 209449,  
2222035; 209526, 2222112; 209647,  
2222157; 209695, 2222158; 209723,  
2222210; 209793, 2222256; 209892,  
2222262; 210029, 2222239; 210205,  
2222289; 210267, 2222326; 210332,  
2222479; 210486, 2222645; 210485,  
2222700; 210505, 2222750; 210534,  
2222771; 210592, 2222771; 210670,  
2222819; 210675, 2222877; 210775,  
2222984; 210911, 2223056; 210970,  
2223132; 211117, 2223195; 211175,  
2223273; return to starting point.

(ii) Excluding one area bounded by  
the following five points (<1 ha, <1 ac):  
Start at 211099, 2222496; 211109,  
2222499; 211114, 2222499; 211118,  
2222497; 211103, 2222479; return to  
starting point.

(iii) **Note:** Map 30 follows:



(31) Hawaii 9—*Achyranthes mutica*—c  
(67 ha, 166 ac)

(i) Unit consists of the following 114 boundary points: Start at 214447, 2222623; 214480, 2222585; 214474, 2222534; 214441, 2222505; 214055, 2222500; 213775, 2222429; 213683, 2222443; 213605, 2222423; 213500, 2222421; 213445, 2222367; 213339, 2222356; 213251, 2222303; 213225, 2222268; 213112, 2222232; 213029, 2222167; 212905, 2222150; 212752, 2222091; 212654, 2222033; 212657, 2221930; 212627, 2221876; 212610, 2221781; 212532, 2221714; 212449, 2221692; 212403, 2221653; 212384, 2221545; 212341, 2221489; 212348,

2221423; 212328, 2221349; 212298, 2221305; 212213, 2221243; 212181, 2221177; 212126, 2221131; 212117, 2221072; 212086, 2221019; 212000, 2220995; 211970, 2220899; 211930, 2220851; 211934, 2220790; 211874, 2220666; 211868, 2220609; 211830, 2220572; 211804, 2220499; 211669, 2220360; 211517, 2220331; 211480, 2220298; 211424, 2220284; 211404, 2220203; 211334, 2220125; 211281, 2219976; 211155, 2219728; 211059, 2219692; 211026, 2219657; 210955, 2219623; 210865, 2219627; 210798, 2219584; 210675, 2219589; 210587, 2219571; 210551, 2219507; 210505, 2219505; 210465, 2219555; 210482,

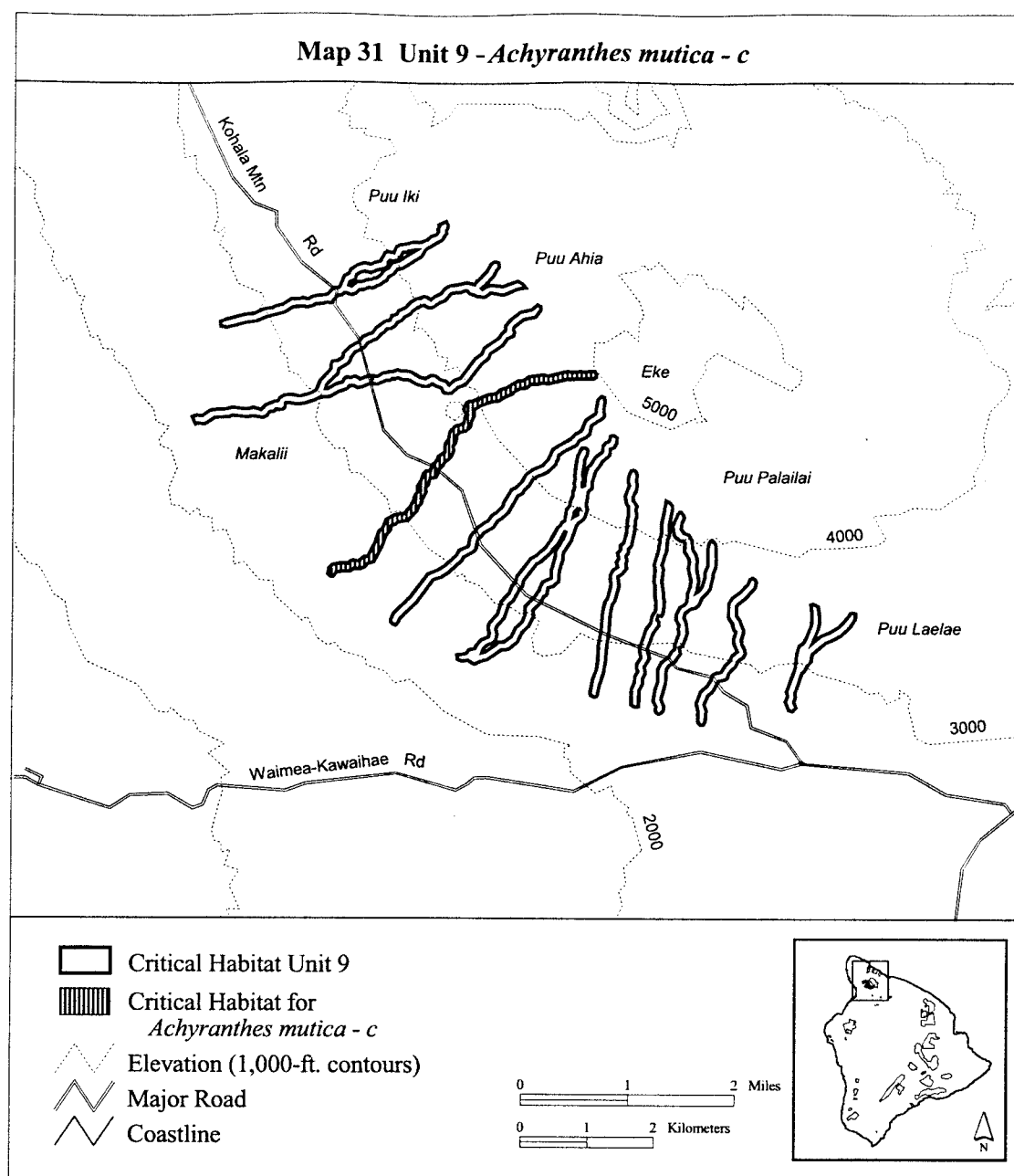
2219632; 210532, 2219684; 210655, 2219709; 210771, 2219702; 210805, 2219739; 210843, 2219752; 210929, 2219741; 210992, 2219793; 211068, 2219818; 211172, 2220027; 211227, 2220180; 211295, 2220255; 211335, 2220366; 211461, 2220440; 211611, 2220468; 211703, 2220566; 211753, 2220665; 211761, 2220714; 211810, 2220794; 211811, 2220884; 211862, 2220954; 211895, 2221066; 211936, 2221107; 212003, 2221115; 212026, 2221204; 212080, 2221243; 212124, 2221326; 212220, 2221402; 212224, 2221522; 212274, 2221597; 212292, 2221705; 212388, 2221798; 212459, 2221812; 212503, 2221840; 212510,

2221905; 212540, 2221974; 212507,  
2222024; 212501, 2222072; 212543,  
2222144; 212583, 2222162; 212627,  
2222158; 212872, 2222265; 212987,

2222280; 213048, 2222334; 213150,  
2222369; 213305, 2222475; 213389,  
2222475; 213467, 2222537; 213685,  
2222564; 213761, 2222548; 214042,

2222616; 214157, 2222613; 214239,  
2222618; 214319, 2222611; return to  
starting point.

(ii) **Note:** Map 31 follows:



(32) Hawaii 9—*Achyranthes mutica*—d  
(58 ha, 143 ac)

(i) Unit consists of the following 83 boundary points: Start at 214438, 2221820; 214413, 2221797; 214386, 2221680; 214341, 2221624; 214236, 2221577; 214192, 2221506; 214008, 2221412; 213919, 2221344; 213917, 2221296; 213890, 2221262; 213884, 2221222; 213758, 2221097; 213685, 2221055; 213605, 2221031; 213535,

2220982; 213480, 2220882; 213407, 2220820; 213384, 2220774; 213316, 2220740; 213178, 2220485; 213084, 2220393; 213022, 2220355; 212956, 2220257; 212808, 2220171; 212777, 2220117; 212741, 2220090; 212715, 2220056; 212695, 22219935; 212668, 22219888; 212516, 22219808; 212489, 22219754; 212288, 22219567; 212179, 22219502; 212052, 22219459; 211790, 22219103; 211552, 22218878; 211513,

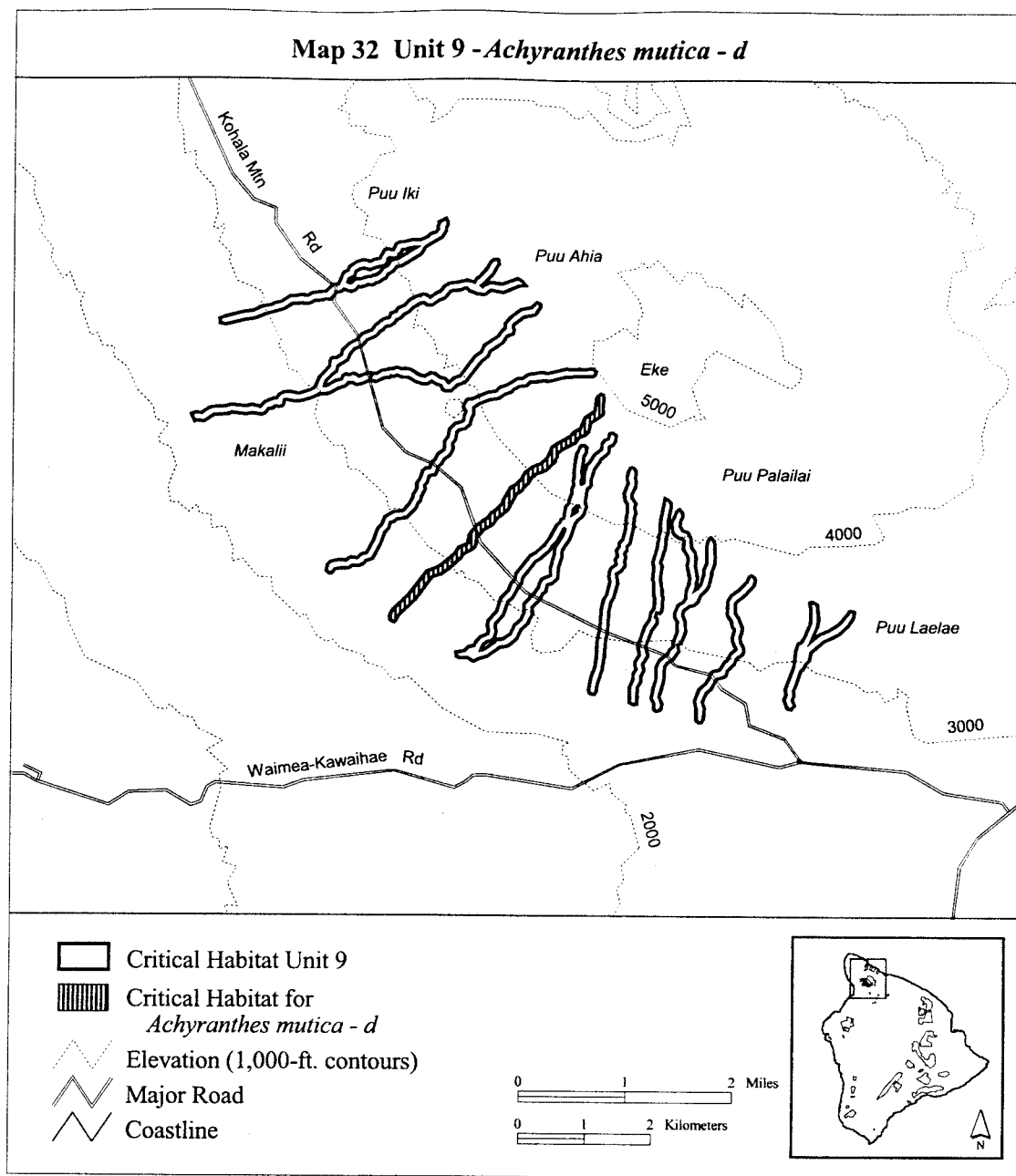
22218800; 211486, 22218774; 211451, 22218791; 211424, 22218818; 211424, 22218878; 211459, 22218955; 211700, 22219183; 211969, 22219547; 212135, 22219614; 212226, 22219670; 212391, 22219825; 212443, 22219903; 212578, 22219968; 212603, 2220105; 212654, 2220177; 212688, 2220198; 212709, 2220249; 212787, 2220293; 212824, 2220334; 212873, 2220352; 212940, 2220443; 213005, 2220484; 213090,

2220567; 213108, 2220631; 213225,  
2220827; 213293, 2220862; 213379,  
2220952; 213439, 2221062; 213540,  
2221136; 213683, 2221191; 213768,  
2221286; 213838, 2221437; 213939,

2221510; 214108, 2221602; 214163,  
2221673; 214261, 2221717; 214322,  
2221877; 214479, 2221995; 214474,  
2222036; 214504, 2222187; 214564,  
2222248; 214601, 2222232; 214615,

2222160; 214609, 2222121; 214595,  
2222026; 214602, 2221949; 214578,  
2221912; return to starting point.

(ii) **Note:** Map 32 follows:



(33) Hawaii 9—*Achyranthes mutica*—e  
(96 ha, 238 ac)

(i) Unit consists of the following 99 boundary points: Start at 214237, 2221396; 214246, 2221433; 214279, 2221468; 214325, 2221468; 214358, 2221436; 214355, 2221358; 214318, 2221305; 214305, 2221223; 214287, 2221049; 214300, 2220991; 214278, 2220930; 214286, 2220881; 214313,

2220902; 214322, 2221047; 214365, 2221179; 214410, 2221218; 214476, 2221333; 214576, 2221408; 214591, 2221498; 214624, 2221541; 214679, 2221569; 214698, 2221646; 214740, 2221664; 214796, 2221627; 214793, 2221531; 214759, 2221478; 214700, 2221448; 214690, 2221357; 214573, 2221258; 214555, 2221210; 214474, 2221113; 214430, 2220938; 214431, 2220859; 214371, 2220793; 214339,

2220598; 214356, 2220538; 214326, 2220426; 214294, 2220372; 214236, 2220332; 214188, 2220269; 214118, 2220061; 214005, 2219871; 213995, 2219762; 213945, 2219600; 213933, 2219438; 213852, 2219367; 213784, 2219348; 213756, 2219241; 213719, 2219214; 213680, 2219137; 213551, 2219003; 213560, 2218908; 213486, 2218751; 213396, 2218673; 213327, 2218524; 213204, 2218429; 213145,

2218404; 213092, 2218406; 212882, 2218263; 212764, 2218230; 212684, 2218191; 212589, 2218244; 212485, 2218242; 212425, 2218262; 212420, 2218327; 212558, 2218345; 212607, 2218406; 212693, 2218421; 212709, 2218465; 212774, 2218551; 212890, 2218603; 212903, 2218650; 212889, 2218747; 212904, 2218803; 213028, 2218949; 213082, 2219133; 213196, 2219265; 213245, 2219371; 213290, 2219423; 213311, 2219514; 213517, 2219786; 213597, 2219831; 213729, 2219948; 213812, 2220057; 213922, 2220266; 213959, 2220297; 213979, 2220340; 214024, 2220366; 214050, 2220531; 214097, 2220597; 214097, 2220637; 214143, 2220749; 214139,

2220807; 214167, 2220862; 214158, 2220933; 214175, 2221002; 214166, 2221051; 214187, 2221243; 214206, 2221349; return to starting point.

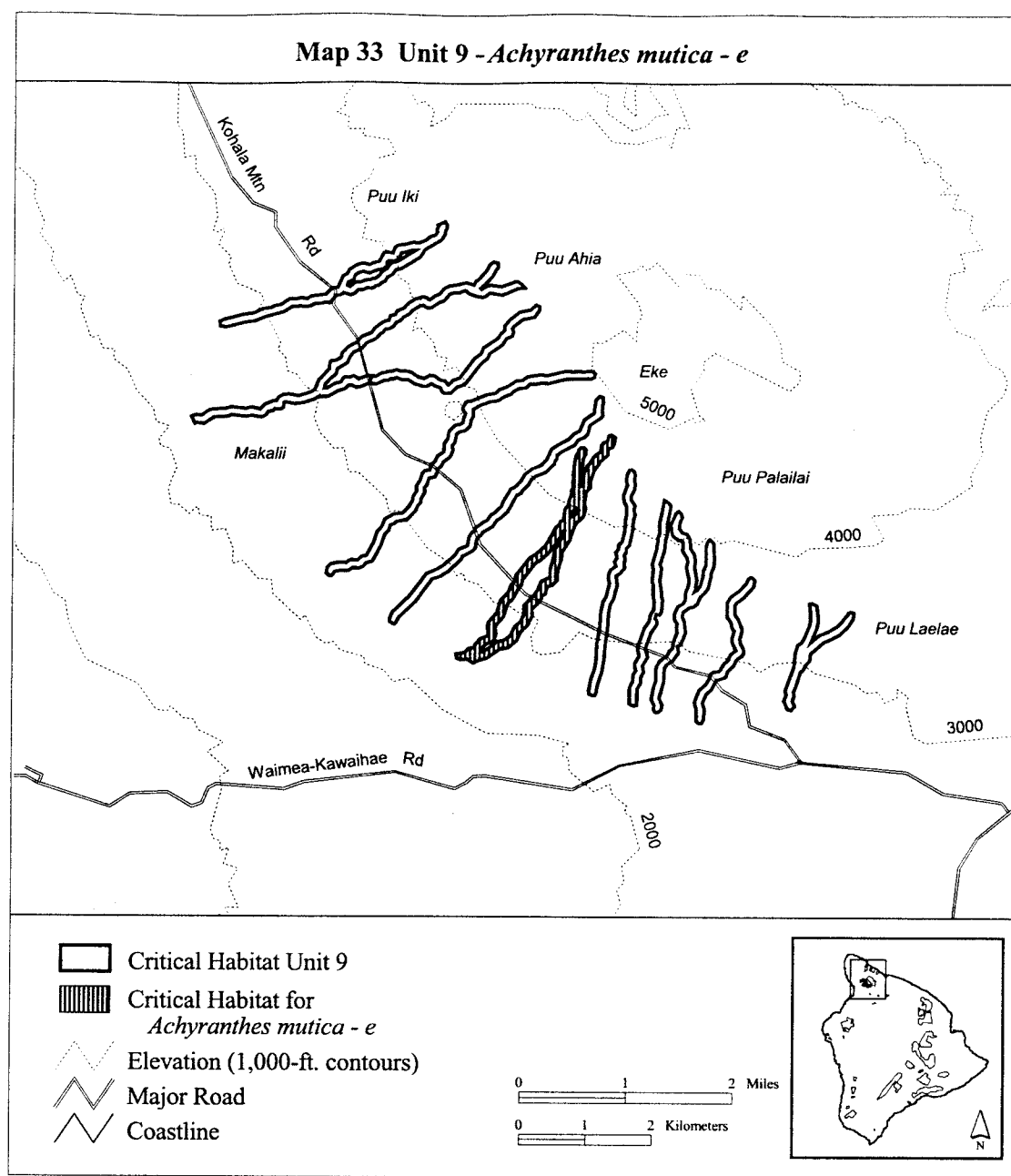
(ii) Excluding two areas:

(A) Bounded by the following seven points (1 ha, 1 ac): Start at 214223, 2220569; 214237, 2220545; 214219, 2220515; 214216, 2220461; 214146, 2220412; 214161, 2220500; 214199, 2220523; return to starting point.

(B) Bounded by the following 42 points (38 ha, 94 ac): Start at 214049, 2220213; 214008, 2220110; 213892, 2219916; 213877, 2219786; 213826, 2219614; 213823, 2219491; 213696, 2219433; 213663, 2219365; 213649, 2219307; 213619, 2219275; 213591,

2219218; 213434, 2219056; 213440, 2218923; 213385, 2218816; 213302, 2218748; 213232, 2218602; 213126, 2218523; 213033, 2218514; 212998, 2218479; 212834, 2218368; 212794, 2218356; 212809, 2218402; 212825, 2218431; 212855, 2218461; 212888, 2218485; 212953, 2218499; 212996, 2218545; 213022, 2218636; 213007, 2218725; 213013, 2218754; 213131, 2218887; 213194, 2219087; 213261, 2219149; 213346, 2219306; 213394, 2219361; 213412, 2219449; 213602, 2219700; 213668, 2219734; 213820, 2219870; 213852, 2219933; 213913, 2219992; 214024, 2220195; return to starting point.

(iii) **Note:** Map 33 follows:



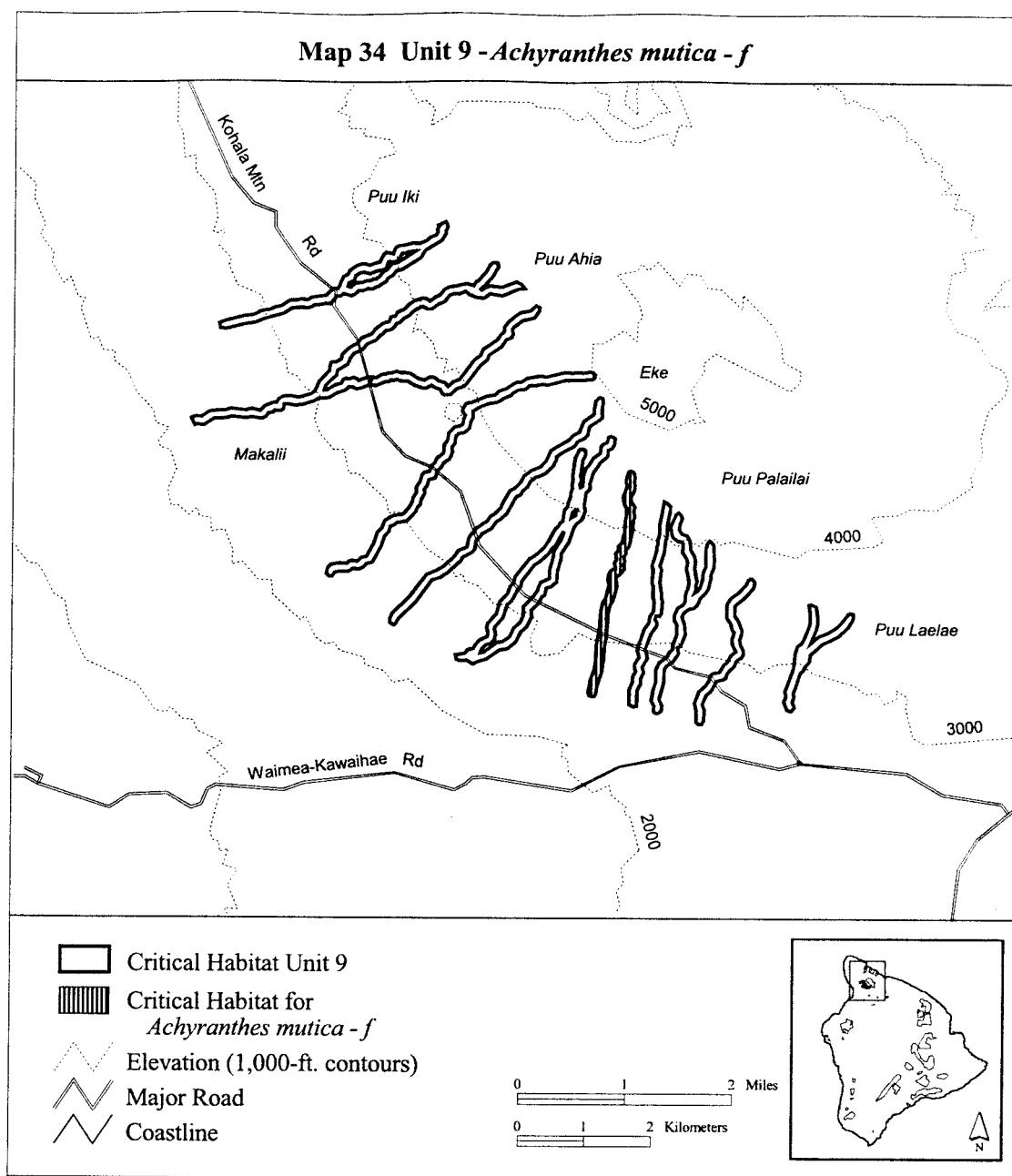
(34) Hawaii 9—*Achyranthes mutica*—f  
(43 ha, 105 ac)

(i) Unit consists of the following 65 boundary points: Start at 215029, 2221141; 215078, 2221118; 215100, 2221081; 215105, 2221047; 215092, 2220971; 215106, 2220903; 215094, 2220834; 215046, 2220727; 215049, 2220676; 215102, 2220585; 215091, 2220525; 215103, 2220441; 215078, 2220357; 215072, 2220203; 215020, 2219976; 214978, 2219936; 214975,

2219872; 214947, 2219833; 214959, 2219766; 214941, 2219705; 214948, 2219637; 214883, 2219550; 214829, 2219519; 214843, 2219377; 214782, 2219151; 214741, 2219084; 214717, 2218965; 214700, 2218708; 214660, 2218467; 214650, 2218237; 214625, 2218082; 214553, 2217870; 214527, 2217739; 214511, 2217708; 214476, 2217702; 214431, 2217728; 214417, 2217776; 214449, 2217955; 214510, 2218118; 214530, 2218247; 214540, 2218479; 214581, 2218725; 214598,

2218985; 214627, 2219125; 214669, 2219193; 214725, 2219396; 214706, 2219465; 214712, 2219549; 214738, 2219603; 214819, 2219663; 214796, 2219730; 214835, 2219788; 214819, 2219871; 214858, 2219922; 214862, 2219981; 214908, 2220033; 214951, 2220206; 214958, 2220369; 214981, 2220452; 214979, 2220577; 214947, 2220626; 214924, 2220735; 214985, 2220898; 214972, 2220976; 214987, 2221070; return to starting point.

(ii) **Note:** Map 34 follows:



(35) Hawaii 9—*Achyranthes mutica*—g  
(37 ha, 92 ac)

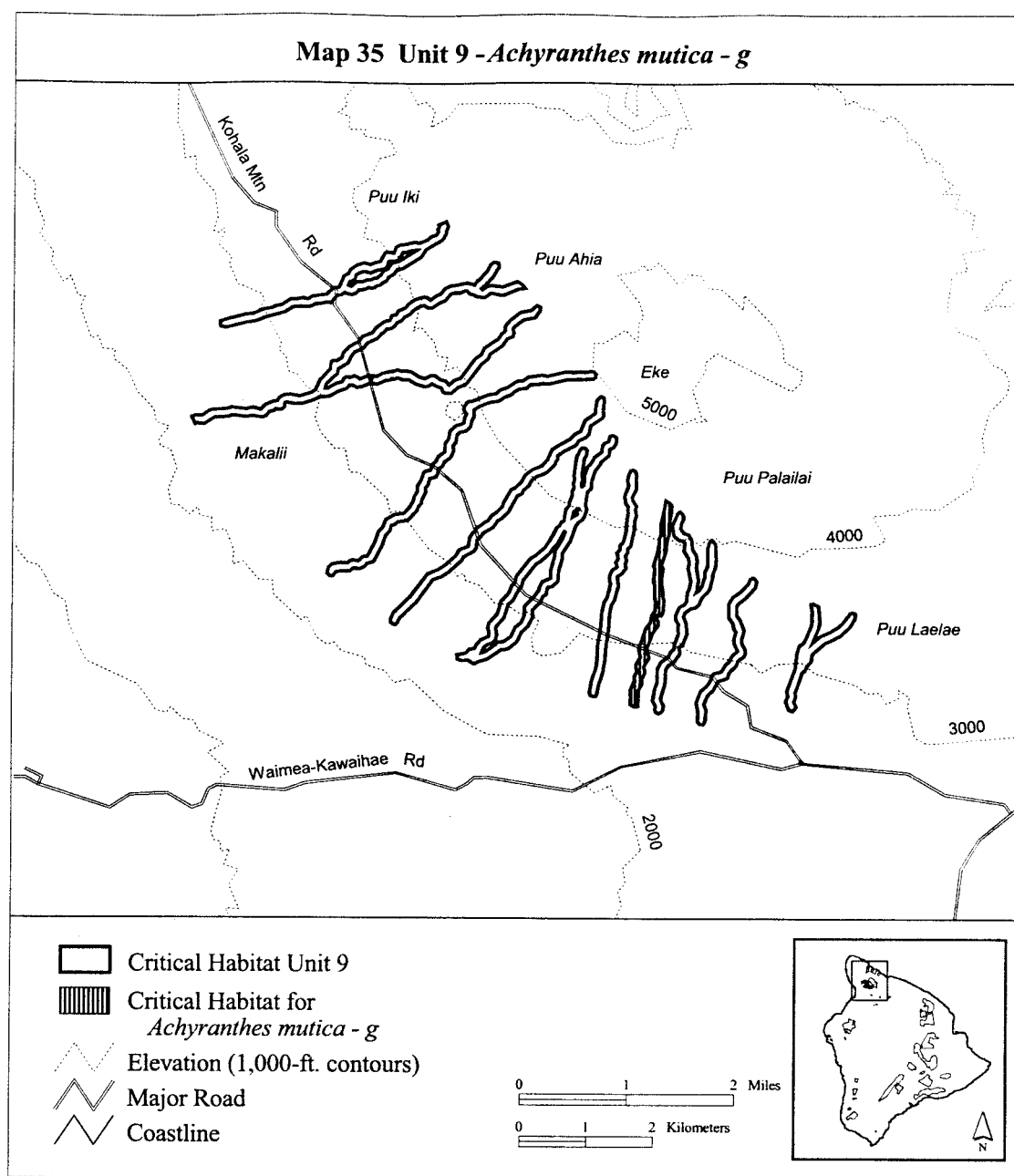
(i) Unit consists of the following 58 boundary points: Start at 215603, 2220632; 215636, 2220594; 215638, 2220532; 215595, 2220313; 215594, 2220146; 215573, 2220086; 215557, 2219909; 215486, 2219693; 215509, 2219626; 215490, 2219443; 215514, 2219279; 215507, 2219212; 215525, 2219154; 215513, 2218965; 215487,

2218921; 215439, 2218935; 215421, 2218871; 215447, 2218842; 215441, 2218779; 215356, 2218664; 215275, 2218426; 215304, 2218286; 215233, 2218154; 215249, 2218060; 215206, 2217972; 215206, 2217897; 215158, 2217810; 215145, 2217560; 215094, 2217556; 215038, 2217584; 215038, 2217818; 215090, 2217932; 215089, 2218007; 215131, 2218085; 215109, 2218142; 215112, 2218184; 215185, 2218304; 215155, 2218404; 215160,

2218458; 215247, 2218714; 215328, 2218821; 215342, 2218926; 215394, 2219001; 215403, 2219144; 215387, 2219204; 215383, 2219387; 215367, 2219431; 215388, 2219616; 215365, 2219699; 215438, 2219924; 215431, 2219963; 215454, 2220022; 215453, 2220094; 215475, 2220163; 215474, 2220317; 215523, 2220516; 215533, 2220621; 215545, 2220669; return to starting point.

(ii) **Note:** Map 35 follows:





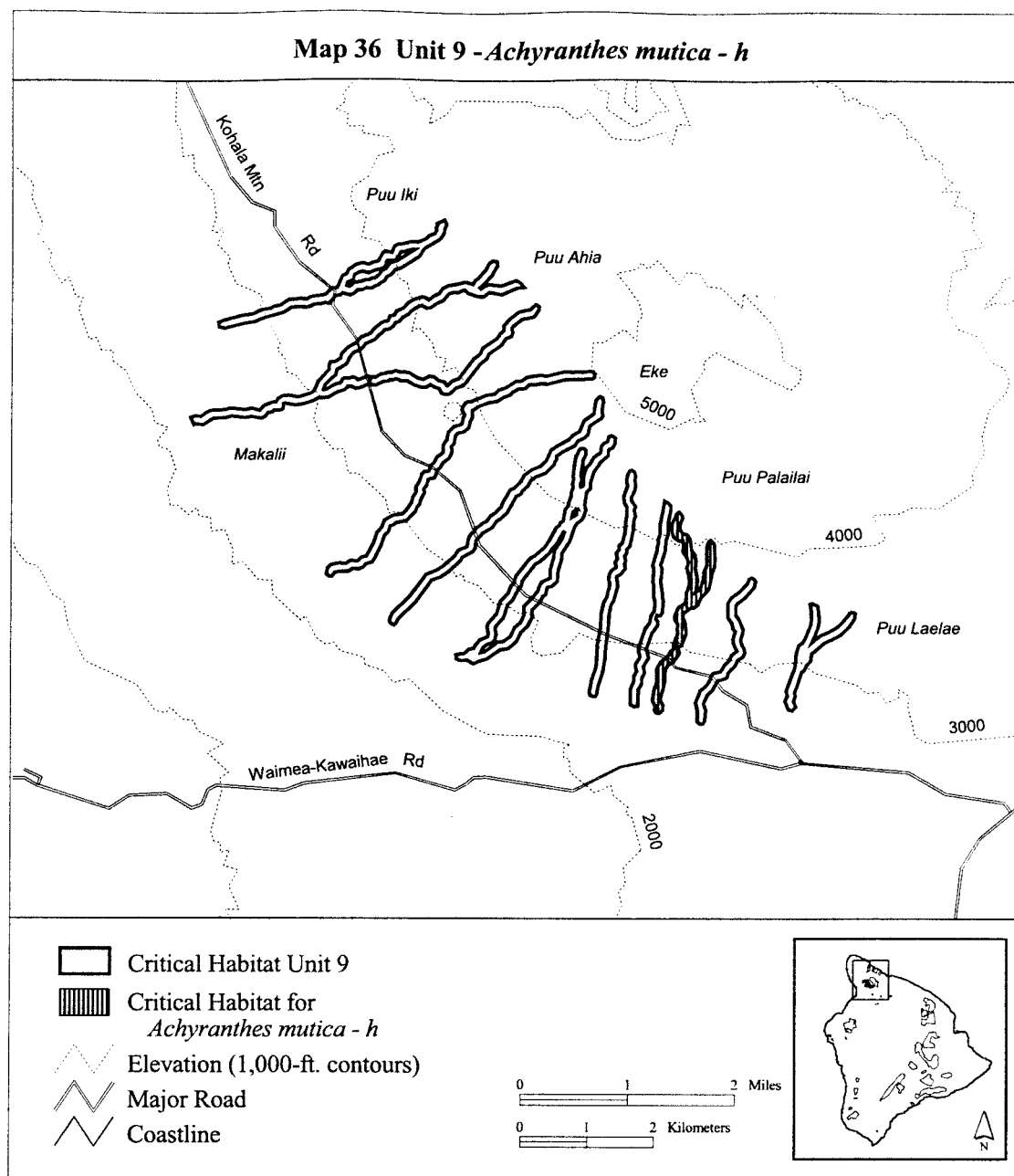
(36) Hawaii 9—*Achyranthes mutica*—h  
(51 ha, 127 ac)

(i) Unit consists of the following 89 boundary points: Start at 215734, 2220485; 215765, 2220497; 215804, 2220452; 215818, 2220397; 215784, 2220322; 215772, 2220245; 215817, 2220179; 215889, 2220150; 215937, 2220077; 215955, 2219923; 215999, 2219846; 216021, 2219758; 216009, 2219647; 216048, 2219449; 216024, 2219367; 216031, 2219325; 216010, 2219282; 216053, 2219305; 216094, 2219364; 216137, 2219519; 216139, 2219583; 216177, 2219682; 216178, 2219953; 216194, 2220018; 216223,

2220058; 216259, 2220059; 216289, 2220016; 216301, 2219987; 216298, 2219945; 216308, 2219773; 216295, 2219664; 216254, 2219549; 216260, 2219498; 216212, 2219335; 216179, 2219277; 216099, 2219197; 216052, 2219098; 215990, 2219041; 215937, 2219032; 215843, 2218966; 215826, 2218898; 215861, 2218819; 215873, 2218650; 215805, 2218472; 215755, 2218447; 215775, 2218360; 215691, 2218233; 215604, 2218175; 215561, 2218121; 215555, 2217915; 215490, 2217671; 215528, 2217566; 215517, 2217489; 215481, 2217456; 215448, 2217452; 215415, 2217471; 215399, 2217507; 215407, 2217557; 215371,

2217647; 215391, 2217794; 215436, 2217930; 215438, 2218124; 215486, 2218223; 215604, 2218316; 215641, 2218385; 215687, 2218427; 215688, 2218503; 215752, 2218652; 215738, 2218734; 215745, 2218785; 215706, 2218864; 215704, 2218932; 215753, 2219051; 215835, 2219097; 215867, 2219146; 215875, 2219268; 215910, 2219348; 215926, 2219453; 215888, 2219641; 215902, 2219734; 215881, 2219806; 215827, 2219895; 215830, 2220023; 215804, 2220057; 215765, 2220062; 215684, 2220120; 215664, 2220161; 215649, 2220293; 215707, 2220428; return to starting point.

(ii) **Note:** Map 36 follows:



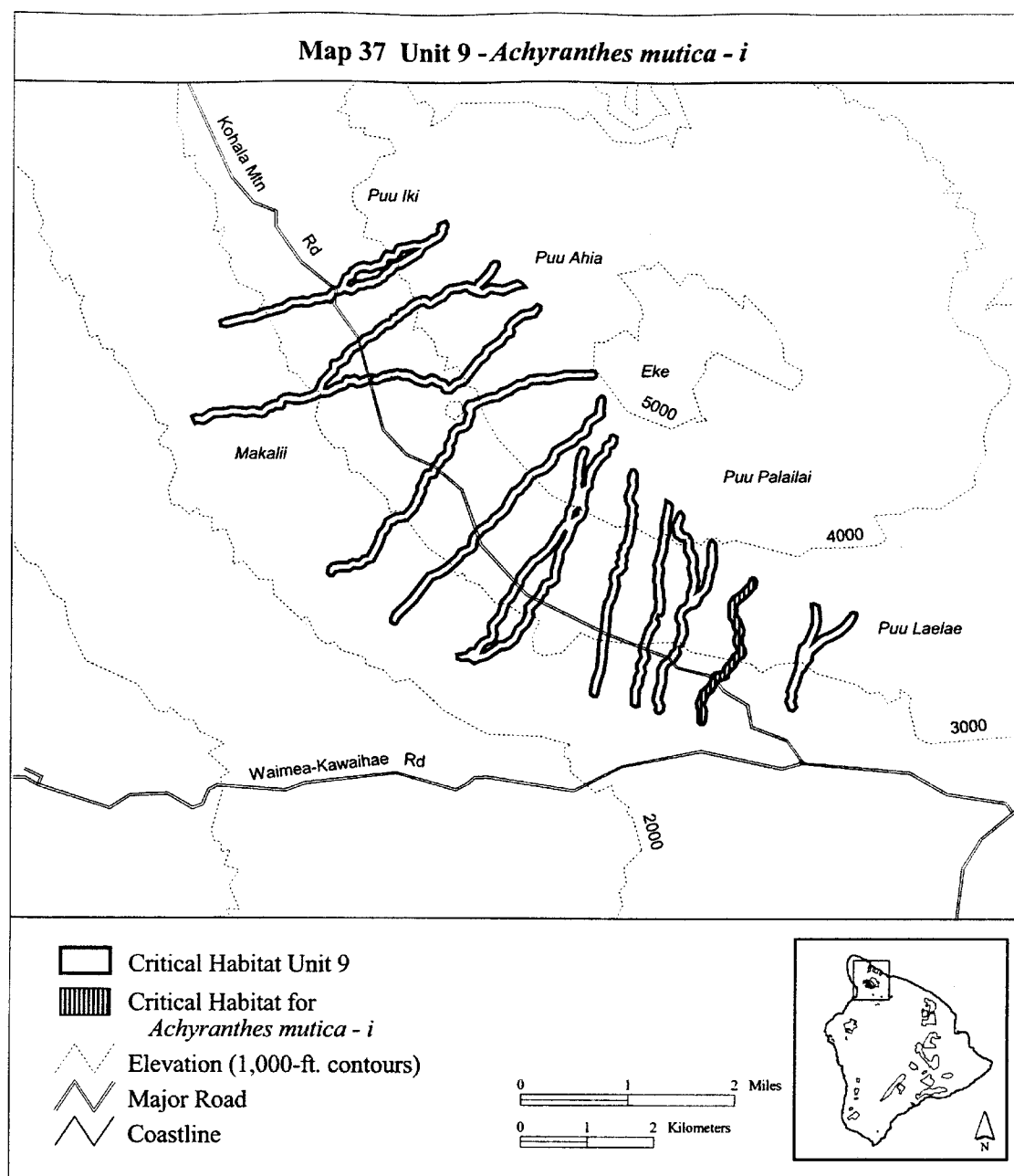
(37) Hawaii 9—*Achyranthes mutica*—i  
(31 ha, 76 ac)

(i) Unit consists of the following 54 boundary points: Start at 216834, 2219498; 216868, 2219502; 216901, 2219476; 216916, 2219442; 216903, 2219353; 216759, 2219197; 216646, 2219111; 216624, 2219076; 216621, 2218932; 216675, 2218863; 216728, 2218712; 216725, 2218649; 216696, 2218569; 216704, 2218501; 216752,

2218421; 216755, 2218361; 216727, 2218309; 216657, 2218257; 216603, 2218151; 216551, 2218112; 216511, 2218060; 216492, 2217991; 216451, 2217967; 216352, 2217946; 216275, 2217799; 216194, 2217733; 216138, 2217593; 216168, 2217500; 216154, 2217339; 216130, 2217288; 216078, 2217289; 216046, 2217330; 216047, 2217501; 216017, 2217608; 216088, 2217792; 216177, 2217870; 216230,

2217941; 216264, 2218034; 216303, 2218058; 216396, 2218077; 216458, 2218191; 216514, 2218232; 216562, 2218330; 216635, 2218388; 216586, 2218499; 216576, 2218561; 216609, 2218685; 216581, 2218726; 216562, 2218818; 216503, 2218897; 216504, 2219112; 216559, 2219201; 216683, 2219290; 216791, 2219410; return to starting point.

(ii) **Note:** Map 37 follows:



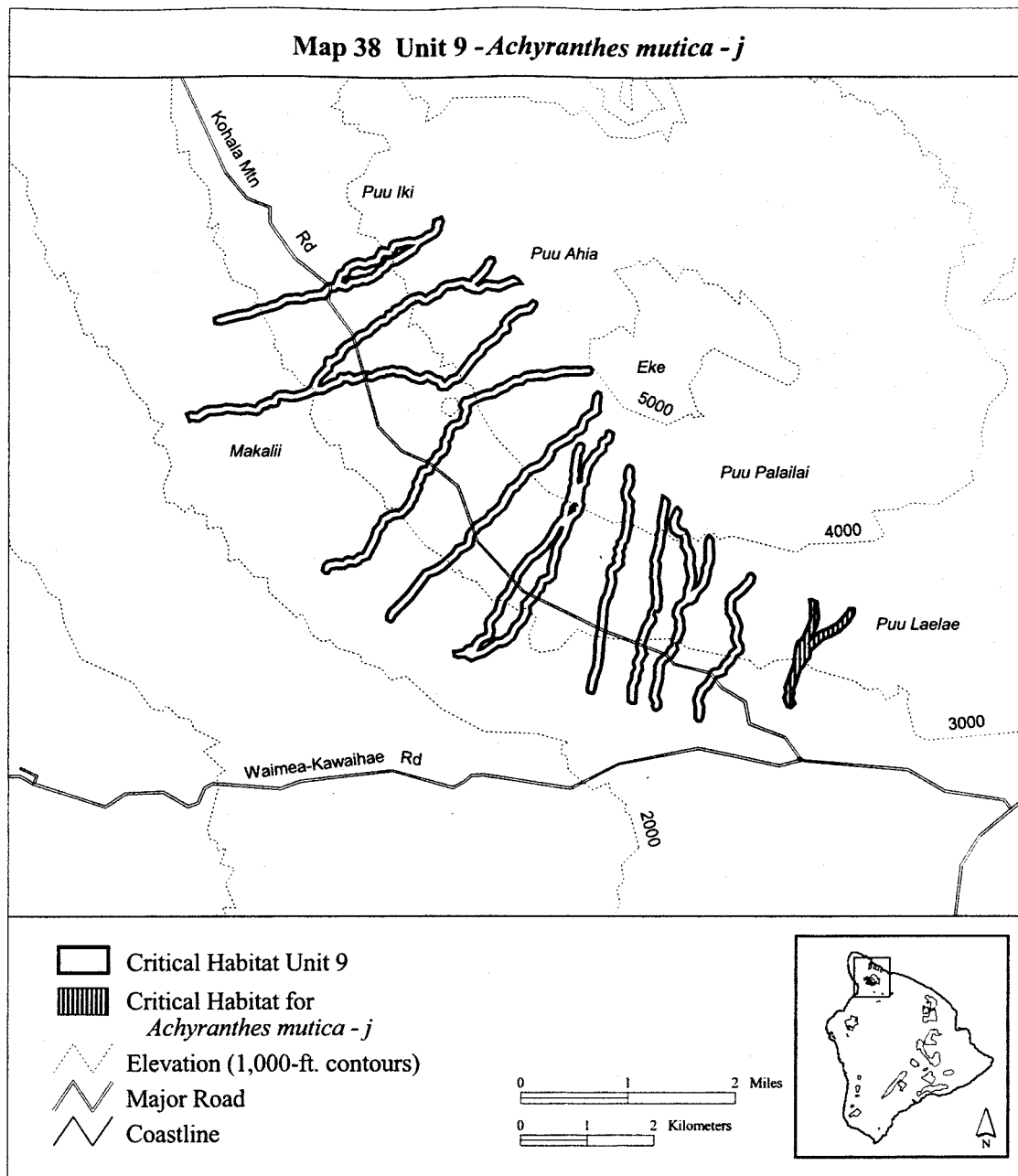
(38) Hawaii 9—*Achyranthes mutica*—  
(33 ha, 81 ac)

(i) Unit consists of the following 45 boundary points: Start at 218342, 2218980; 218378, 2218973; 218407, 2218964; 218411, 2218929; 218400, 2218875; 218323, 2218752; 218189, 2218630; 218079, 2218566; 217956, 2218519; 217764, 2218345; 217745,

2218240; 217685, 2218167; 217657, 2218101; 217608, 2218068; 217537, 2217828; 217508, 2217776; 217518, 2217705; 217495, 2217636; 217530, 2217550; 217478, 2217497; 217416, 2217507; 217370, 2217634; 217398, 2217718; 217386, 2217786; 217509, 2218141; 217535, 2218373; 217570, 2218472; 217631, 2218518; 217662, 2218576; 217748, 2218779; 217756,

2218840; 217758, 2218986; 217738, 2219099; 217771, 2219108; 217806, 2219095; 217846, 2219075; 217869, 2218958; 217876, 2218841; 217861, 2218736; 217768, 2218520; 217898, 2218624; 218030, 2218675; 218152, 2218753; 218233, 2218832; 218305, 2218922; return to starting point.

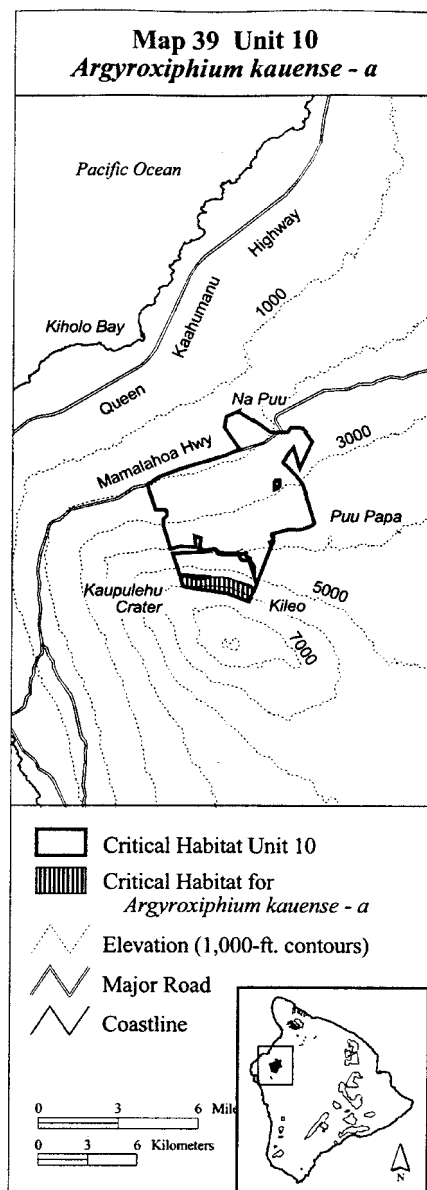
(ii) **Note:** Map 38 follows:



(39) Hawaii 10—*Argyroxiphium kauense*—a (349 ha, 861 ac)

(i) Unit consists of the following 22 boundary points: Start at 196364, 2183671; 196588, 2183730; 197040, 2183678; 197248, 2183609; 197370, 2183522; 197891, 2183644; 198395, 2183678; 198917, 2183661; 199421, 2183574; 199838, 2183400; 200064, 2183261; 200498, 2183174; 200689, 2183053; 200869, 2183009; 200548, 2182197; 199189, 2182675; 199188, 2182675; 198920, 2182722; 197323, 2182971; 196589, 2183108; 196526, 2183207; 196397, 2183572; return to starting point.

(ii) Note: Map 39 follows:

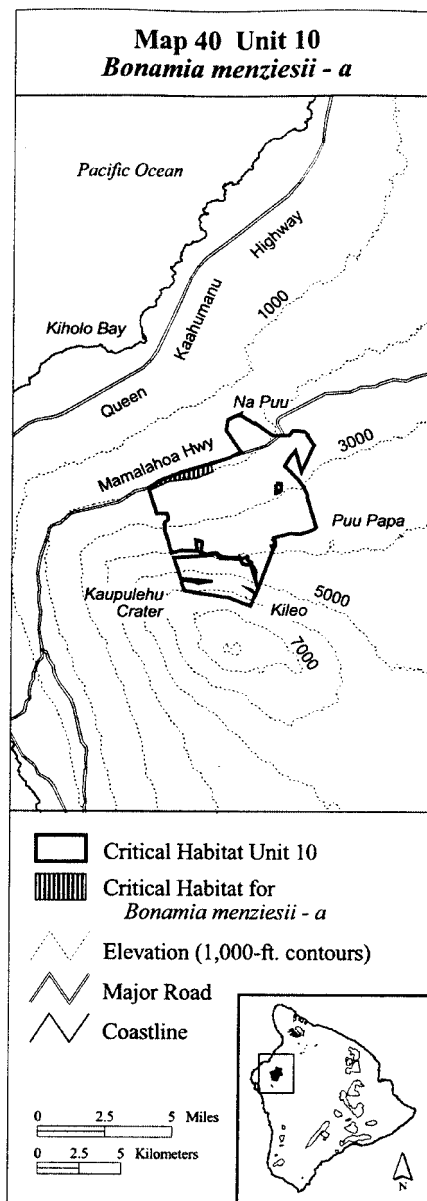


(40) Hawaii 10—*Bonamia menziesii*—a (163 ha, 402 ac)

(i) Unit consists of the following 12 boundary points: Start at 194344,

2189312; 194345, 2189312; 195096, 2189814; 195763, 2190048; 196316, 2190285; 198038, 2190803; 198120, 2190635; 198240, 2190325; 197169, 2189897; 195603, 2189733; 194504, 2189243; 194375, 2189221; return to starting point.

(ii) Note: Map 40 follows:

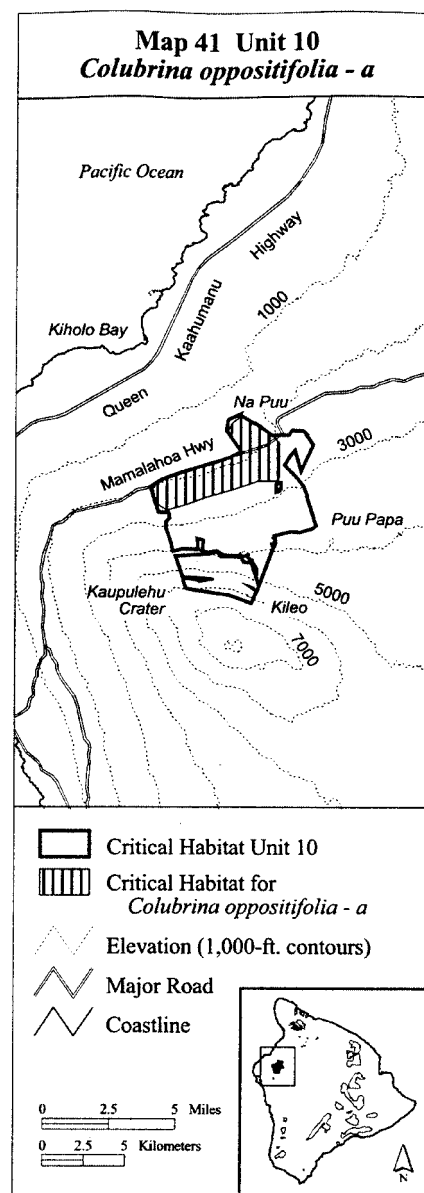


(41) Hawaii 10—*Colubrina oppositifolia*—a (1,918 ha, 4,740 ac)

(i) Unit consists of the following 23 boundary points: Start at 194733, 2188289; 194501, 2189318; 195028, 2189765; 196242, 2190221; 199593, 2191274; 200077, 2191445; 199462, 2192171; 199079, 2192786; 199311, 2193260; 199926, 2193724; 200763, 2193240; 201809, 2192548; 202245, 2192040; 202231, 2191144; 202231, 2190040; 202215, 2189832; 202071,

2189709; 200959, 2189699; 199966, 2189369; 199139, 2189093; 197714, 2188688; 196629, 2188284; 195353, 2187919; return to starting point.

(ii) Note: Map 41 follows:

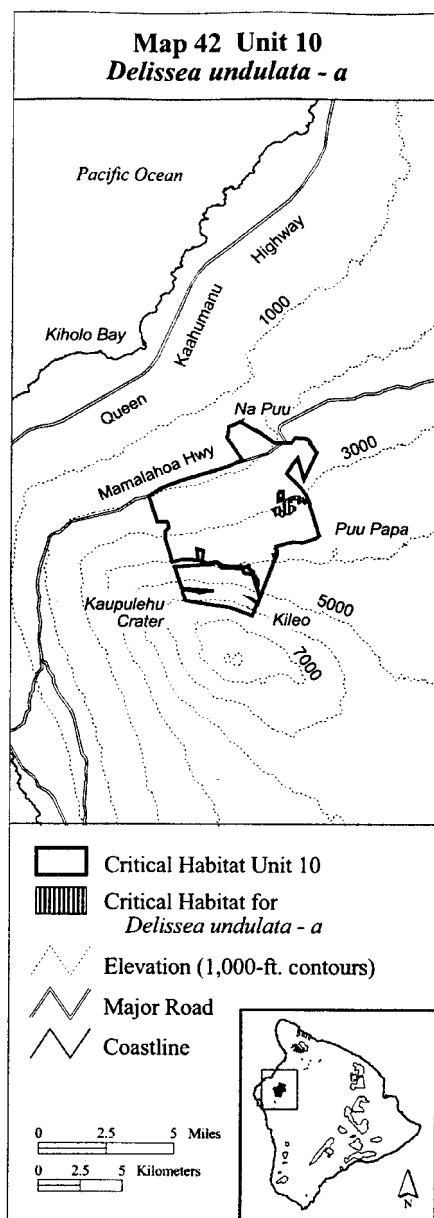


(42) Hawaii 10—*Delissea undulata*—a (92 ha, 227 ac)

(i) Unit consists of the following 50 boundary points: Start at 201717, 2188574; 201906, 2188644; 202144, 2188700; 202144, 2188602; 202284, 2188434; 202305, 2188399; 202452, 2188462; 202347, 2188728; 202326, 2188868; 202389, 2188952; 202459, 2189036; 202543, 2189120; 202683, 2189204; 202781, 2189288; 202922, 2189330; 203132, 2189365; 203279, 2189365; 203279, 2189260; 203454, 2189225; 203650, 2189113; 203776, 2188959; 203629, 2188868; 203419, 2189043; 203342, 2188910; 203258,

2188868; 203202, 2188945; 203272, 2189113; 203104, 2189120; 202886, 2189162; 202830, 2189099; 202865, 2189001; 202641, 2188966; 202711, 2188798; 202915, 2188742; 203041, 2188672; 203097, 2188602; 203041, 2188490; 202915, 2188497; 202901, 2188420; 202851, 2188322; 202627, 2188210; 202550, 2188280; 202382, 2188147; 202242, 2188070; 202095, 2188217; 201983, 2188231; 201913, 2188119; 201822, 2188224; 201850, 2188343; 201668, 2188553; return to starting point.

(ii) **Note:** Map 42 follows:

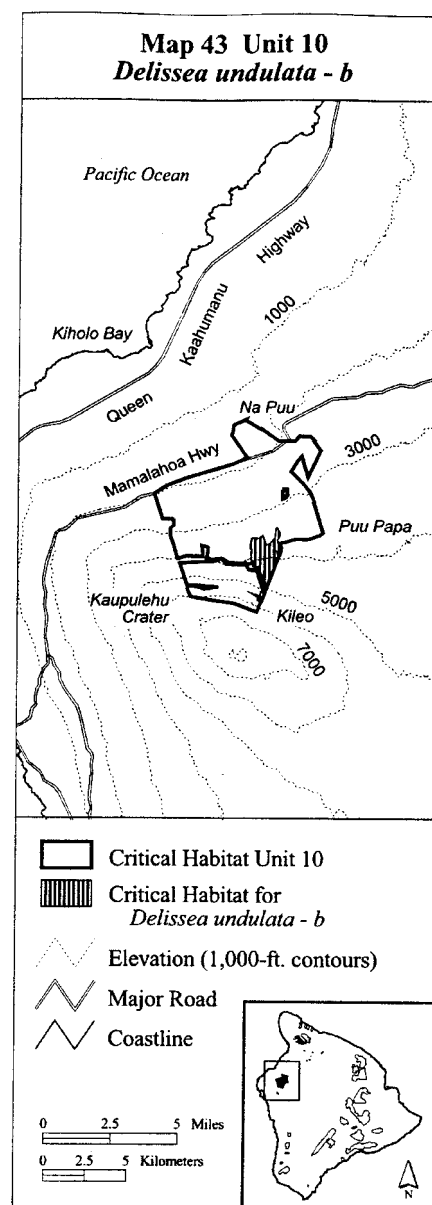


(43) Hawaii 10—*Delissea undulata*—b (379 ha, 938 ac)

(i) Unit consists of the following 46 boundary points: Start at 200358, 2186648; 200652, 2186613; 200897,

2186774; 201009, 2186431; 201114, 2186199; 201409, 2186389; 201640, 2186683; 201675, 2187187; 201738, 2187292; 201892, 2186998; 201913, 2186767; 201843, 2186571; 201780, 2186522; 201808, 2186312; 201913, 2186347; 201969, 2186227; 201899, 2186178; 201997, 2186038; 201934, 2185947; 201987, 2185871; 201923, 2185703; 201864, 2185800; 201794, 2185800; 201857, 2185569; 201871, 2185564; 200825, 2182788; 200596, 2182893; 200701, 2183146; 200785, 2183391; 200890, 2183440; 200841, 2183566; 200848, 2183755; 200806, 2183860; 200855, 2183958; 200862, 2184287; 200596, 2184708; 200596, 2184820; 200351, 2184974; 200316, 2185219; 200197, 2185261; 200183, 2185695; 200204, 2185919; 200092, 2186010; 200113, 2186199; 200169, 2186375; 200211, 2186634; return to starting point.

(ii) **Note:** Map 43 follows:



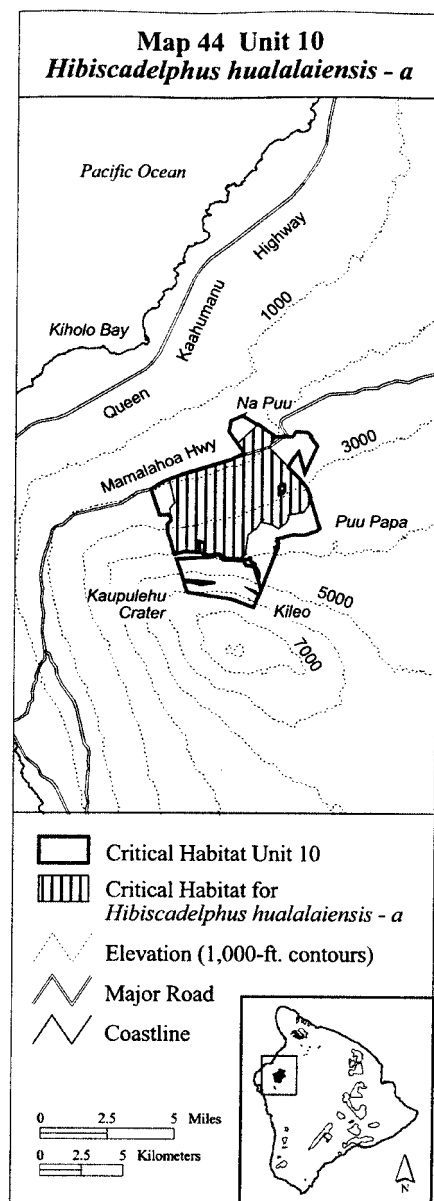
(44) Hawaii 10—*Hibiscadelphus hualalaiensis*—a (3,979 ha, 9,831 ac)

(i) Unit consists of the following 38 boundary points: Start at 195782, 2185368; 195522, 2186168; 195315, 2186796; 195326, 2187196; 195544, 2187388; 195469, 2188155; 195786, 2188492; 195432, 2189916; 199124, 2191069; 199983, 2191543; 199508, 2192106; 200761, 2193288; 201812, 2192545; 201404, 2191895; 203343, 2189879; 203681, 2189439; 203918, 2188866; 203785, 2188371; 203480, 2187932; 202574, 2187761; 202584, 2187526; 202456, 2187271; 201998, 2186930; 201572, 2187207; 200965, 2187345; 200731, 2186962; 200177, 2186557; 200011, 2185340; 199774, 2185089; 198932, 2185139; 198670, 2185243; 198391, 2185428; 198036, 2185330; 197566, 2185385; 197604,

2186079; 197221, 2186183; 197270, 2185549; 196319, 2185538; return to starting point.

(ii) Excluding one area bounded by the following 12 points (15 ha, 38 ac): Start at 202034, 2189562; 202141, 2189566; 202153, 2189649; 202308, 2189645; 202298, 2189564; 202339, 2189548; 202329, 2189219; 202193, 2189187; 202230, 2189088; 202042, 2189024; 202020, 2189151; 202024, 2189554; return to starting point.

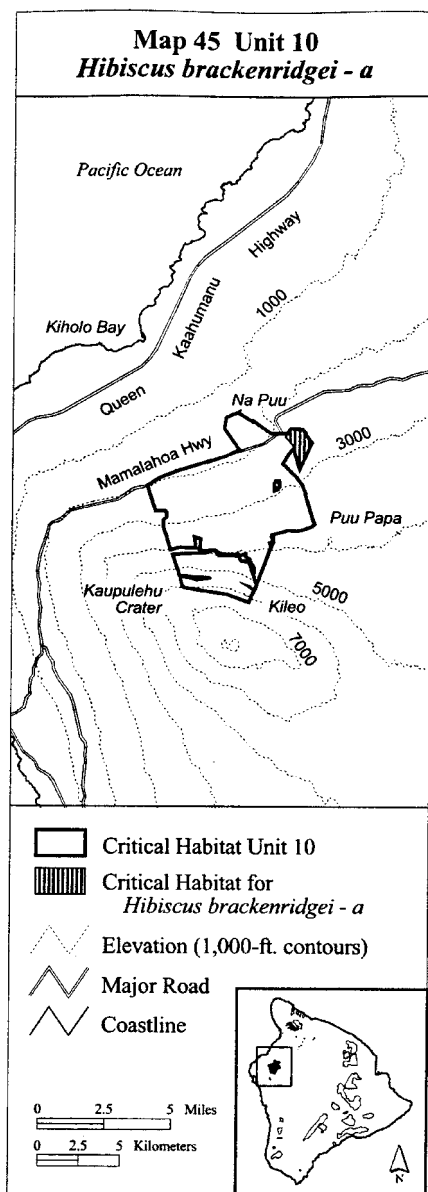
(iii) Note: Map 44 follows:



(45) Hawaii 10—*Hibiscus brackenridgei*—a (196 ha, 485 ac)

(i) Unit consists of the following six boundary points: Start at 202687, 2192346; 203014, 2192842; 203739, 2192737; 204306, 2191983; 203553, 2190355; 203111, 2191829; return to starting point.

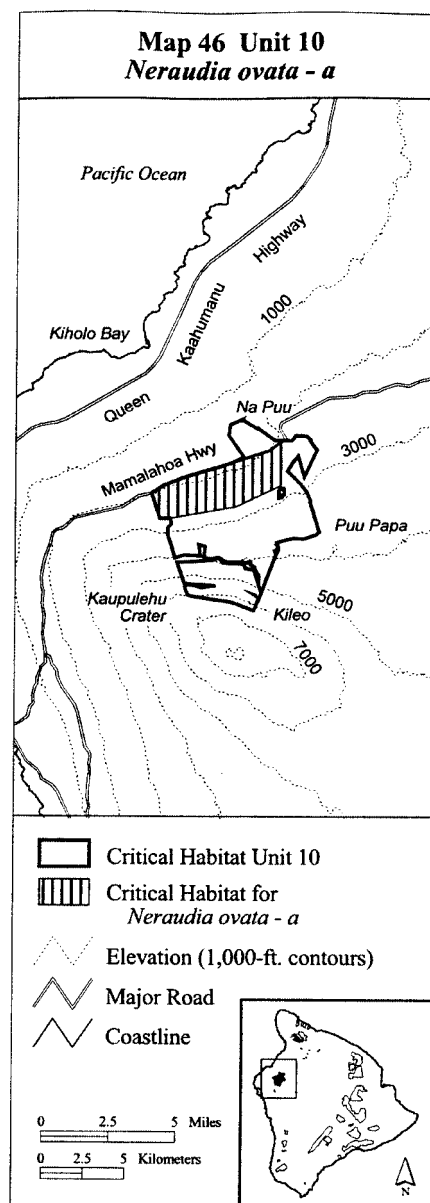
(ii) Note: Map 45 follows:



(46) Hawaii 10—*Neraudia ovata*—a (1,859 ha, 4,593 ac)

(i) Unit consists of the following 15 boundary points: Start at 194344, 2189314; 194343, 2189318; 194355, 2189326; 195020, 2189752; 195454, 2189938; 196227, 2190232; 199076, 2191106; 201428, 2191880; 202171, 2192469; 202165, 2191079; 202163, 2189814; 199428, 2188470; 195418, 2187770; 194855, 2187783; 194588, 2188581; return to starting point.

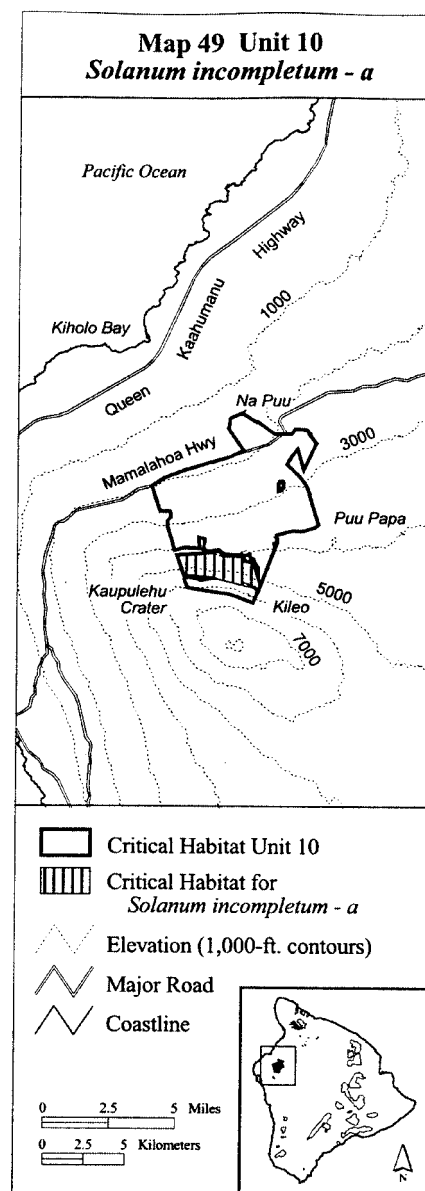
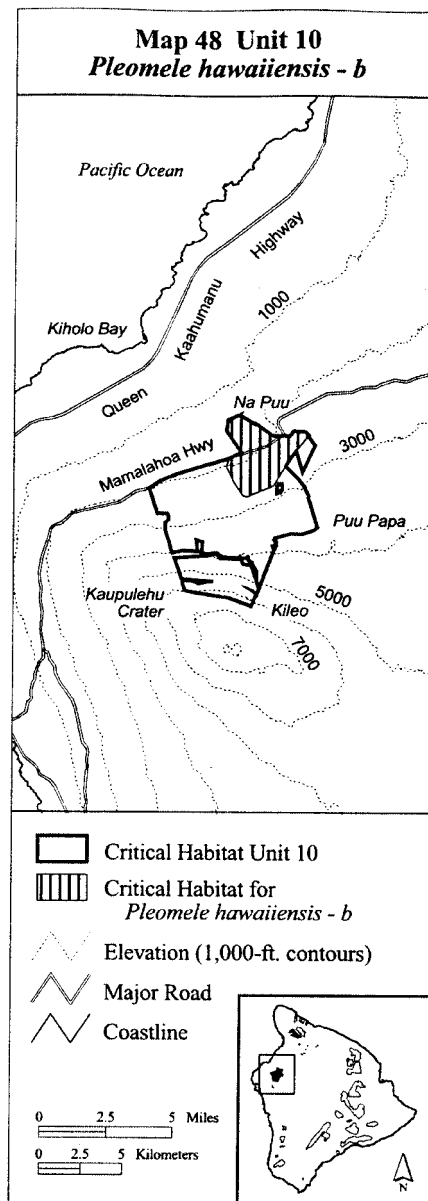
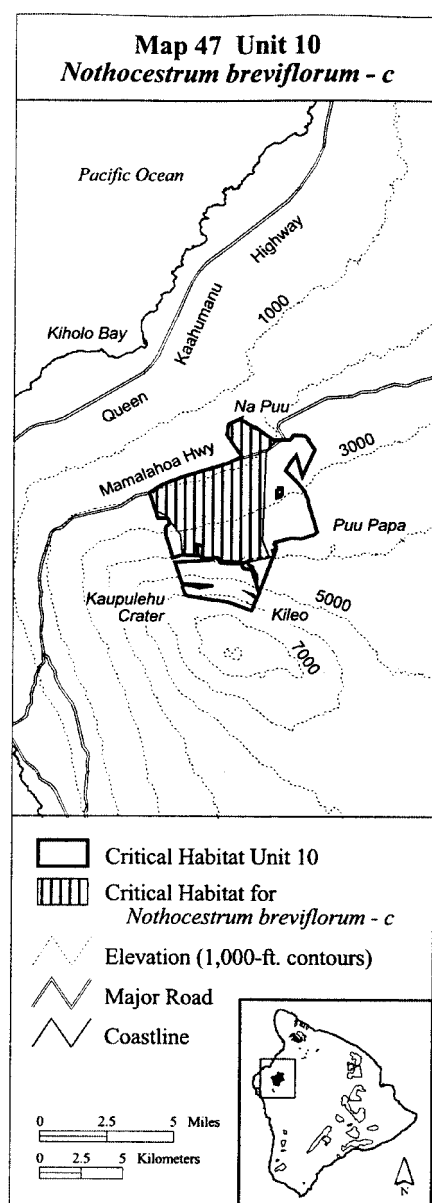
(ii) Note: Map 46 follows:



(47) Hawaii 10—*Nothocestrum breviflorum*—c (3,627 ha, 8,964 ac)

(i) Unit consists of the following 29 boundary points: Start at 194693, 2188269; 194383, 2189286; 195034, 2189776; 195460, 2189937; 196240, 2190194; 199103, 2191128; 199891, 2191533; 198991, 2192862; 199103, 2193492; 199824, 2193830; 199804, 2193770; 200696, 2193256; 201895, 2192456; 201355, 2191804; 201174, 2186424; 201586, 2185393; 199915, 2185040; 199838, 2185152; 198796, 2185246; 198417, 2185384; 197754, 2185341; 197538, 2185442; 197616, 2186073; 197228, 2186185; 197289, 2185505; 196333, 2185522; 196200, 2186785; 195323, 2187943; 194697, 2188256; return to starting point.

(ii) Note: Map 47 follows:



(48) Hawaii 10—*Pleomele hawaiiensis*—b (1,338 ha, 3,306 ac)

(i) Unit consists of the following 19 boundary points: Start at 199227, 2191119; 199931, 2191535; 199427, 2192287; 198994, 2192926; 199211, 2193518; 199835, 2193778; 201804, 2192540; 202800, 2192542; 203018, 2192863; 203684, 2192822; 203919, 2192569; 203588, 2192149; 202916, 2191296; 201823, 2189505; 200231, 2188809; 200012, 2188896; 199513, 2189670; 199023, 2190652; 199126, 2191046; return to starting point.

(ii) **Note:** Map 48 follows:

(49) Hawaii 10—*Solanum incompletum*—a (705 ha, 1,741 ac)

(i) Unit consists of the following 14 boundary points: Start at 200840, 2183071; 200105, 2183211; 198217, 2183674; 196354, 2183822; 195904, 2185079; 198074, 2185218; 198313, 2185355; 198524, 2185294; 198681, 2185062; 199717, 2185030; 199911, 2185024; 200028, 2184733; 200540, 2184657; 200956, 2183332; return to starting point.

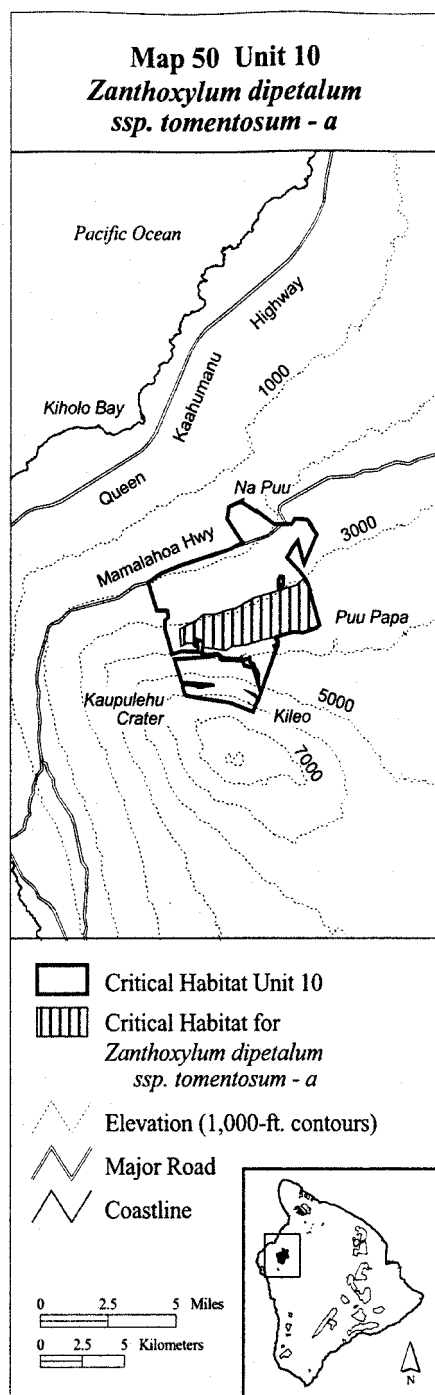
(ii) **Note:** Map 49 follows:

(50) Hawaii 10—*Zanthoxylum dipetalum* ssp. *tomentosum*—a (1,685 ha, 4,164 ac)

(i) Unit consists of the following 30 boundary points: Start at 204490, 2186961; 204259, 2186791; 203663, 2186586; 203502, 2186552; 202908, 2186594; 202064, 2186341; 200938, 2186115; 200094, 2185862; 199277, 2185806; 198968, 2185581; 197898, 2185721; 197620, 2185755; 197630, 2186116; 197213, 2186192; 197260, 2185765; 197082, 2185778; 196970, 2185975; 196660, 2185975; 196294, 2185806; 196217, 2186760; 197251, 2187269; 197645, 2187579; 198321, 2187579; 199334, 2187860; 199503, 2187860; 200544, 2188451; 203129, 2189150; 203527, 2189491; 203802, 2189055; 203972, 2188619; return to starting point.

(ii) **Note:** Map 50 follows:

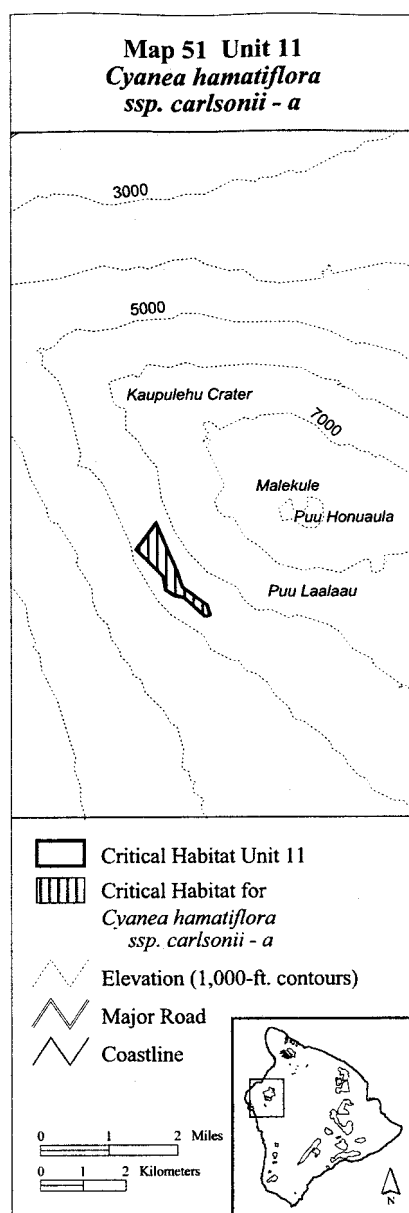




(51) Hawaii 11—*Cyanea hamatiflora* *ssp. carlsonii*—a (92 ha, 227 ac)

(i) Unit consists of the following 11 boundary points: Start at 197174, 2177104; 196674, 2177566; 196458, 2177613; 196239, 2177751; 196187, 2178067; 195553, 2178701; 196028, 2179334; 196530, 2178147; 196637, 2177811; 197221, 2177377; 197278, 2177142; return to starting point.

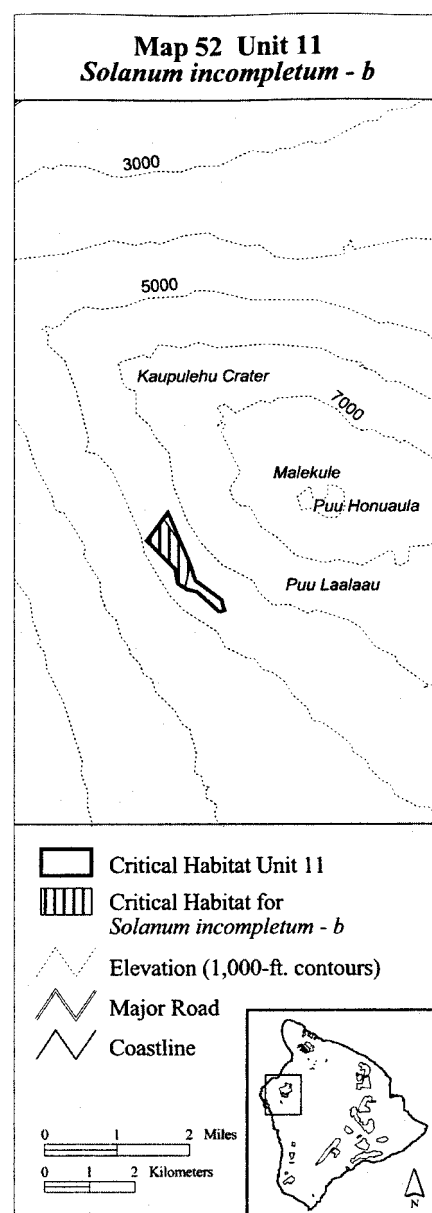
(ii) **Note:** Map 51 follows:



(52) Hawaii 11—*Solanum incompletum*—b (57 ha, 141 ac)

(i) Unit consists of the following seven boundary points: Start at 195939, 2179184; 196289, 2178679; 196513, 2178138; 196403, 2177670; 196252, 2177759; 196204, 2178081; 195581, 2178700; return to starting point.

(ii) **Note:** Map 52 follows:



(53) [Reserved]

(54) [Reserved]

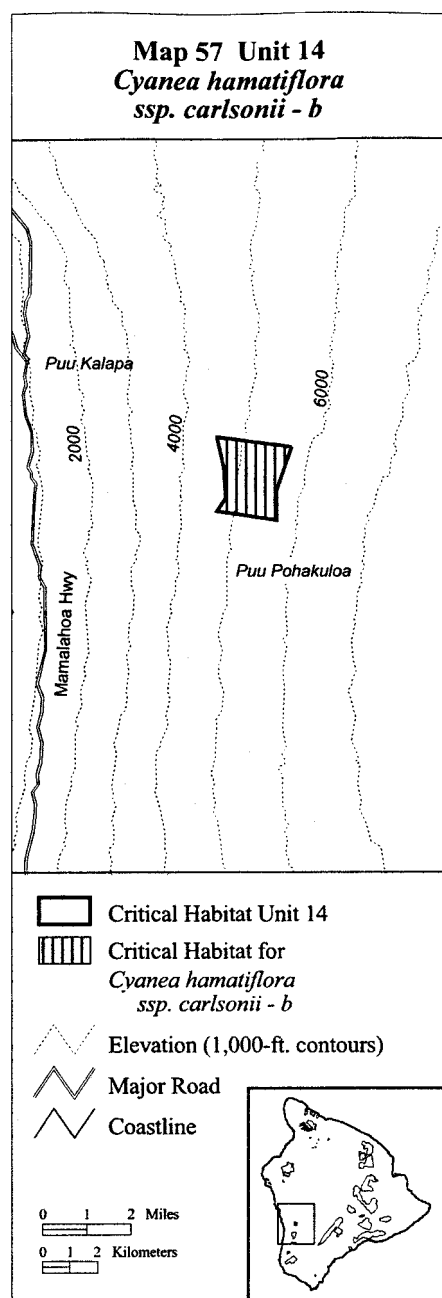
(55) [Reserved]

(56) [Reserved]

(57) Hawaii 14—*Cyanea hamatiflora* *ssp. carlsonii*—b (597 ha, 1,475 ac)

(i) Unit consists of the following 10 boundary points: Start at 207156, 2146304; 207134, 2146239; 206598, 2144681; 206598, 2143570; 204429, 2143915; 204728, 2144393; 204674, 2145490; 204674, 2145491; 204426, 2146629; 204425, 2146649; return to starting point.

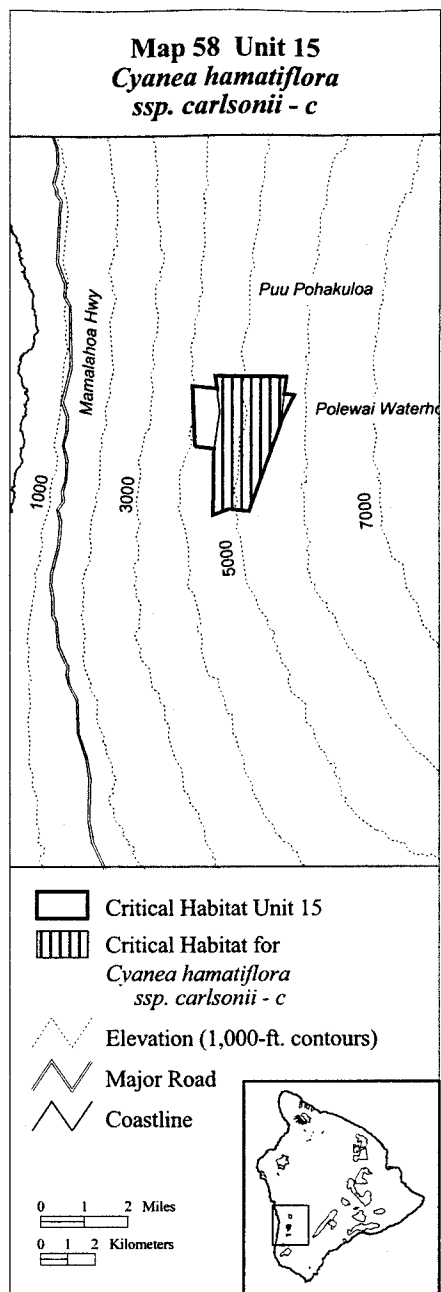
(ii) **Note:** Map 57 follows:



(58) Hawaii 15—*Cyanea hamatiflora* ssp. *carlsonii*—c (1,045 ha, 2,583 ac)

(i) Unit consists of the following eight boundary points: Start at 205937, 2136720; 204747, 2133469; 204039, 2133547; 203420, 2133302; 203440, 2135670; 203670, 2137181; 203517, 2138526; 206149, 2138468; return to starting point.

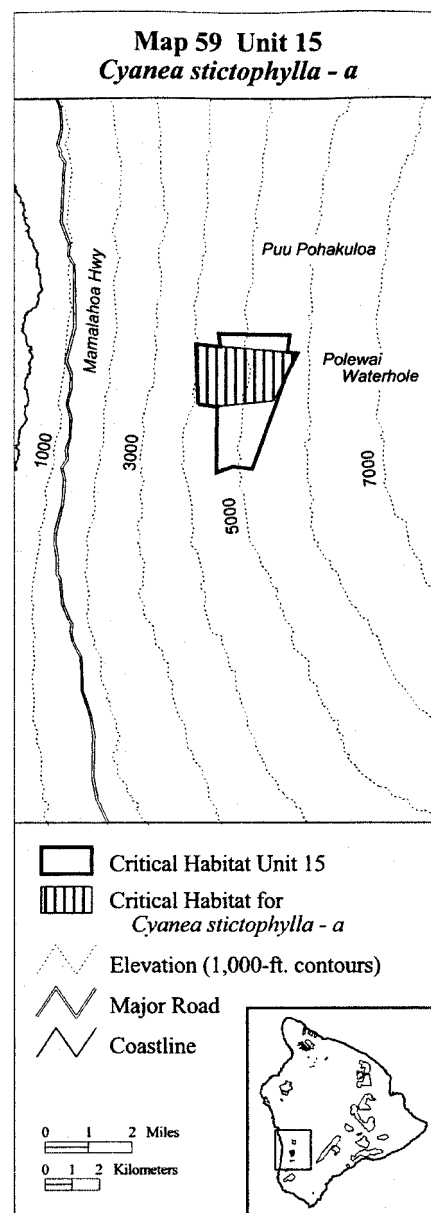
(ii) **Note:** Map 58 follows:



(59) Hawaii 15—*Cyanea stictophylla*—a (685 ha, 1,693 ac)

(i) Unit consists of the following five boundary points: Start at 202738, 2135888; 202669, 2138135; 206446, 2137807; 205568, 2136027; 203447, 2135810; return to starting point.

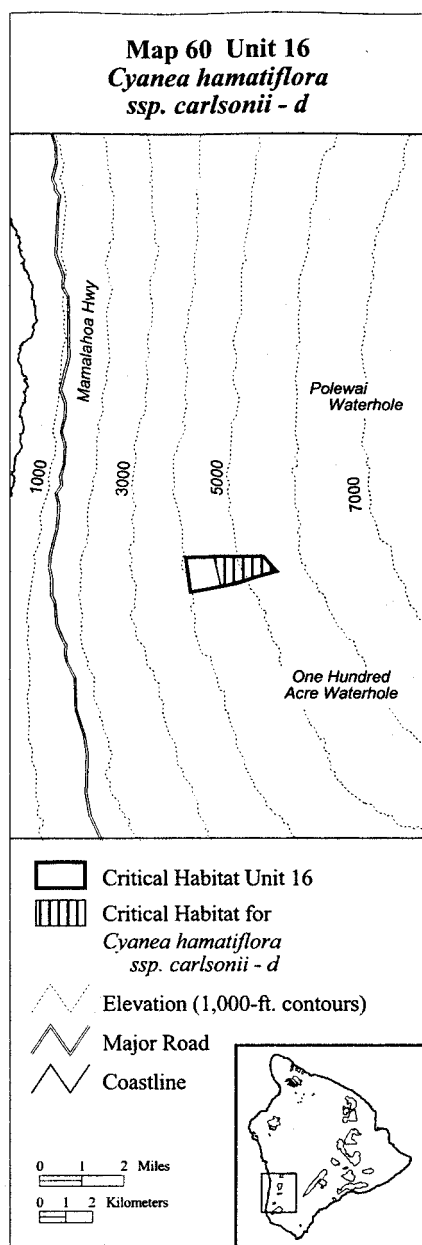
(ii) **Note:** Map 59 follows:



(60) Hawaii 16—*Cyanea hamatiflora* ssp. *carlsonii*—d (186 ha, 459 ac)

(i) Unit consists of the following four boundary points: Start at 203994, 2129916; 203715, 2131071; 205603, 2131073; 206118, 2130489; return to starting point.

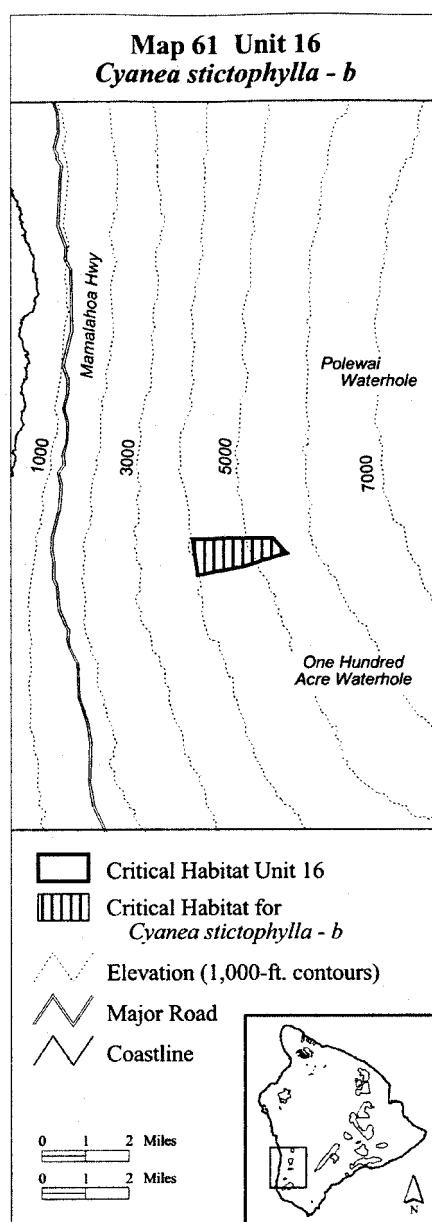
(ii) **Note:** Map 60 follows:



(61) Hawaii 16—*Cyanea stictophylla*—b (327 ha, 809 ac)

(i) Unit consists of the following five boundary points: Start at 206085, 2130525; 204548, 2130013; 202838, 2129682; 202649, 2131030; 205588, 2131077; return to starting point.

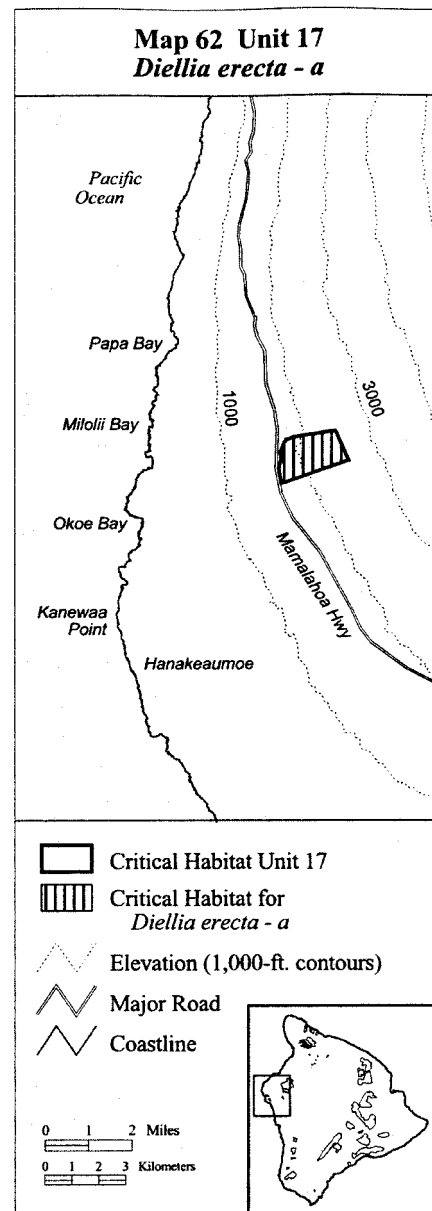
(ii) **Note:** Map 61 follows:



(62) Hawaii 17—*Diellia erecta*—a (329 ha, 814 ac)

(i) Unit consists of the following nine boundary points: Start at 199021, 2121439; 198916, 2122019; 199049, 2122319; 199008, 2122707; 199063, 2122847; 199186, 2123092; 199520, 2123204; 201031, 2123446; 201505, 2122323; return to starting point.

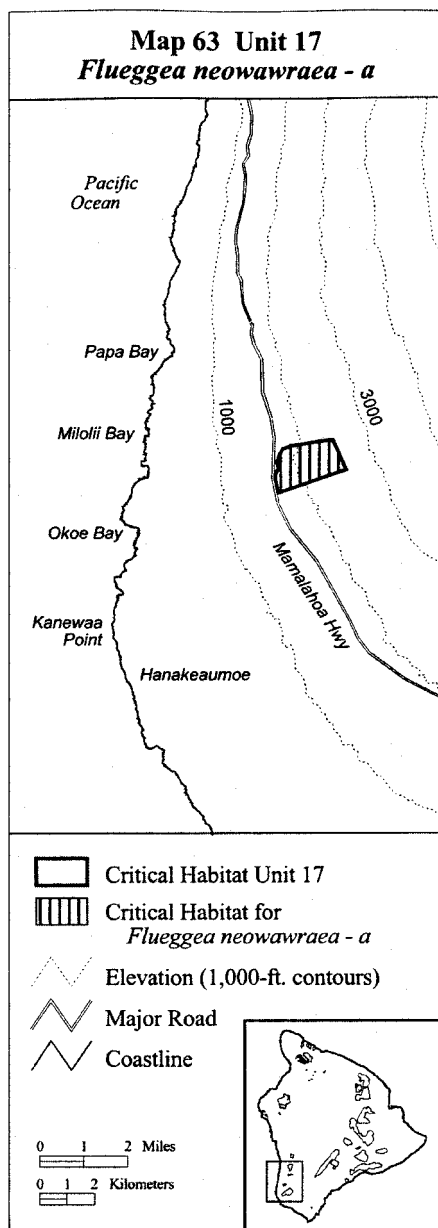
(ii) **Note:** Map 62 follows:



(63) Hawaii 17—*Flueggea neowawraea*—a (327 ha, 807 ac)

(i) Unit consists of the following eight boundary points: Start at 199031, 2121453; 198919, 2122094; 199007, 2122357; 198981, 2122641; 199188, 2123085; 199474, 2123194; 201018, 2123445; 201491, 2122325; return to starting point.

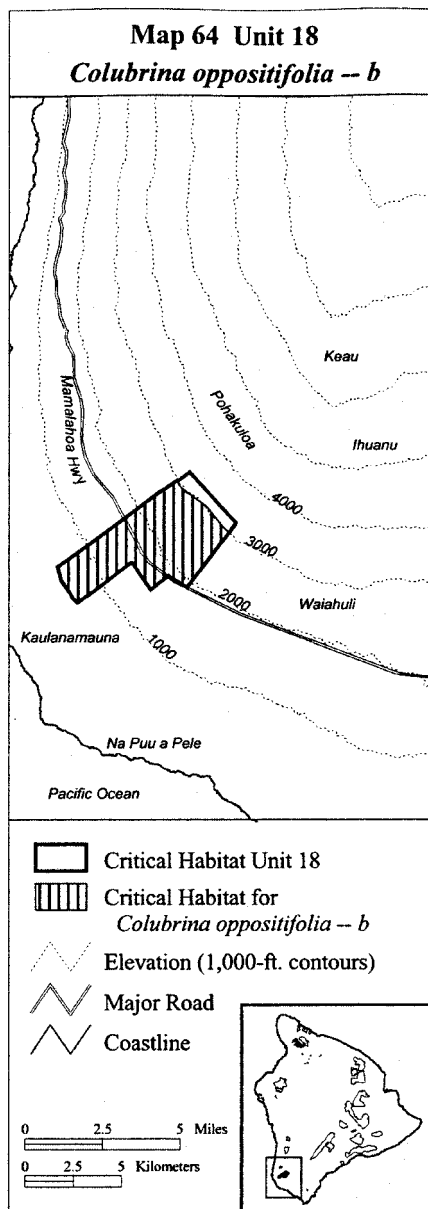
(ii) **Note:** Map 63 follows:



(64) Hawaii 18—*Colubrina oppositifolia*—b (2,717 ha, 6,713 ac)

(i) Unit consists of the following 15 boundary points: Start at 198394, 2113625; 198223, 2113930; 197796, 2114535; 197583, 2115280; 203752, 2119808; 203928, 2119514; 204315, 2119167; 205315, 2118433; 206212, 2117332; 206446, 2117067; 204284, 2114251; 203373, 2114863; 202434, 2114094; 201438, 2115531; 198636, 2113397; return to starting point.

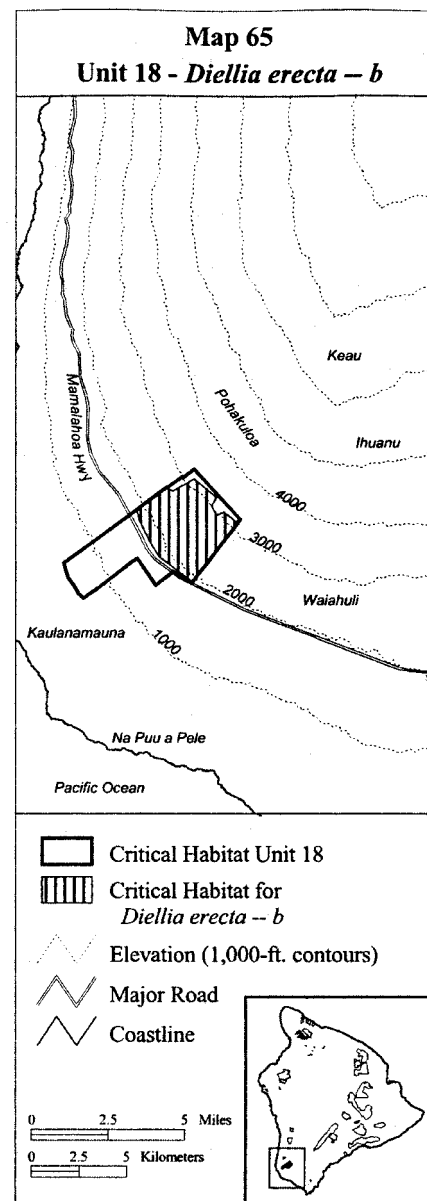
(ii) **Note:** Map 64 follows:



(65) Hawaii 18—*Diellia erecta*—b (1,615 ha, 3,992 ac)

(i) Unit consists of the following 13 boundary points: Start at 202997, 2119281; 203310, 2119053; 204449, 2119707; 205626, 2118736; 205346, 2118306; 205626, 2117783; 205999, 2117970; 206709, 2117375; 204354, 2114272; 202588, 2115599; 202097, 2116400; 201568, 2117511; 201401, 2118078; return to starting point.

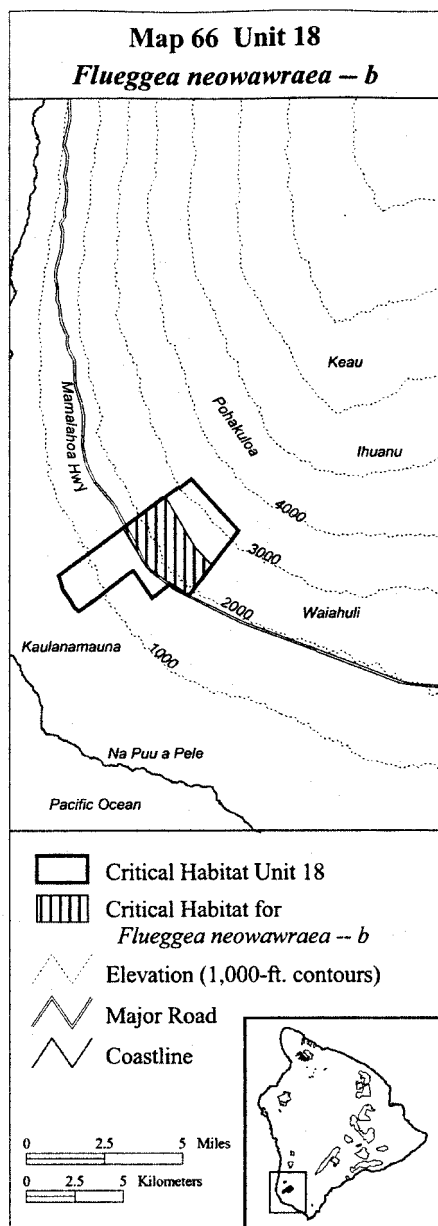
(ii) **Note:** Map 65 follows:



(66) Hawaii 18—*Flueggea neowawraea*—b (1,148 ha, 2,838 ac)

(i) Unit consists of the following six boundary points: Start at 203129, 2119316; 204604, 2116730; 205505, 2115780; 204286, 2114193; 202146, 2115653; 200912, 2117708; return to starting point.

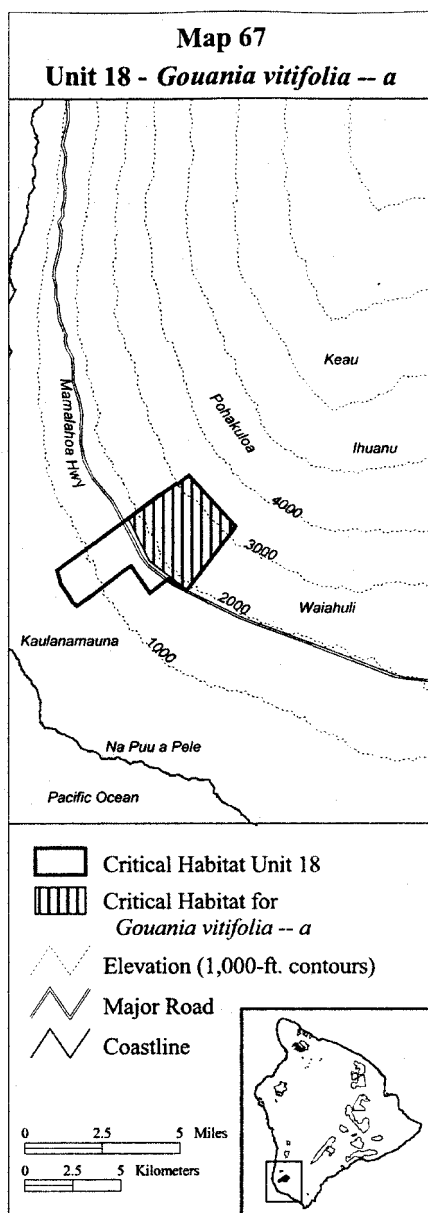
(ii) **Note:** Map 66 follows:



(67) Hawaii 18—*Gouania vitifolia*—a  
(1,785 ha, 4,412 ac)

(i) Unit consists of the following five boundary points: Start at 204444, 2120239; 206850, 2117574; 204309, 2114257; 202399, 2115771; 201311, 2117954; return to starting point.

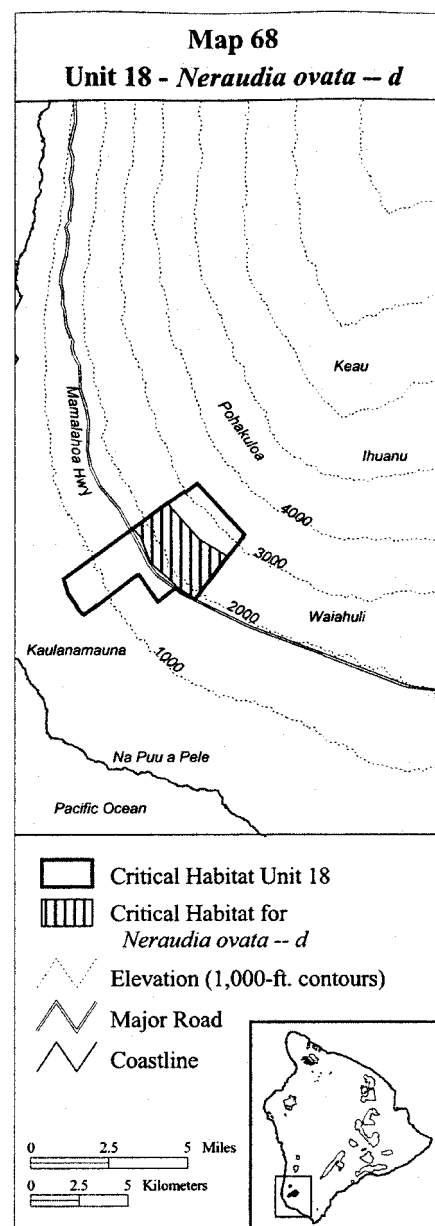
(ii) **Note:** Map 67 follows:



(68) Hawaii 18—*Neraudia ovata*—d  
(1,134 ha, 2,801 ac)

(i) Unit consists of the following 10 boundary points: Start at 201174, 2117843; 202959, 2119186; 204559, 2117309; 205954, 2116477; 204277, 2114280; 203399, 2114850; 202976, 2115309; 202698, 2115528; 202028, 2116090; 201532, 2117457; return to starting point.

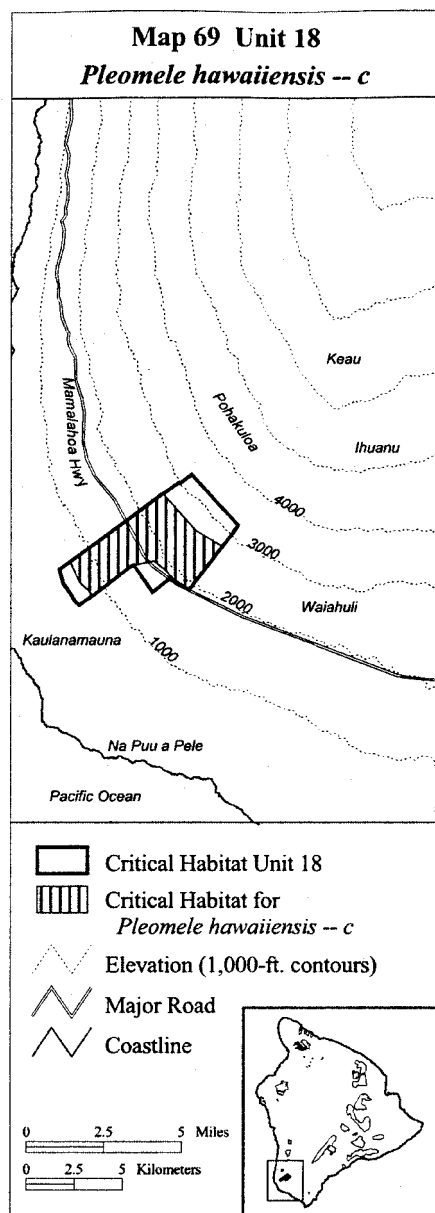
(ii) **Note:** Map 68 follows:



(69) Hawaii 18—*Pleomele hawaiiensis*—c  
(1,997 ha, 4,934 ac)

(i) Unit consists of the following 14 boundary points: Start at 202966, 2119257; 204672, 2117280; 206034, 2116476; 204325, 2114252; 203522, 2114753; 203049, 2115266; 202477, 2115720; 201375, 2115486; 199227, 2113813; 199190, 2114100; 198653, 2114587; 198378, 2115149; 198141, 2115661; 201104, 2117894; return to starting point.

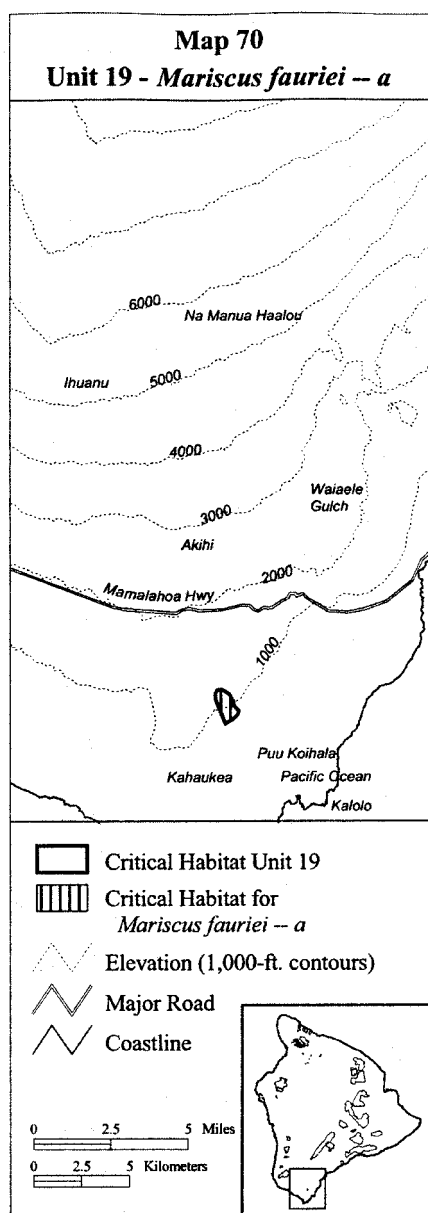
(ii) **Note:** Map 69 follows:



(70) Hawaii 19—*Mariscus fauriei*—a  
(127 ha, 313 ac)

(i) Unit consists of the following 14 boundary points: Start at 220519, 2105287; 220658, 2105408; 220821, 2105428; 221200, 2105198; 221467, 2104758; 221444, 2104588; 221445, 2104587; 221710, 2104303; 221694, 2104107; 221493, 2103896; 221254, 2103732; 221032, 2103615; 220535, 2104849; 220496, 2105093; return to starting point.

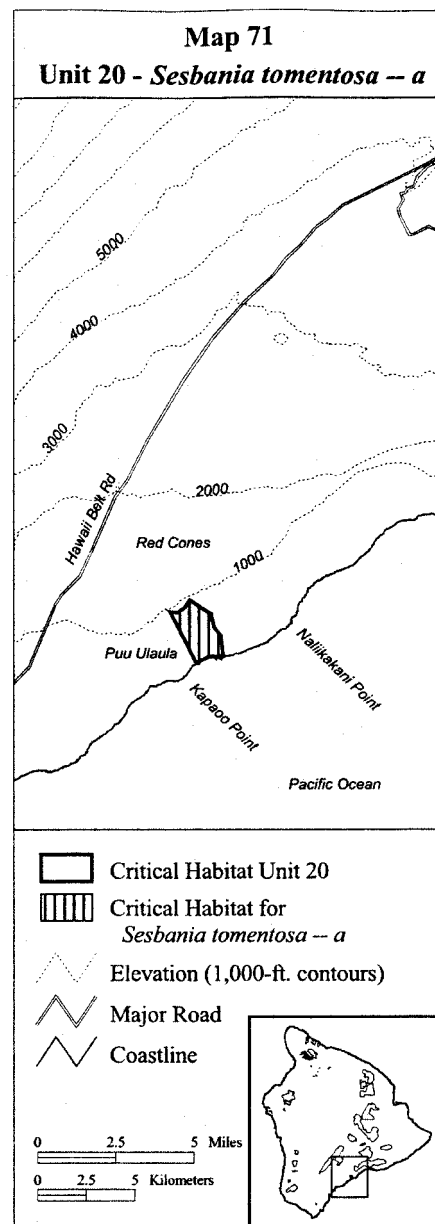
(ii) **Note:** Map 70 follows:



(71) Hawaii 20—*Sesbania tomentosa*—a  
(486 ha, 1,201 ac)

(i) Unit consists of the following nine boundary points: Coast; 249798, 2124556; 248451, 2124193; 247078, 2126859; 247458, 2126835; 247811, 2127062; 248104, 2127469; 249187, 2126745; 249330, 2126069; 249701, 2125632.

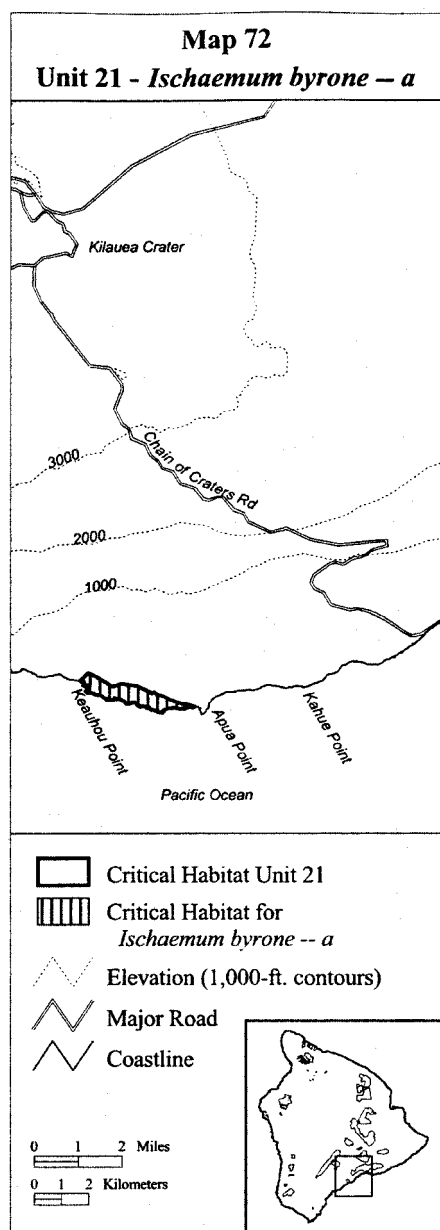
(ii) **Note:** Map 71 follows:



(72) Hawaii 21—*Ischaemum byrone*—a  
(206 ha, 510 ac)

(i) Unit consists of the following 16 boundary points: Start at 265058, 2131828; 265367, 2132139; 265624, 2132015; 265956, 2131806; 266250, 2131617; 266582, 2131721; 267180, 2131645; 267711, 2131370; 267789, 2131408; 267891, 2131332; 268138, 2131256; 268432, 2131114; 268755, 2131009; 269049, 2130962; 269248, 2130905; 269266, 2130849; return to starting point.

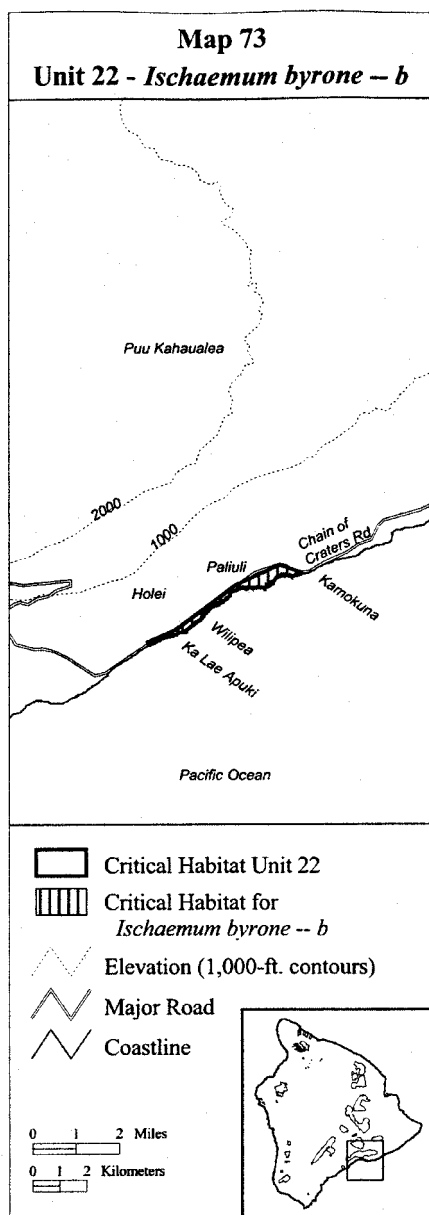
(ii) **Note:** Map 72 follows:



(73) Hawaii 22—*Ischaemum byrone*—b  
(159 ha, 393 ac)

(i) Unit consists of the following 11 boundary points: Coast; 284893, 2137276; 279221, 2134615; 279221, 2134615; 279175, 2134728; 280175, 2135157; 281315, 2136008; 282395, 2136841; 284061, 2137614; 284803, 2137355; 284850, 2137360; 284874, 2137349.

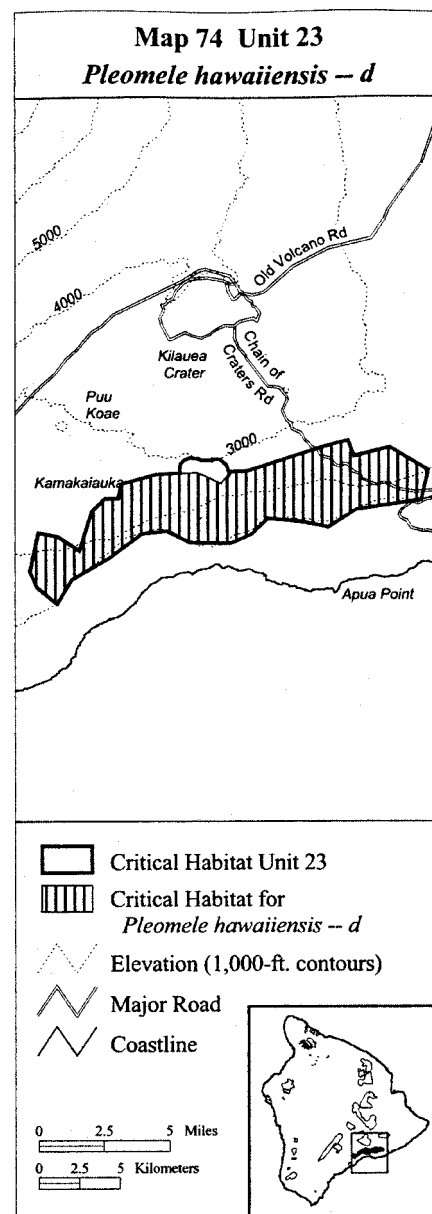
(ii) **Note:** Map 73 follows:



(74) Hawaii 23—*Pleomele hawaiiensis*—d  
(8,943 ha, 22,097 ac)

(i) Unit consists of the following 33 boundary points: Start at 274892, 2136370; 270874, 2135790; 269174, 2134697; 267700, 2135019; 265425, 2135256; 264383, 2134214; 263150, 2133692; 260638, 2133740; 259217, 2134451; 257700, 2134309; 255757, 2132839; 253387, 2131465; 252487, 2129948; 251241, 2130960; 250795, 2131956; 251310, 2134361; 252547, 2134120; 253852, 2133261; 254607, 2135700; 255437, 2136482; 256222, 2136490; 256394, 2137383; 258592, 2138001; 261132, 2138090; 262576, 2137383; 263163, 2138161; 264146, 2138195; 268506, 2139617; 269645, 2139914; 270342, 2140091; 270763, 2139124; 272917, 2139676; 275306, 2138240; return to starting point.

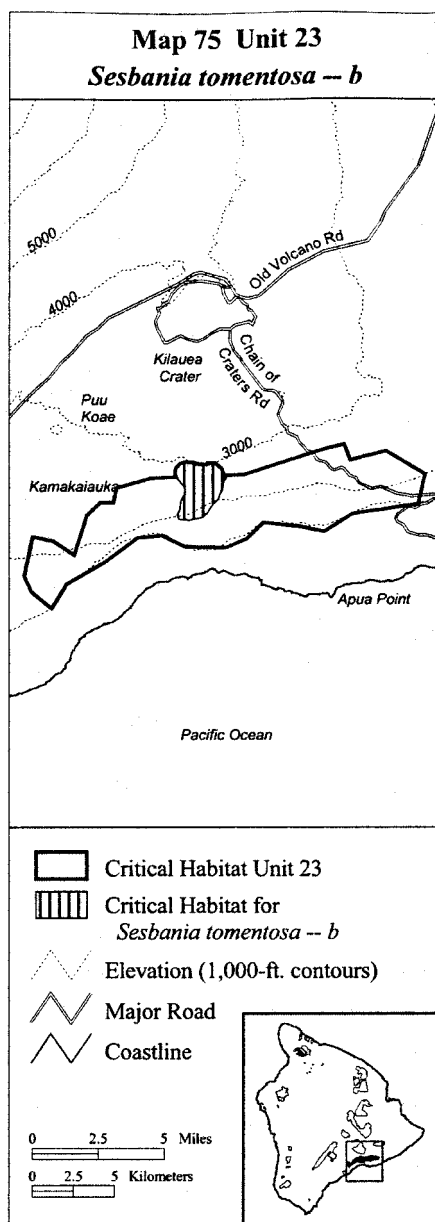
(ii) **Note:** Map 74 follows:



(75) Hawaii 23—*Sesbania tomentosa*—b  
(803 ha, 1,984 ac)

(i) Unit consists of the following 27 boundary points: Start at 260007, 2138277; 260064, 2138614; 260288, 2138861; 260620, 2139007; 260945, 2138979; 261187, 2138985; 261288, 2138856; 261541, 2138867; 261945, 2138822; 262013, 2138945; 262440, 2138951; 262861, 2138592; 263063, 2138125; 262940, 2137446; 262614, 2136665; 262294, 2136266; 262007, 2135817; 261704, 2135564; 260951, 2135401; 260255, 2135424; 260176, 2135727; 260316, 2136075; 260361, 2136524; 260608, 2137002; 260580, 2137440; 260153, 2137906; 260058, 2138064; return to starting point.

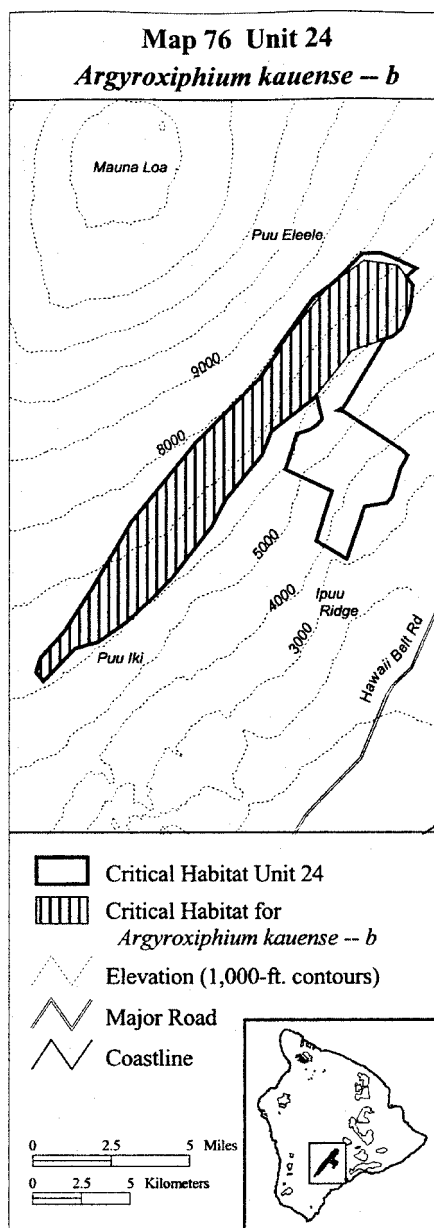
(ii) **Note:** Map 75 follows:



(76) Hawaii 24—*Argyroxiphium kauense*—b (7,795 ha, 19,261 ac)

(i) Unit consists of the following 27 boundary points: Start at 241932, 2146263; 241417, 2145847; 239409, 2145112; 237401, 2142639; 235247, 2140949; 234781, 2139725; 232871, 2137399; 232161, 2136003; 230227, 2133432; 229223, 2132403; 227778, 2131032; 226357, 2130052; 225133, 2129685; 223541, 2127995; 223150, 2128461; 223394, 2129220; 224594, 2130542; 226039, 2132819; 227998, 2136174; 231377, 2140386; 234659, 2143741; 236177, 2145945; 238210, 2148467; 239997, 2149789; 241711, 2149544; 242495, 2148491; 242372, 2147341; return to starting point.

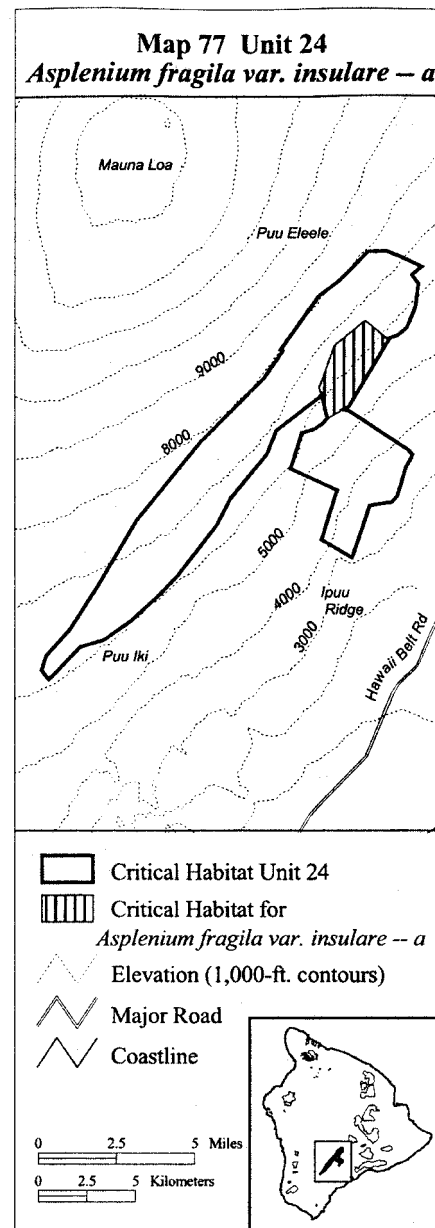
(ii) **Note:** Map 76 follows:



(77) Hawaii 24—*Asplenium fragile* var. *insulare*—a (907 ha, 2,241 ac)

(i) Unit consists of the following six boundary points: Start at 239781, 2146615; 241003, 2145626; 238959, 2142183; 237893, 2141565; 237452, 2143181; 238209, 2145335; return to starting point.

(ii) **Note:** Map 77 follows:

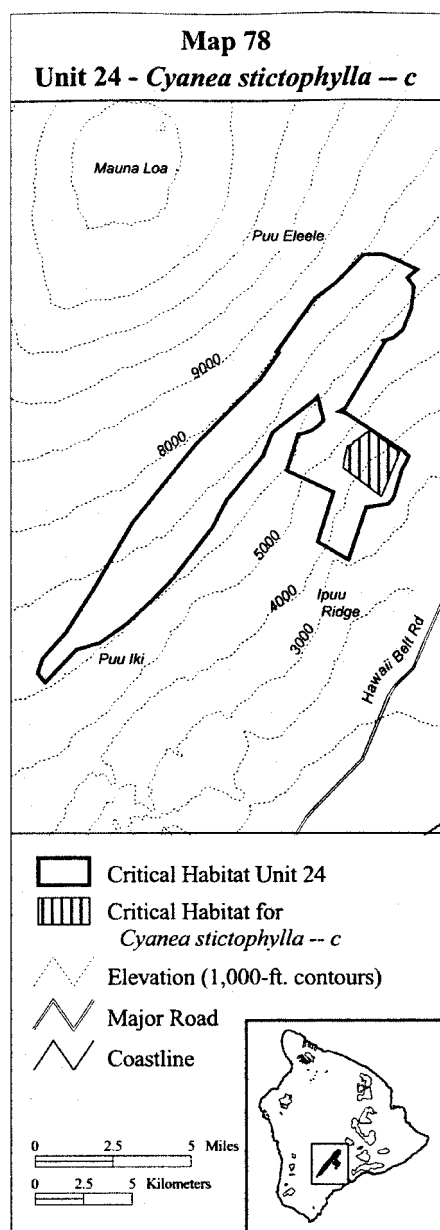


(78) Hawaii 24—*Cyanea stictophylla*—c (584 ha, 1,443 ac)

(i) Unit consists of the following nine boundary points: Start at 240250, 2141066; 241783, 2139920; 240835, 2137607; 238868, 2139097; 238947, 2139692; 239116, 2140248; 239332, 2140329; 239455, 2140496; 239602, 2140570; return to starting point.

(ii) **Note:** Map 78 follows:

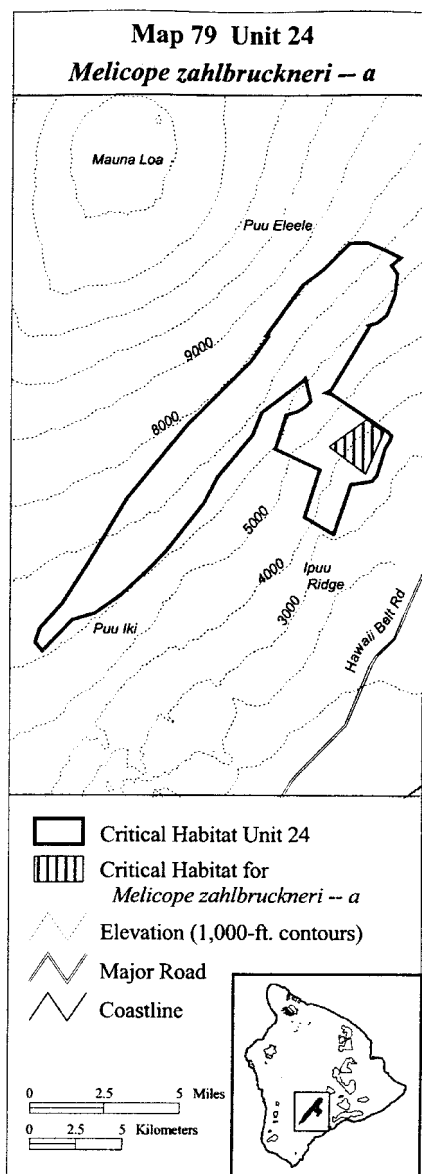




(79) Hawaii 24—*Melicope zahlbruckneri*—a (434 ha, 1,072 ac)

(i) Unit consists of the following four boundary points: Start at 238867, 2139105; 240894, 2140601; 241788, 2139910; 240819, 2137611; return to starting point.

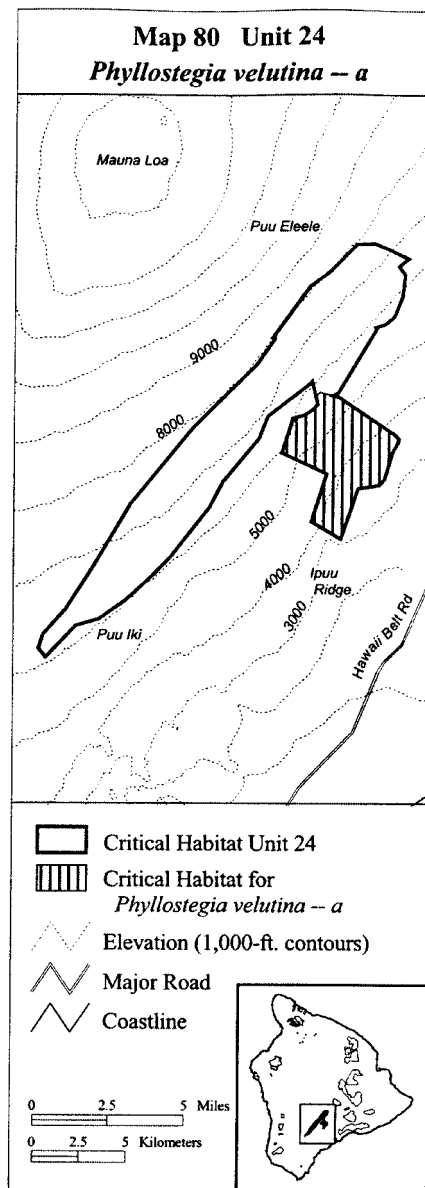
(ii) **Note:** Map 79 follows:



(80) Hawaii 24—*Phyllostegia velutina*—a (2,466 ha, 6,093 ac)

(i) Unit consists of the following 18 boundary points: Start at 238962, 2141970; 242007, 2139925; 242207, 2139714; 242118, 2139436; 241893, 2139030; 241440, 2137533; 241162, 2137224; 240062, 2137024; 239123, 2134346; 237550, 2135268; 238350, 2137847; 235994, 2138947; 236552, 2140823; 237172, 2141003; 237594, 2141281; 237850, 2141570; 237828, 2142070; 238005, 2142204; return to starting point.

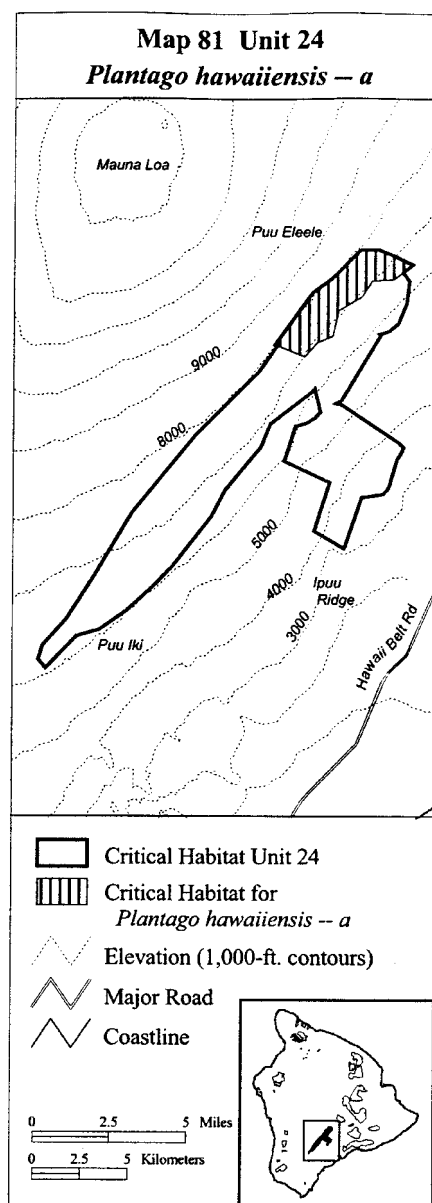
(ii) **Note:** Map 80 follows:



(81) Hawaii 24—*Plantago hawaiensis*—a (1,348 ha, 3,330 ac)

(i) Unit consists of the following 14 boundary points: Start at 239891, 2150141; 240843, 2150153; 241675, 2149824; 242668, 2149348; 241709, 2148593; 240533, 2148496; 240027, 2147666; 238765, 2146944; 238485, 2145606; 237676, 2145240; 237021, 2144491; 235459, 2145119; 237410, 2147869; 238480, 2148664; return to starting point.

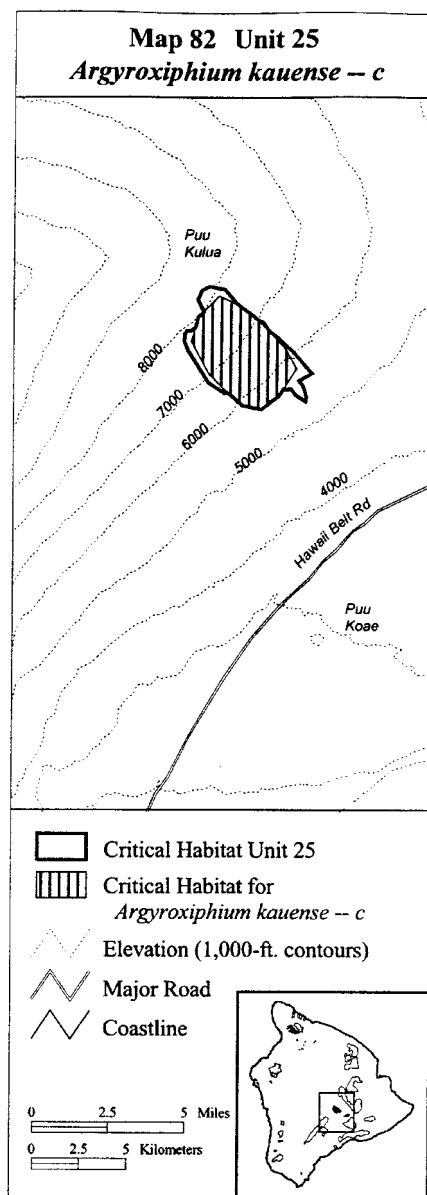
(ii) **Note:** Map 81 follows:



(82) Hawaii 25—*Argyroxiphium kauense*—c (2,006 ha, 4,957 ac)

(i) Unit consists of the following 13 boundary points: Start at 250289, 2157327; 251003, 2156578; 251595, 2155516; 250654, 2154088; 249731, 2153374; 248704, 2153565; 247907, 2154271; 246893, 2155307; 245987, 2156978; 246353, 2158267; 247468, 2159347; 248478, 2158877; 249279, 2158302; return to starting point.

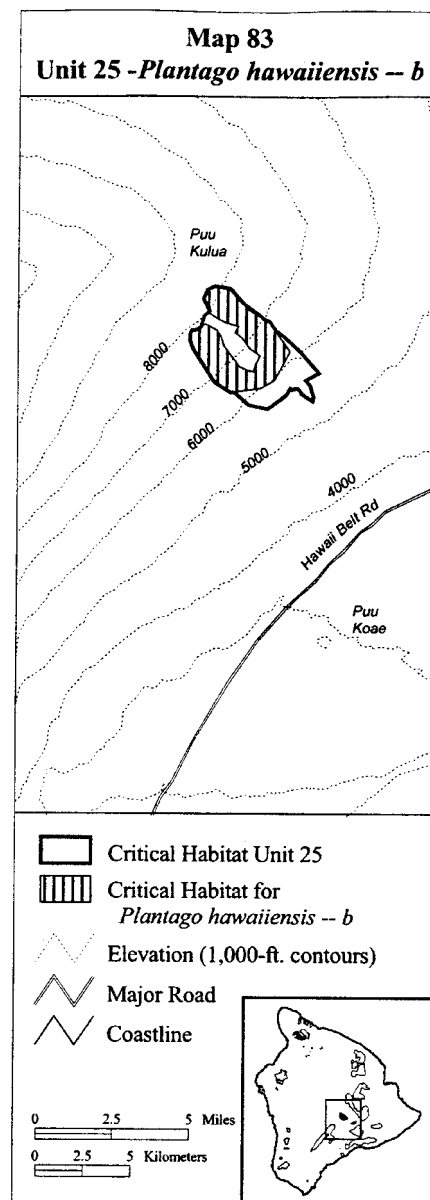
(ii) **Note:** Map 82 follows:



(83) Hawaii 25—*Plantago hawaiiensis*—b (1,522 ha, 3,762 ac)

(i) Unit consists of the following 35 boundary points: Start at 250884, 2156394; 250042, 2154844; 249371, 2154454; 247769, 2154222; 246915, 2154794; 245791, 2156465; 245586, 2156984; 245636, 2157360; 245710, 2157517; 245929, 2157517; 246442, 2157846; 247040, 2157529; 247235, 2157212; 247369, 2156711; 247784, 2156175; 248224, 2155589; 248639, 2155406; 248980, 2155320; 249005, 2155564; 249285, 2156187; 248773, 2156528; 248358, 2157090; 247967, 2157383; 248175, 2157737; 247528, 2157895; 246991, 2158164; 246649, 2158418; 246674, 2158444; 246320, 2159164; 246527, 2159640; 246918, 2159860; 247369, 2159775; 247723, 2159701; 248761, 2158530; 249786, 2157944; return to starting point.

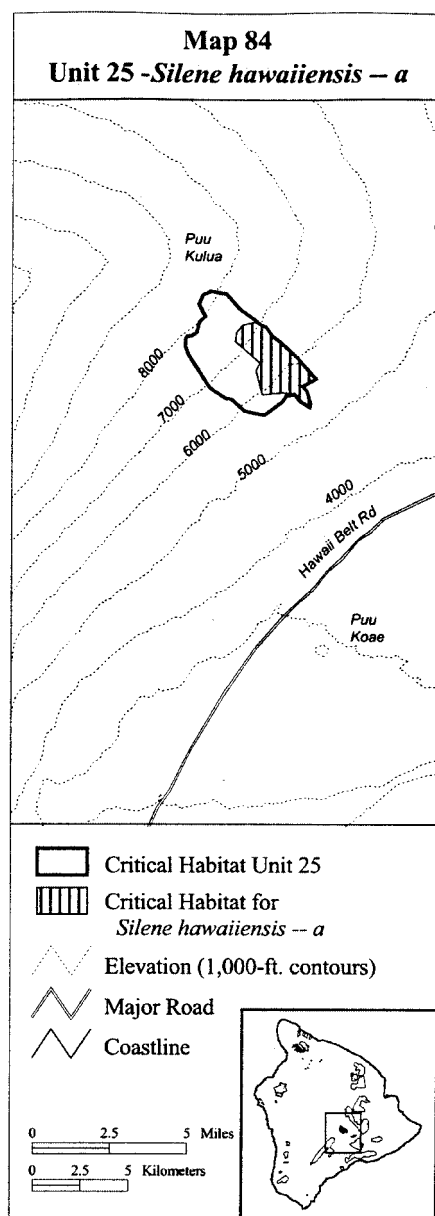
(ii) **Note:** Map 83 follows:



(84) Hawaii 25—*Silene hawaiiensis*—a (854 ha, 2,110 ac)

(i) Unit consists of the following 20 boundary points: Start at 249605, 2154443; 249282, 2155670; 249489, 2156083; 248205, 2157211; 248257, 2157694; 248587, 2158073; 249179, 2158214; 249790, 2157993; 250127, 2157482; 250559, 2157202; 251403, 2156390; 252371, 2155266; 251701, 2154870; 251902, 2154637; 252099, 2154017; 252071, 2153773; 251517, 2154149; 251301, 2154449; 250993, 2154406; 250728, 2154562; return to starting point.

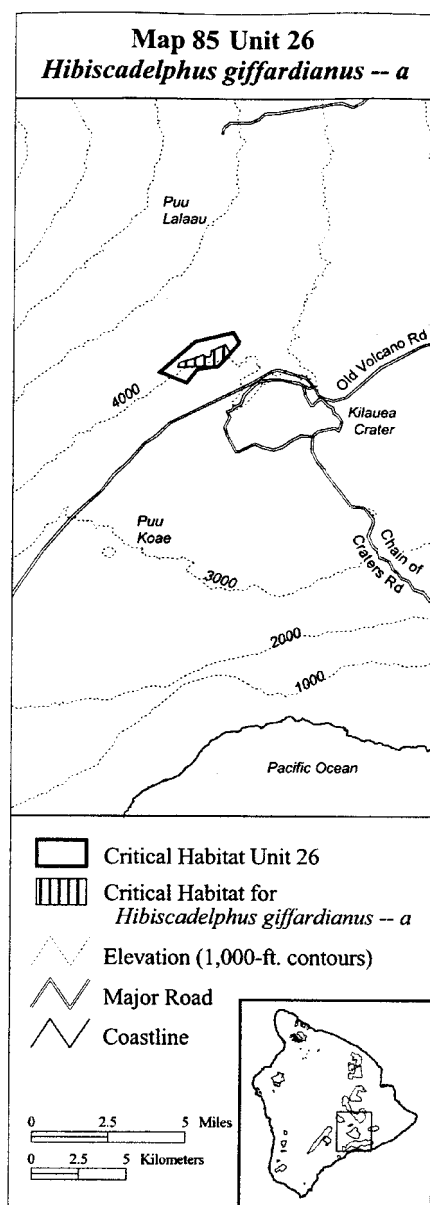
(ii) **Note:** Map 84 follows:



(85) Hawaii 26—*Hibiscadelphus giffardianus*—a (149 ha, 367 ac)

(i) Unit consists of the following 18 boundary points: Start at 256349, 2151035; 256516, 2151138; 256717, 2151196; 257064, 2151279; 257624, 2151506; 257795, 2151400; 258009, 2151416; 258048, 2151718; 258777, 2152045; 258966, 2151770; 259051, 2151582; 258433, 2150898; 258430, 2150898; 257945, 2150909; 257790, 2150915; 257034, 2150898; 256769, 2150857; 256333, 2150857; return to starting point.

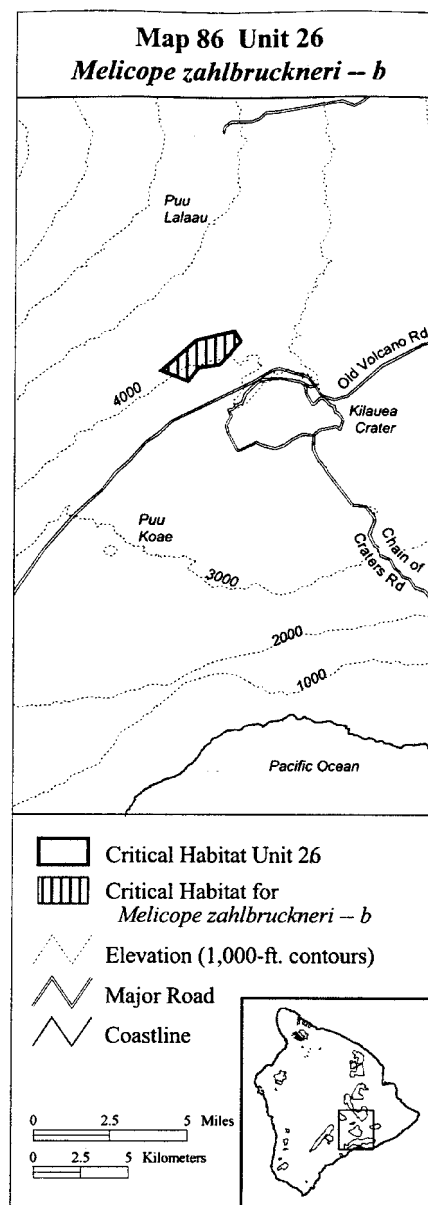
(ii) **Note:** Map 85 follows:



(86) Hawaii 26—*Melicope zahlbruckneri*—b (495 ha, 1,224 ac)

(i) Unit consists of the following seven boundary points: Start at 259520, 2152124; 258420, 2150913; 257324, 2150755; 256781, 2150023; 255379, 2150583; 257220, 2152206; 259198, 2152680; return to starting point.

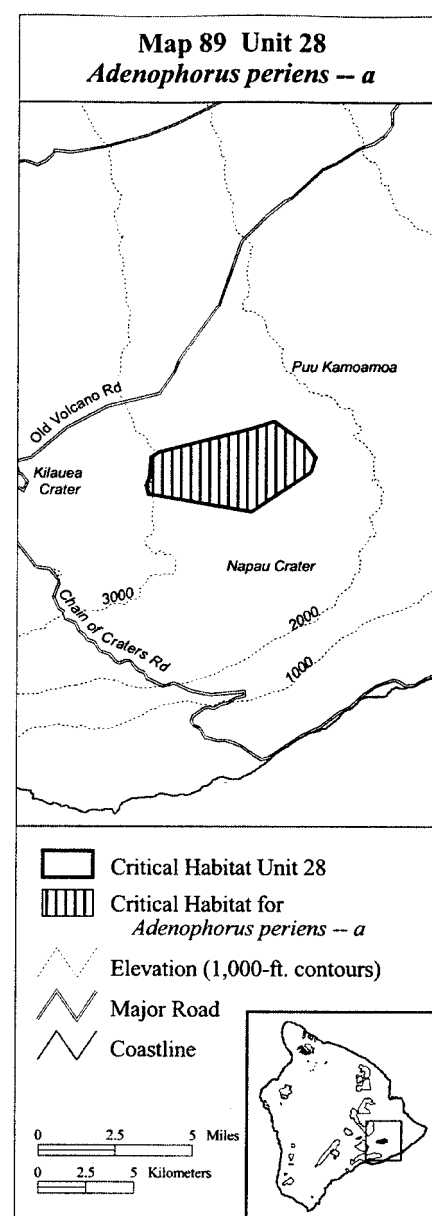
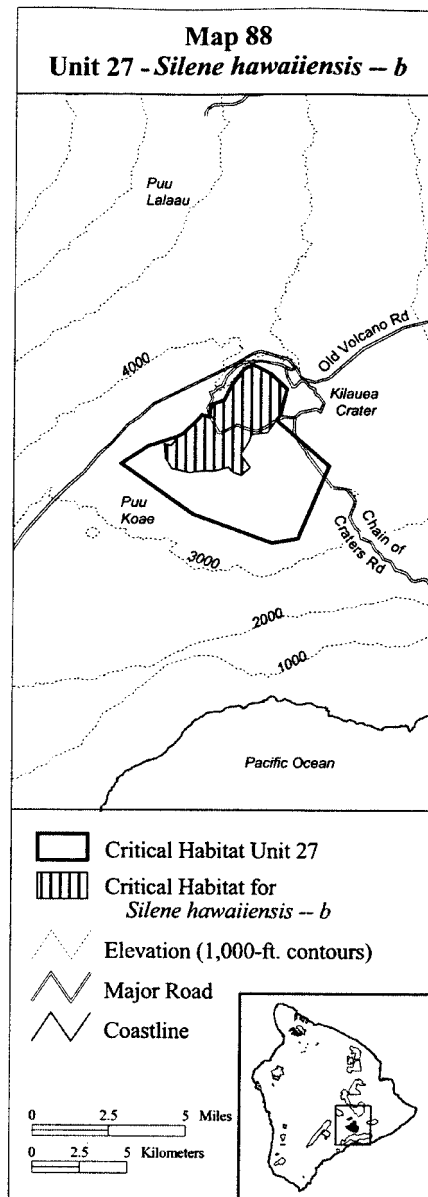
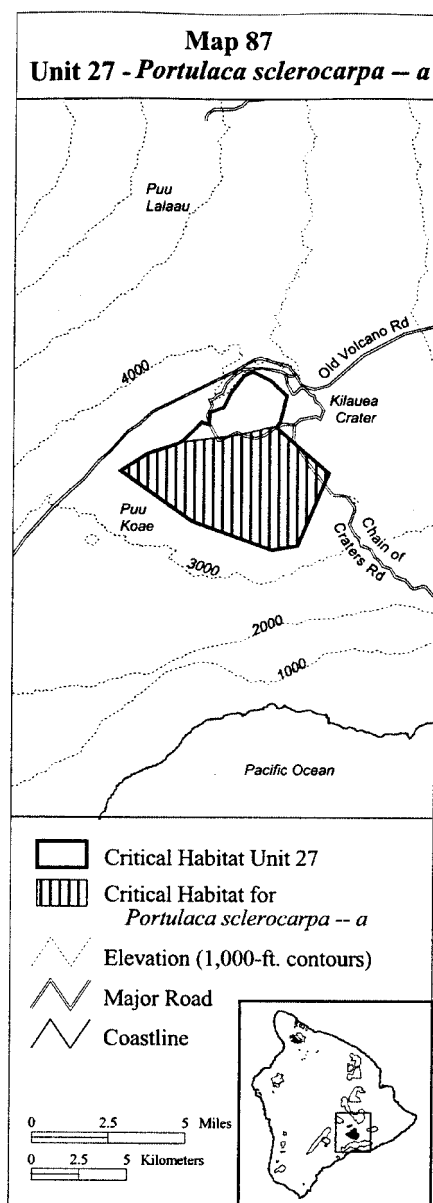
(ii) **Note:** Map 86 follows:



(87) Hawaii 27—*Portulaca sclerocarpa*—a (4,390 ha, 10,848 ac)

(i) Unit consists of the following nine boundary points: Start at 263596, 2140748; 262234, 2140517; 258055, 2142041; 254269, 2144742; 255668, 2145679; 257593, 2146289; 260387, 2146659; 262395, 2147120; 265212, 2144650; return to starting point.

(ii) **Note:** Map 87 follows:



(88) Hawaii 27—*Silene hawaiiensis*—b  
(1,942 ha, 4,798 ac)

(i) Unit consists of the following 28 boundary points: Start at 261207, 2150002; 262152, 2149529; 262966, 2148732; 262640, 2147357; 261953, 2146398; 261102, 2146308; 260976, 2145910; 260541, 2145204; 261048, 2144534; 260596, 2144100; 260125, 2144299; 259890, 2144552; 259220, 2144335; 258515, 2144335; 257845, 2144263; 256922, 2144462; 256560, 2145059; 256506, 2145801; 256886, 2145710; 257239, 2146201; 257501, 2146344; 258279, 2147086; 258496, 2147337; 258877, 2147212; 258949, 2147864; 259637, 2148117; 260035, 2148895; 260704, 2149800; return to starting point.

(ii) **Note:** Map 88 follows:

(89) Hawaii 28—*Adenophorus periens*—a  
(2,733 ha, 6,754 ac)

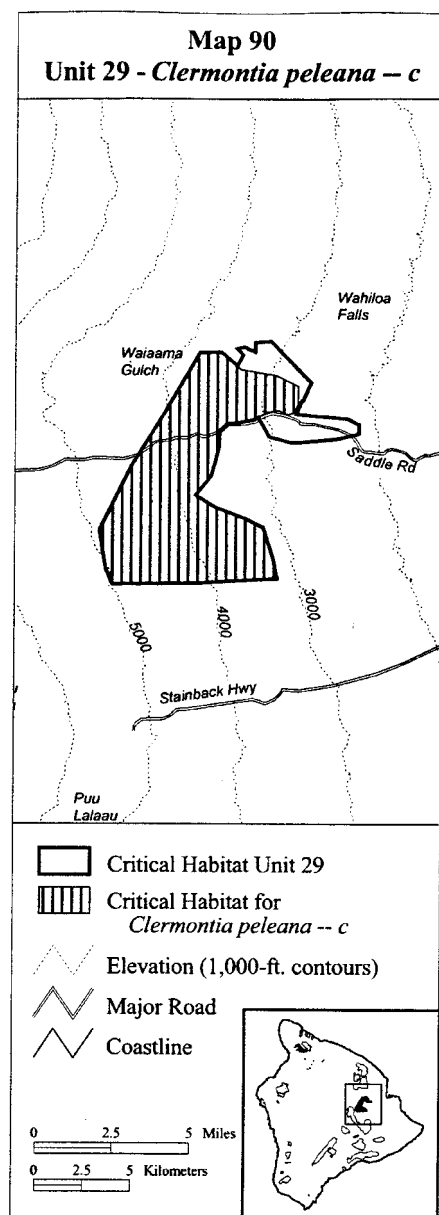
(i) Unit consists of the following 11 boundary points: Start at 279712, 2148510; 276648, 2146439; 271250, 2147346; 271140, 2147797; 271319, 2148257; 271361, 2149267; 271770, 2149568; 276751, 2150845; 277839, 2151215; 279362, 2150061; 279952, 2149315; return to starting point.

(ii) **Note:** Map 89 follows:

(90) Hawaii 29—*Clermontia peleana*—c  
(6,845 ha, 16,914 ac)

(i) Unit consists of the following 29 boundary points: Start at 256704, 2173629; 258341, 2177012; 260142, 2179904; 261881, 2182923; 262993, 2182963; 264053, 2182050; 265872, 2181759; 266999, 2181195; 267018, 2180286; 266781, 2179777; 266454, 2179686; 265993, 2179903; 265443, 2179855; 264701, 2179425; 264030, 2179281; 263288, 2179209; 262953, 2178826; 262905, 2178084; 262761, 2177461; 262498, 2176480; 261708, 2175450; 262666, 2174828; 264380, 2174192; 265235, 2173756; 265744, 2172137; 265944, 2171082; 261670, 2170827; 257377, 2170773; 257013, 2171646; return to starting point.

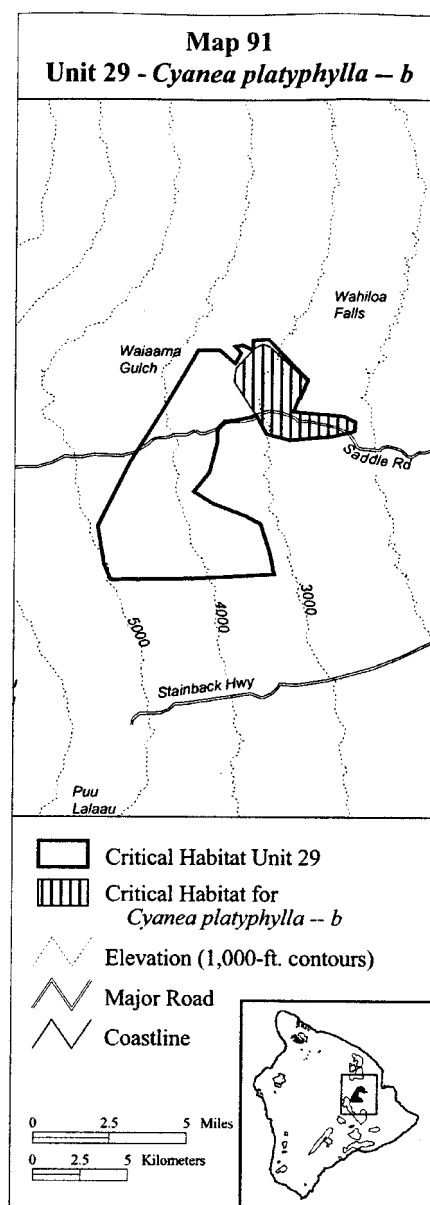
(ii) **Note:** Map 90 follows:



(91) Hawaii 29—*Cyanea platyphylla*—b  
(1,524 ha, 3,767 ac)

(i) Unit consists of the following 15 boundary points: Start at 270137, 2179182; 270117, 2178705; 269049, 2178426; 266707, 2178218; 265505, 2178550; 264852, 2179669; 264237, 2180565; 263774, 2181296; 263878, 2181980; 264821, 2183016; 265256, 2183296; 265629, 2183151; 267567, 2181379; 266904, 2179742; 269567, 2179503; return to starting point.

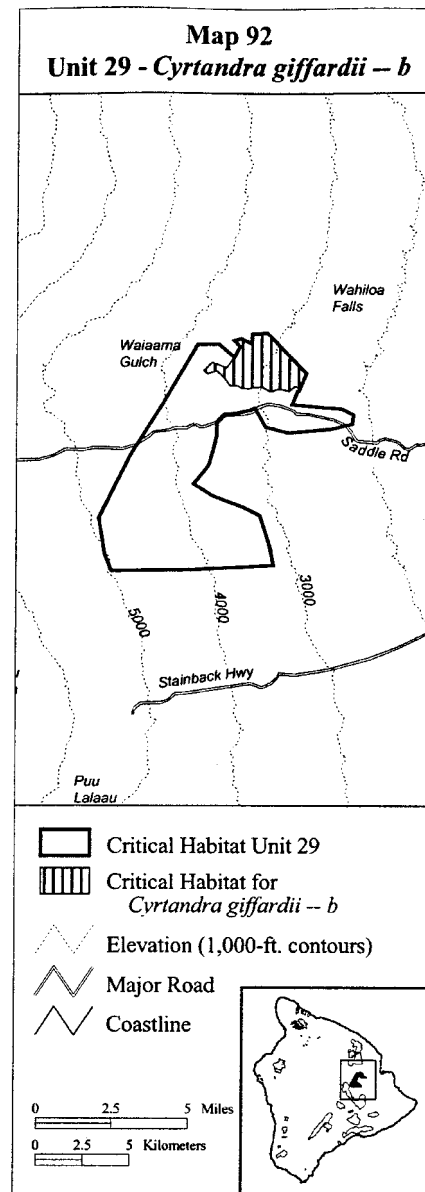
(ii) **Note:** Map 91 follows:



(92) Hawaii 29—*Cyrtandra giffardii*—b  
(938 ha, 2,319 ac)

(i) Unit consists of the following 28 boundary points: Start at 262416, 2181378; 262234, 2181545; 262682, 2181990; 263440, 2181695; 263960, 2182446; 264133, 2182822; 263843, 2183142; 264177, 2183241; 264755, 2182952; 264784, 2183472; 265594, 2183524; 267656, 2181395; 267302, 2180559; 267067, 2180712; 266763, 2180438; 266546, 2180496; 266214, 2180553; 265752, 2180423; 265275, 2180683; 264856, 2180640; 264596, 2180553; 264191, 2180611; 264018, 2180727; 263642, 2180727; 263367, 2181102; 263122, 2181334; 262891, 2181536; 262486, 2181377; return to starting point.

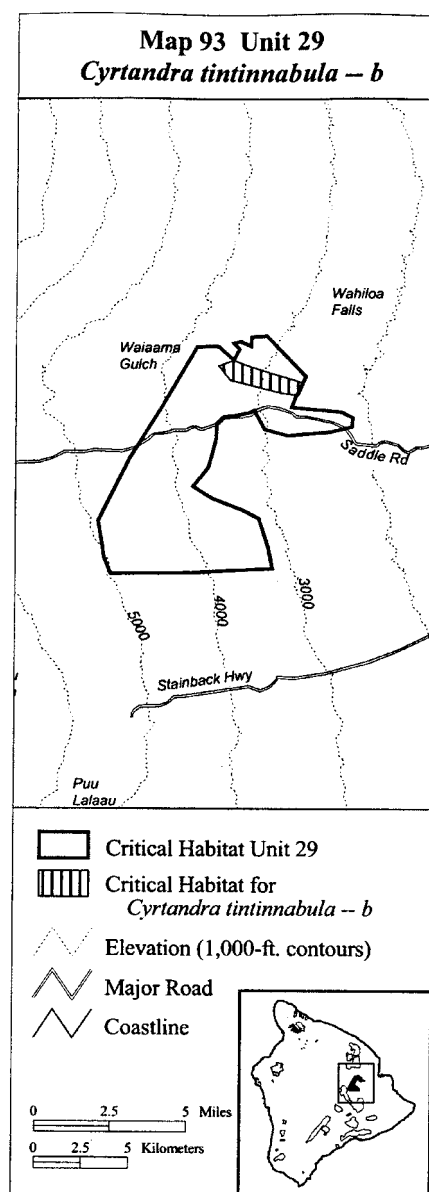
(ii) **Note:** Map 92 follows:



(93) Hawaii 29—*Cyrtandra tintinnabula*—b (378 ha, 934 ac)

(i) Unit consists of the following eight boundary points: Start at 267234, 2180396; 266451, 2180468; 263662, 2181160; 263032, 2181914; 263831, 2182224; 264610, 2181934; 265290, 2181716; 267462, 2181056; return to starting point.

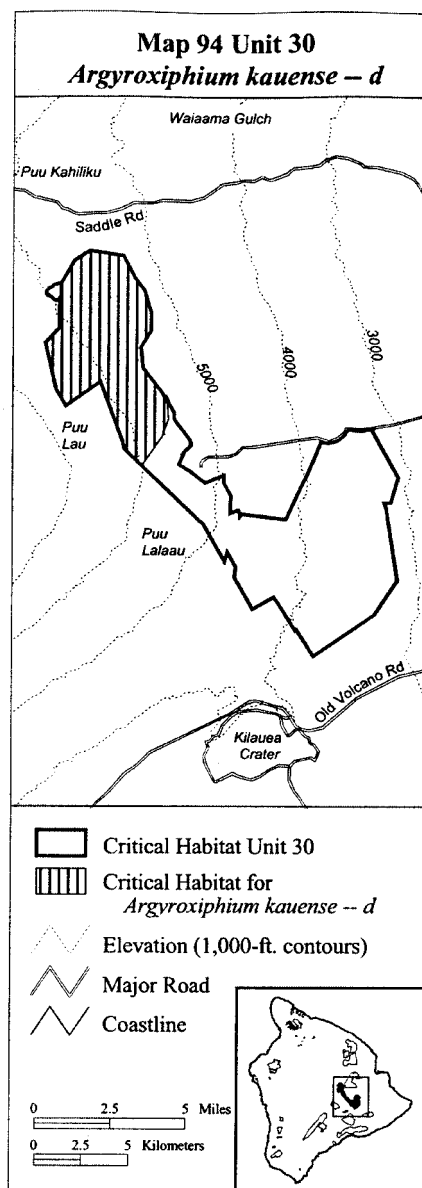
(ii) **Note:** Map 93 follows:



(94) Hawaii 30—*Argyroxiphium kauense*—d (4,281 ha, 10,578 ac)

(i) Unit consists of the following 35 boundary points: Start at 251376, 2166456; 250829, 2167375; 250254, 2169847; 250992, 2170628; 251020, 2172877; 251769, 2174236; 252605, 2174758; 254398, 2174497; 255008, 2173313; 255513, 2172668; 255879, 2171502; 255879, 2170492; 255339, 2169604; 255451, 2168509; 256441, 2167275; 256753, 2166610; 256810, 2165770; 256453, 2164780; 255495, 2163352; 255306, 2163361; 254541, 2164098; 254498, 2164137; 254481, 2164182; 254455, 2164255; 254449, 2164271; 254374, 2164589; 254004, 2165599; 253287, 2167525; 253238, 2167661; 253194, 2167785; 253194, 2167786; 253193, 2167786; 253192, 2167786; 253191, 2167786; 253146, 2167752; return to starting point.

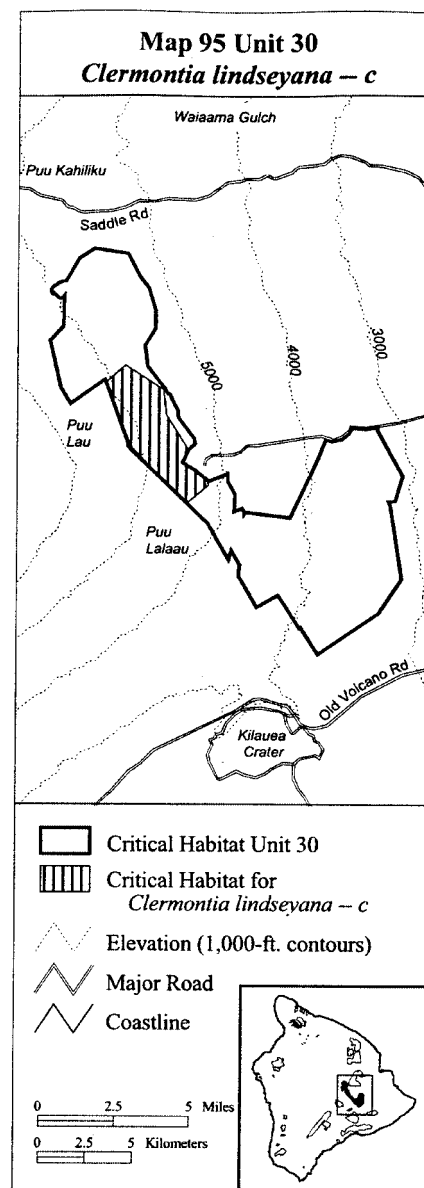
(ii) Note: Map 94 follows:



(95) Hawaii 30—*Clermontia lindseyana*—c (1,634 ha, 4,037 ac)

(i) Unit consists of the following 13 boundary points: Start at 254584, 2164181; 253305, 2167650; 254302, 2168554; 256320, 2167251; 256487, 2165898; 257687, 2164037; 257302, 2163331; 258133, 2162854; 258725, 2162386; 258756, 2162085; 257655, 2161172; 256263, 2162480; 255102, 2163686; return to starting point.

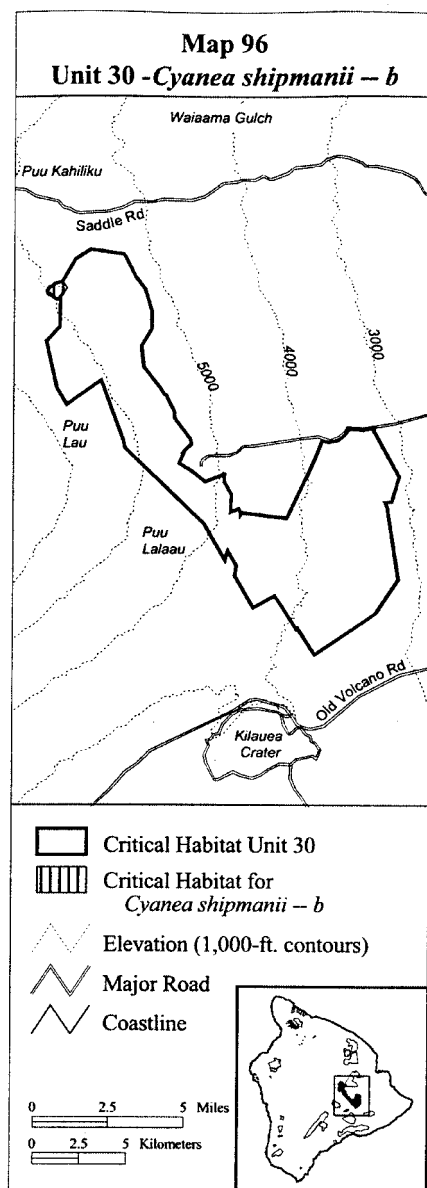
(ii) Note: Map 95 follows:



(96) Hawaii 30—*Cyanea shipmanii*—b (62 ha, 152 ac)

(i) Unit consists of the following 17 boundary points: Start at 250385, 2172716; 250588, 2172812; 250726, 2172919; 250993, 2173015; 251162, 2173040; 251356, 2172692; 251292, 2172620; 251217, 2172460; 251121, 2172321; 251014, 2172236; 250918, 2172140; 250790, 2172086; 250673, 2172161; 250545, 2172300; 250385, 2172332; 250300, 2172449; 250310, 2172535; return to starting point.

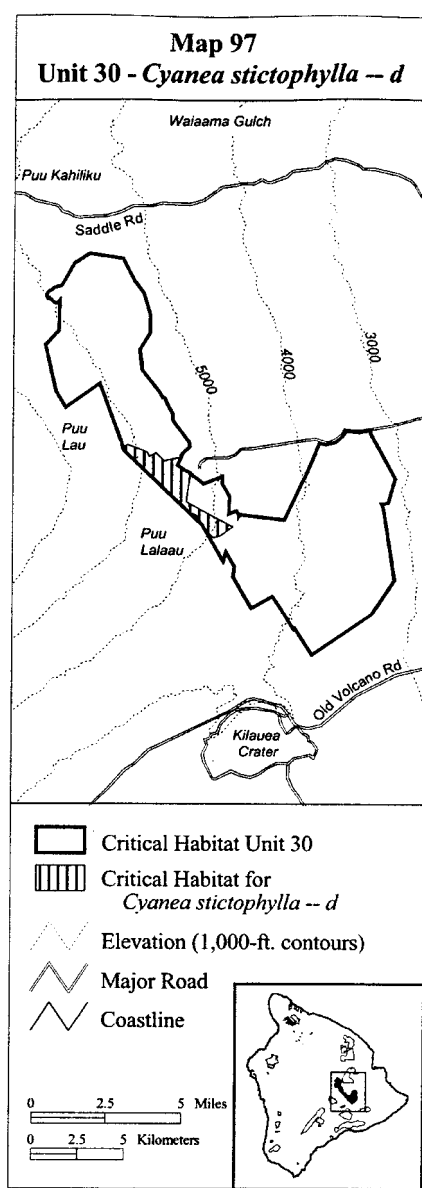
(ii) Note: Map 96 follows:



(97) Hawaii 30—*Cyanea shipmanii*—c  
(825 ha, 2,038 ac)

(i) Unit consists of the following 17 boundary points: Start at 254374, 2164589; 254004, 2165599; 253236, 2167756; 253128, 2168010; 254193, 2168432; 254246, 2168296; 254470, 2167400; 254649, 2167176; 255481, 2167289; 256666, 2167013; 256799, 2166728; 257113, 2166101; 257113, 2164936; 256396, 2164757; 255321, 2165116; 254559, 2165295; 254649, 2164623; return to starting point.

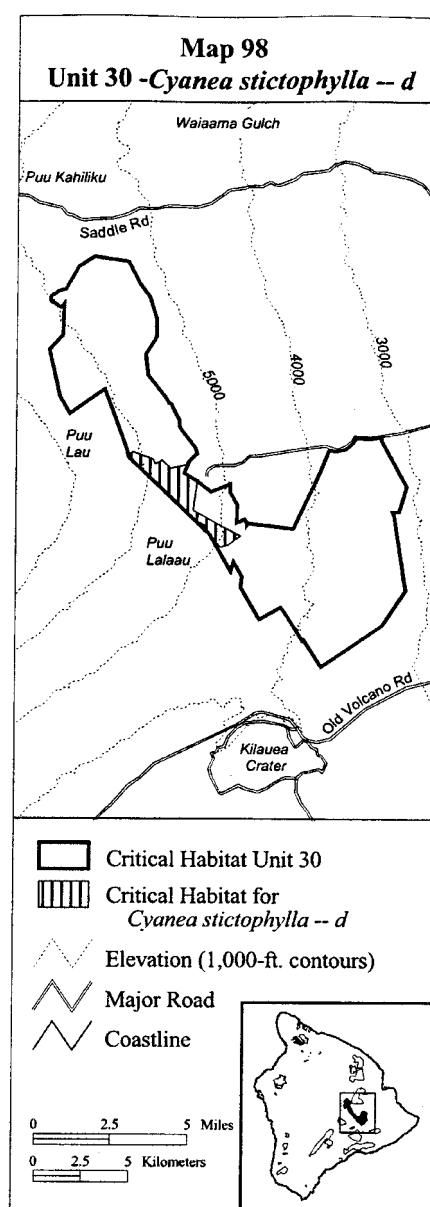
(ii) **Note:** Map 97 follows:



(98) Hawaii 30—*Cyanea stictophylla*—d  
(623 ha, 1,539 ac)

(i) Unit consists of the following 27 boundary points: Start at 254498, 2164341; 254727, 2164444; 255743, 2164078; 255868, 2163816; 256222, 2164021; 256656, 2163576; 257560, 2163785; 257352, 2163331; 258066, 2162902; 257844, 2161395; 257900, 2161317; 259249, 2160573; 260356, 2159979; 259695, 2159517; 259319, 2159380; 258898, 2159773; 258849, 2159861; 258810, 2159929; 258784, 2159981; 258755, 2160036; 258715, 2160077; 258688, 2160104; 258437, 2160584; 258243, 2160676; 258167, 2160673; 256128, 2162630; 254574, 2164116; return to starting point.

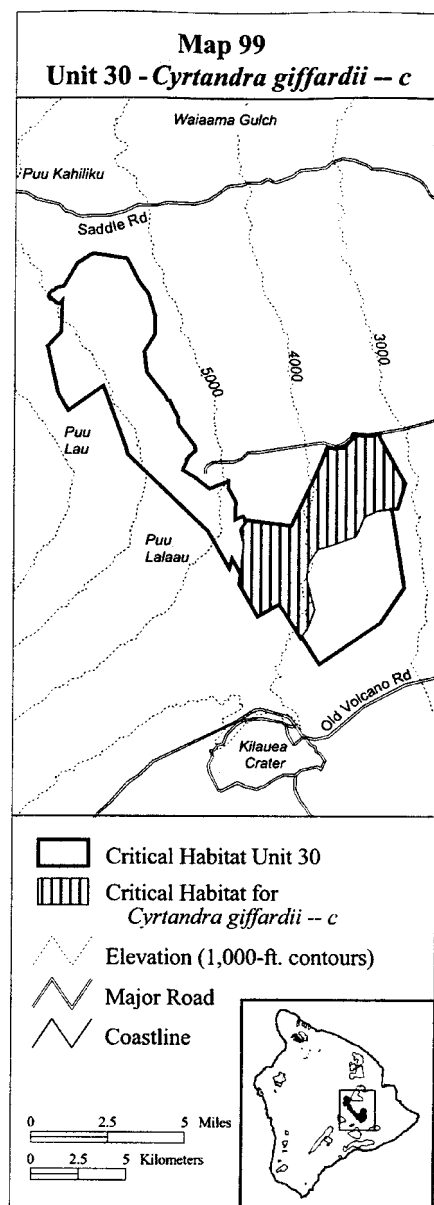
(ii) **Note:** Map 98 follows:



(99) Hawaii 30—*Cyrtandra giffardii*—c  
(3,872 ha, 9,567 ac)

(i) Unit consists of the following 28 boundary points: Start at 266492, 2165136; 267184, 2165097; 267638, 2165195; 269069, 2162612; 268669, 2161281; 267615, 2161161; 266924, 2160825; 266490, 2159798; 265048, 2159265; 264495, 2159127; 264001, 2158357; 263902, 2157567; 264357, 2155927; 263981, 2154960; 263634, 2154426; 262793, 2155728; 262477, 2156217; 261337, 2155564; 260360, 2157263; 260584, 2159423; 260367, 2160114; 260734, 2160659; 263088, 2160361; 264090, 2162500; 264176, 2162638; 264221, 2162790; 264951, 2164464; 265860, 2164445; return to starting point.

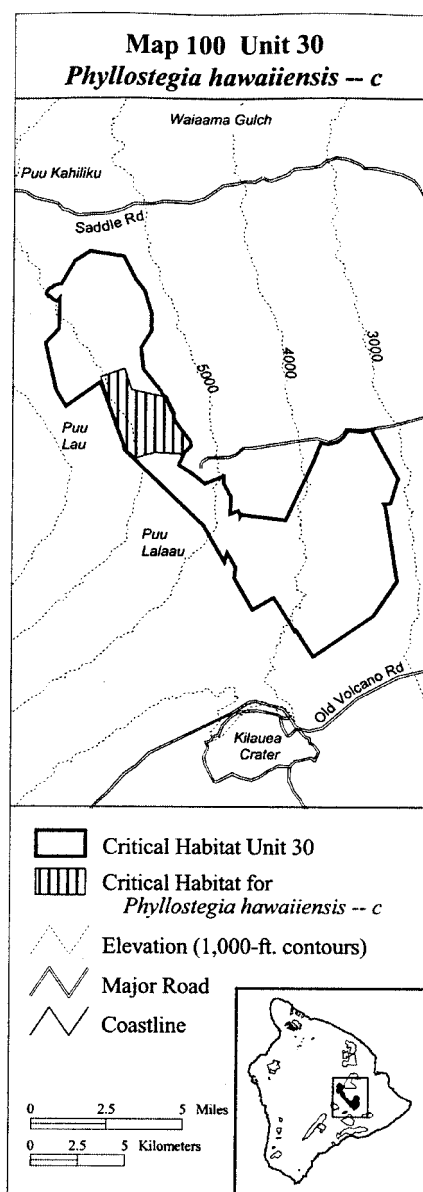
(ii) **Note:** Map 99 follows:



(100) Hawaii 30—*Phyllostegia racemosa*—c (267 ha, 659 ac)

(i) Unit consists of the following 10 boundary points: Start at 255001, 2163655; 256020, 2163968; 257634, 2163912; 257384, 2163319; 257871, 2163010; 257756, 2162804; 256542, 2162680; 256379, 2162447; 256238, 2162463; 256081, 2162615; return to starting point.

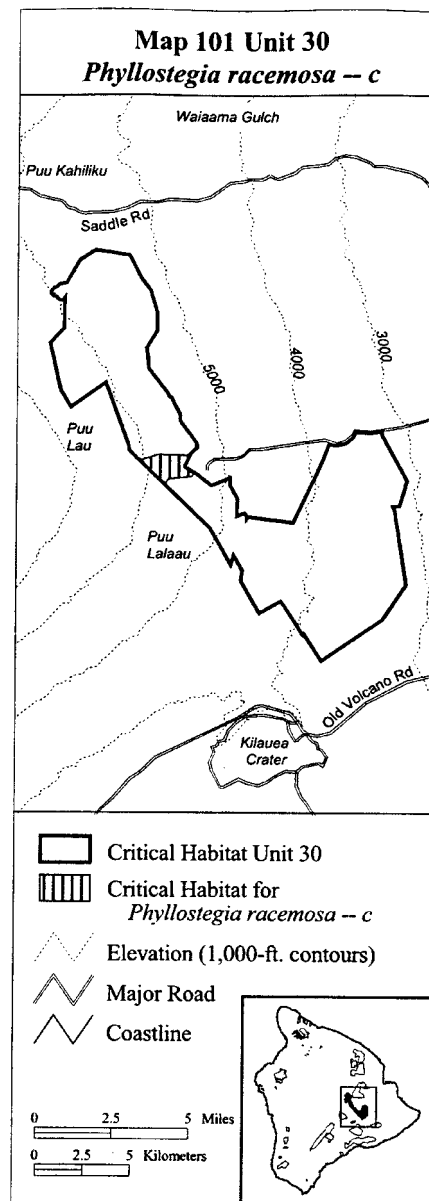
(ii) **Note:** Map 100 follows:



(101) Hawaii 30—*Phyllostegia velutina*—b (1,180 ha, 2,916 ac)

(i) Unit consists of the following 25 boundary points: Start at 255001, 2163655; 256020, 2163968; 257556, 2163812; 257342, 2163356; 258145, 2162834; 258761, 2162325; 259766, 2162727; 259792, 2162339; 260155, 2161636; 260142, 2160687; 260553, 2160880; 260676, 2160624; 260669, 2159628; 260010, 2158695; 259835, 2158111; 258895, 2159775; 258845, 2159864; 258808, 2159929; 258780, 2159981; 258748, 2160040; 258707, 2160080; 258644, 2160142; 258562, 2160221; 258544, 2160239; 256081, 2162615; return to starting point.

(ii) **Note:** Map 101 follows:

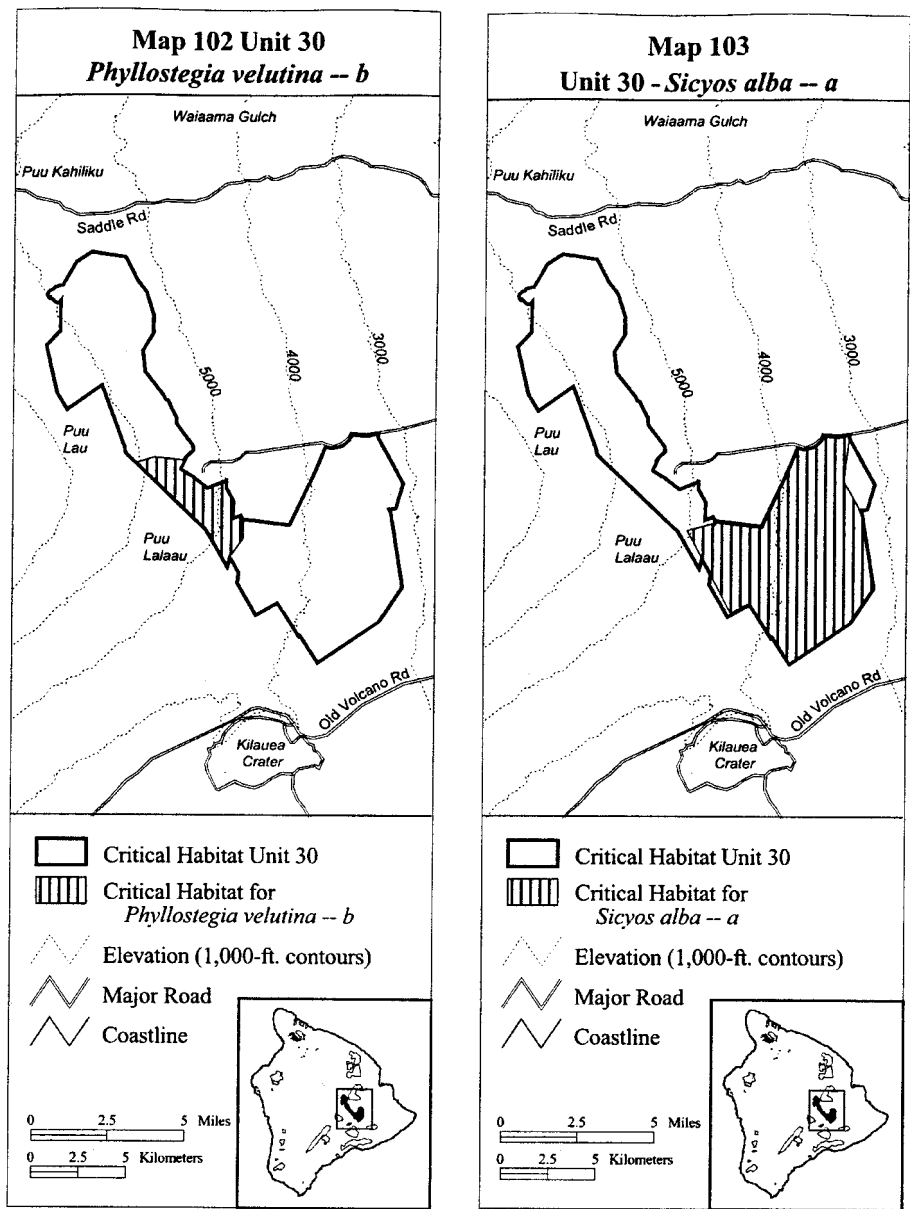


(102) Hawaii 30—*Plantago hawaiiensis*—c (1,219 ha, 3,012 ac)

(i) Unit consists of the following 13 boundary points: Start at 254476, 2168522; 254473, 2168510; 254874, 2167383; 256572, 2166997; 257174, 2165685; 257971, 2164620; 258044, 2164337; 257576, 2163925; 256125, 2164018; 255434, 2163788; 255099, 2163685; 254488, 2164250; 253207, 2168032; return to starting point.

(ii) **Note:** Map 102 follows:





(103) Hawaii 30—*Sicyos alba*—a (6,266 ha, 15,483 ac)

(i) Unit consists of the following 18 boundary points: Start at 266388, 2165221; 267132, 2165147; 267709, 2165277; 267412, 2162783; 268417, 2161049; 269013, 2157105; 267821, 2155262; 264606, 2153076; 262507, 2156298; 261492, 2155783; 259208, 2160114; 260710, 2160549; 263148, 2160288; 264210, 2162671; 264954, 2164570; 265289, 2164477; 265811, 2164588; 266183, 2164886; return to starting point.

(ii) **Note:** Map 103 follows:

(104) Table of Protected Species Within Each Critical Habitat Unit for the Island of Hawaii

Unit name	Species occupied	Species unoccupied
Hawaii 9— <i>Achyranthes mutica</i> —a .....	.....	<i>Achyranthes mutica</i> .
Hawaii 9— <i>Achyranthes mutica</i> —b .....	<i>Achyranthes mutica</i> .	

(104) Table of Protected Species Within Each Critical Habitat Unit for the Island of Hawaii—Continued

Unit name	Species occupied	Species unoccupied
Hawaii 9— <i>Achyranthes mutica</i> —c .....	.....	<i>Achyranthes mutica</i> .
Hawaii 9— <i>Achyranthes mutica</i> —d .....	.....	<i>Achyranthes mutica</i> .
Hawaii 9— <i>Achyranthes mutica</i> —e .....	.....	<i>Achyranthes mutica</i> .
Hawaii 9— <i>Achyranthes mutica</i> —f .....	.....	<i>Achyranthes mutica</i> .
Hawaii 9— <i>Achyranthes mutica</i> —g .....	.....	<i>Achyranthes mutica</i> .
Hawaii 9— <i>Achyranthes mutica</i> —h .....	.....	<i>Achyranthes mutica</i> .
Hawaii 9— <i>Achyranthes mutica</i> —i .....	.....	<i>Achyranthes mutica</i> .
Hawaii 9— <i>Achyranthes mutica</i> —j .....	.....	<i>Achyranthes mutica</i> .
Hawaii 28— <i>Adenophorus periens</i> —a .....	<i>Adenophorus periens</i> .	
Hawaii 10— <i>Argyroxiphium kauense</i> —a .....	.....	<i>Argyroxiphium kauense</i> .
Hawaii 24— <i>Argyroxiphium kauense</i> —b .....	<i>Argyroxiphium kauense</i> .	
Hawaii 25— <i>Argyroxiphium kauense</i> —c .....	<i>Argyroxiphium kauense</i> .	
Hawaii 30— <i>Argyroxiphium kauense</i> —d .....	<i>Argyroxiphium kauense</i> .	
Hawaii 24— <i>Asplenium fragile</i> var. <i>insulare</i> —a ..	<i>Asplenium fragile</i> var. <i>insulare</i> .	
Hawaii 10— <i>Bonamia menziesii</i> —a .....	.....	<i>Bonamia menziesii</i> .
Hawaii 8— <i>Clermontia drepanomorpha</i> —a .....	<i>Clermontia drepanomorpha</i> .	
Hawaii 1— <i>Clermontia lindseyana</i> —a .....	<i>Clermontia lindseyana</i> .	
Hawaii 2— <i>Clermontia lindseyana</i> —b .....	<i>Clermontia lindseyana</i> .	
Hawaii 30— <i>Clermontia lindseyana</i> —c .....	<i>Clermontia lindseyana</i> .	
Hawaii 1— <i>Clermontia peleana</i> —a .....	<i>Clermontia peleana</i> .	
Hawaii 3— <i>Clermontia peleana</i> —b .....	<i>Clermontia peleana</i> .	
Hawaii 29— <i>Clermontia peleana</i> —c .....	<i>Clermontia peleana</i> .	
Hawaii 1— <i>Clermontia pyrrularia</i> —a .....	.....	<i>Clermontia pyrrularia</i> .
Hawaii 2— <i>Clermontia pyrrularia</i> —b .....	<i>Clermontia pyrrularia</i> .	
Hawaii 10— <i>Colubrina oppositifolia</i> —a .....	<i>Colubrina oppositifolia</i> .	
Hawaii 18— <i>Colubrina oppositifolia</i> —b .....	<i>Colubrina oppositifolia</i> .	
Hawaii 11— <i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> —a.	<i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> .	
Hawaii 14— <i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> —b.	.....	<i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> .
Hawaii 15— <i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> —c.	.....	<i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> .
Hawaii 16— <i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> —d.	<i>Cyanea hamatiflora</i> ssp. <i>carlsonii</i> .	
Hawaii 3— <i>Cyanea platyphylla</i> —a .....	<i>Cyanea platyphylla</i> .	
Hawaii 29— <i>Cyanea platyphylla</i> —b .....	<i>Cyanea platyphylla</i> .	
Hawaii 1— <i>Cyanea shipmanii</i> —a .....	<i>Cyanea shipmanii</i> .	
Hawaii 30— <i>Cyanea shipmanii</i> —b .....	<i>Cyanea shipmanii</i> .	
Hawaii 30— <i>Cyanea shipmanii</i> —c .....	.....	<i>Cyanea shipmanii</i> .
Hawaii 15— <i>Cyanea stictophylla</i> —a .....	<i>Cyanea stictophylla</i> .	
Hawaii 16— <i>Cyanea stictophylla</i> —b .....	<i>Cyanea stictophylla</i> .	
Hawaii 24— <i>Cyanea stictophylla</i> —c .....	.....	<i>Cyanea stictophylla</i> .
Hawaii 30— <i>Cyanea stictophylla</i> —d .....	.....	<i>Cyanea stictophylla</i> .
Hawaii 3— <i>Cyrtandra giffardii</i> —a .....	<i>Cyrtandra giffardii</i> .	
Hawaii 29— <i>Cyrtandra giffardii</i> —b .....	.....	<i>Cyrtandra giffardii</i> .
Hawaii 30— <i>Cyrtandra giffardii</i> —c .....	<i>Cyrtandra giffardii</i> .	
Hawaii 3— <i>Cyrtandra tintinnabula</i> —a .....	<i>Cyrtandra tintinnabula</i> .	
Hawaii 29— <i>Cyrtandra tintinnabula</i> —b .....	.....	<i>Cyrtandra tintinnabula</i> .
Hawaii 10— <i>Delissea undulata</i> —a .....	.....	<i>Delissea undulata</i> .
Hawaii 10— <i>Delissea undulata</i> —b .....	<i>Delissea undulata</i> .	
Hawaii 17— <i>Diellia erecta</i> —a .....	<i>Diellia erecta</i> .	
Hawaii 18— <i>Diellia erecta</i> —b .....	<i>Diellia erecta</i> .	
Hawaii 17— <i>Flueggea neowawraea</i> —a .....	<i>Flueggea neowawraea</i> .	
Hawaii 18— <i>Flueggea neowawraea</i> —b .....	<i>Flueggea neowawraea</i> .	
Hawaii 18— <i>Gouania vitifolia</i> —a .....	<i>Gouania vitifolia</i> .	
Hawaii 26— <i>Hibiscadelphus giffardianus</i> —a .....	<i>Hibiscadelphus giffardianus</i> .	
Hawaii 10— <i>Hibiscadelphus hualalaiensis</i> —a .....	<i>Hibiscadelphus hualalaiensis</i> .	
Hawaii 10— <i>Hibiscus brackenridgei</i> —a .....	<i>Hibiscus brackenridgei</i> .	
Hawaii 21— <i>Ischaemum byrnone</i> —a .....	.....	<i>Ischaemum byrnone</i> .
Hawaii 22— <i>Ischaemum byrnone</i> —b .....	<i>Ischaemum byrnone</i> .	
Hawaii 4— <i>Isodendron hosakae</i> —a .....	.....	<i>Isodendron hosakae</i> .
Hawaii 4— <i>Isodendron hosakae</i> —b .....	.....	<i>Isodendron hosakae</i> .
Hawaii 4— <i>Isodendron hosakae</i> —c .....	.....	<i>Isodendron hosakae</i> .
Hawaii 4— <i>Isodendron hosakae</i> —d .....	.....	<i>Isodendron hosakae</i> .
Hawaii 4— <i>Isodendron hosakae</i> —e .....	.....	<i>Isodendron hosakae</i> .
Hawaii 4— <i>Isodendron hosakae</i> —f .....	<i>Isodendron hosakae</i> .	
Hawaii 19— <i>Mariscus fauriei</i> —a .....	<i>Mariscus fauriei</i> .	
Hawaii 24— <i>Melicope zahlbruckneri</i> —a .....	.....	<i>Melicope zahlbruckneri</i> .
Hawaii 26— <i>Melicope zahlbruckneri</i> —b .....	<i>Melicope zahlbruckneri</i> .	
Hawaii 10— <i>Neraudia ovata</i> —a .....	.....	<i>Neraudia ovata</i> .
Hawaii 18— <i>Neraudia ovata</i> —d .....	<i>Neraudia ovata</i> .	
Hawaii 5— <i>Nothocestrum breviflorum</i> —a .....	.....	<i>Nothocestrum breviflorum</i> .

(104) Table of Protected Species Within Each Critical Habitat Unit for the Island of Hawaii—Continued

Unit name	Species occupied	Species unoccupied
Hawaii 6— <i>Nothocestrum breviflorum</i> —b .....	<i>Nothocestrum breviflorum</i> .	<i>Phyllostegia racemosa</i> .
Hawaii 10— <i>Nothocestrum breviflorum</i> —c .....	<i>Nothocestrum breviflorum</i> .	
Hawaii 1— <i>Phyllostegia racemosa</i> —a .....	<i>Phyllostegia racemosa</i> .	
Hawaii 2— <i>Phyllostegia racemosa</i> —b .....	<i>Phyllostegia racemosa</i> .	
Hawaii 30— <i>Phyllostegia racemosa</i> —c .....	.....	
Hawaii 24— <i>Phyllostegia velutina</i> —a .....	<i>Phyllostegia velutina</i> .	
Hawaii 30— <i>Phyllostegia velutina</i> —b .....	<i>Phyllostegia velutina</i> .	
Hawaii 3— <i>Phyllostegia warshaueri</i> —a .....	<i>Phyllostegia warshaueri</i> .	
Hawaii 8— <i>Phyllostegia warshaueri</i> —b .....	<i>Phyllostegia warshaueri</i> .	
Hawaii 24— <i>Plantago hawaiiensis</i> —a .....	<i>Plantago hawaiiensis</i> .	
Hawaii 25— <i>Plantago hawaiiensis</i> —b .....	<i>Plantago hawaiiensis</i> .	
Hawaii 30— <i>Plantago hawaiiensis</i> —c .....	<i>Plantago hawaiiensis</i> .	
Hawaii 7— <i>Pleomele hawaiiensis</i> —a .....	<i>Pleomele hawaiiensis</i> .	
Hawaii 10— <i>Pleomele hawaiiensis</i> —b .....	<i>Pleomele hawaiiensis</i> .	
Hawaii 18— <i>Pleomele hawaiiensis</i> —c .....	<i>Pleomele hawaiiensis</i> .	
Hawaii 23— <i>Pleomele hawaiiensis</i> —d .....	<i>Pleomele hawaiiensis</i> .	
Hawaii 27— <i>Portulaca sclerocarpa</i> —a .....	<i>Portulaca sclerocarpa</i> .	
Hawaii 20— <i>Sesbania tomentosa</i> —a .....	<i>Sesbania tomentosa</i> .	
Hawaii 23— <i>Sesbania tomentosa</i> —b .....	<i>Sesbania tomentosa</i> .	
Hawaii 30— <i>Sicyos alba</i> —a .....	<i>Sicyos alba</i> .	
Hawaii 25— <i>Silene hawaiiensis</i> —a .....	<i>Silene hawaiiensis</i> .	<i>Solanum incompletum</i> . <i>Solanum incompletum</i> . <i>Vigna o-wahuensis</i> . <i>Vigna o-wahuensis</i> . <i>Vigna o-wahuensis</i> .
Hawaii 27— <i>Silene hawaiiensis</i> —b .....	<i>Silene hawaiiensis</i> .	
Hawaii 10— <i>Solanum incompletum</i> —a .....	.....	
Hawaii 11— <i>Solanum incompletum</i> —b .....	.....	
Hawaii 4— <i>Vigna o-wahuensis</i> —a .....	.....	
Hawaii 4— <i>Vigna o-wahuensis</i> —b .....	.....	
Hawaii 4— <i>Vigna o-wahuensis</i> —c .....	.....	
Hawaii 10— <i>Zanthoxylum dipetalum</i> ssp. <i>tomentosum</i> —a.	<i>Zanthoxylum dipetalum</i> ssp. <i>tomentosum</i> .	

(105) Critical habitat unit descriptions and maps, and a description of primary constituent elements, for Family Malvaceae: *Kokia drynariodes* on the island of Hawaii is provided in 50 CFR 17.96(a).

(l) *Plants on the island of Hawaii; Constituent elements.*

(1) *Flowering plants.*

**Family Amaranthaceae: *Achyranthes mutica* (NCN)**

Hawaii 9—*Achyranthes mutica*—a, Hawaii 9—*Achyranthes mutica*—b, Hawaii 9—*Achyranthes mutica*—c, Hawaii 9—*Achyranthes mutica*—d, Hawaii 9—*Achyranthes mutica*—e, Hawaii 9—*Achyranthes mutica*—f, Hawaii 9—*Achyranthes mutica*—g, Hawaii 9—*Achyranthes mutica*—h, Hawaii 9—*Achyranthes mutica*—i, Hawaii 9—*Achyranthes mutica*—j, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Achyranthes mutica* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Acacia koaia* lowland dry forest, primarily in gulches but also in remnant stands of forest, and containing one or more of the following associated native plant species: *Dodonaea viscosa*, *Erythrina sandwicensis*, *Metrosideros*

*polymorpha*, *Myoporum sandwicense*, *Osteomeles anthyllidifolia*, *Nestegis sandwicensis*, *Santalum ellipticum*, or *Sophora chrysophylla*; and

(ii) Elevations between 646 and 1,509 m (2,120 and 4,949 ft).

**Family Asteraceae: *Argyroxiphium kauense* (Mauna Loa silversword)**

Hawaii 10—*Argyroxiphium kauense*—a, Hawaii 24—*Argyroxiphium kauense*—b, Hawaii 25—*Argyroxiphium kauense*—c, and Hawaii 30—*Argyroxiphium kauense*—d, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Argyroxiphium kauense* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Moist, open forest; subalpine mesic shrubland; bogs; and weathered, old pahoe-hoe (smooth) or aa (rough) lava with well-developed pockets of soil, and containing one or more of the following associated native plant species:

*Asplenium peruvianum* var. *insulare*, *Carex alligata*, *Carex* sp., *Coprosma ernodeoides*, *Coprosma montana*, *Deschampsia nubigena*, *Dodonaea viscosa*, *Dubautia ciliolata*, *Gahnia gahniiformis*, *Geranium cuneatum*, *Leptecophylla tameiameia*, *Metrosideros polymorpha*, *Plantago hawaiiensis*, *Rhynchospora chinensis*,

*Silene hawaiiensis*, or *Vaccinium reticulatum*; and

(ii) Elevations between 1,583 and 2,246 m (5,193 and 8,024 ft).

**Family Campanulaceae: *Clermontia drepanomorpha* (oha wai)**

Hawaii 8—*Clermontia drepanomorpha*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Clermontia drepanomorpha* on Hawaii. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Metrosideros polymorpha*, *Cheirodendron trigynum*, and *Cibotium glaucum* dominated montane wet forests, containing one or more of the following native plant species: *Astelias menziesiana*, *Carex alligata*, *Coprosma* sp., *Cyanea pilosa*, *Leptecophylla tameiameia*, *Melicope clusiifolia*, and *Rubus hawaiiensis*, or sphagnum moss; and

(ii) Elevations between 1,106 and 1,676 m (3,627 and 5,459 ft).

**Family Campanulaceae: *Clermontia lindseyana* (oha wai)**

Hawaii 1—*Clermontia lindseyana*—a, Hawaii 2—*Clermontia lindseyana*—b, and Hawaii 30—*Clermontia lindseyana*—c, identified in the legal descriptions in paragraph (k) of this

section, constitute critical habitat for *Clermontia lindseyana* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Slightly open forest cover in wet and mesic *Metrosideros polymorpha*-*Acacia koa* forest, *M. polymorpha* forest, and mixed montane mesic *M. polymorpha*-*Acacia koa* forest and containing one or more of the following associated native plant species: *Athyrium* sp., *Cheirodendron trigynum*, *Coprosma* sp., *Leptecophylla tameiameia*, *Peperomia* sp., or *Rubus hawaiiensis*; and

(ii) Elevations between 1,495 and 1,953 m (4,906 and 6,407 ft).

**Family Campanulaceae: *Clermontia peleana* (oha wai)**

Hawaii 1—*Clermontia peleana*—a, Hawaii 3—*Clermontia peleana*—b, and Hawaii 29—*Clermontia peleana*—c, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Clermontia peleana* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Montane, wet *Metrosideros*-*Cibotium* forest containing one or more of the following associated native plant species: *Cheirodendron trigynum*, *Cibotium chamissoi*, *Cibotium menziesii*, *Clermontia hawaiiensis*, *Coprosma pubens*, *Cyrtandra platyphylla*, *Ilex anomala*, or *Sadleria* spp.; and

(ii) Elevations between 663 and 1,622 m (2,175 and 5,321 ft).

**Family Campanulaceae: *Clermontia pyrularia* (oha wai)**

Hawaii 1—*Clermontia pyrularia*—a and Hawaii 2—*Clermontia pyrularia*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Clermontia pyrularia* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Wet and mesic montane forest dominated by *Acacia koa* or *Metrosideros polymorpha*, and subalpine dry forest dominated by *M. polymorpha*, and containing one or more of the following associated native plant species: *Coprosma* sp., *Dryopteris wallichiana*, *Hedyotis* sp., or *Rubus hawaiiensis*; and

(ii) Elevations between 1,652 and 2,026 m (5,416 to 6,646 ft).

**Family Campanulaceae: *Cyanea hamatiflora* ssp. *carlsonii* (haha)**

Hawaii 11—*Cyanea hamatiflora* ssp. *carlsonii*—a, Hawaii 14—*Cyanea hamatiflora* ssp. *carlsonii*—b, Hawaii 15—*Cyanea hamatiflora* ssp. *carlsonii*—c, and Hawaii 16—*Cyanea hamatiflora* ssp. *carlsonii*—d, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Cyanea hamatiflora* ssp. *carlsonii* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Mesic montane forest dominated by *Acacia koa* or *Metrosideros polymorpha*, and containing one or more of the following associated native plant species: *Athyrium* sp., *Cibotium* spp., *Clermontia clermontioides*, *Coprosma* sp., *Dryopteris* sp., *Hedyotis* sp., *Ilex anomala*, *Myoporum sandwicense*, or *Sophora chrysophylla*; and

(ii) Elevations between 1,366 and 1,755 m (4,482 and 5,759 ft).

**Family Campanulaceae: *Cyanea platyphylla* (haha)**

Hawaii 3—*Cyanea platyphylla*—a and Hawaii 29—*Cyanea platyphylla*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Cyanea platyphylla* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Metrosideros polymorpha*-*Acacia koa* lowland and montane wet forests, containing one or more of the following associated native plant species: *Antidesma platyphyllum*, *Cibotium* sp., *Clermontia* spp., *Coprosma* sp., *Cyrtandra* spp., *Hedyotis* sp., *Perrottetia sandwicensis*, *Psychotria hawaiiensis*, or *Scaevola* spp.; and

(ii) Elevations between 615 and 1,082 m (2,017 and 3,551 ft).

**Family Campanulaceae: *Cyanea shipmanii* (haha)**

Hawaii 1—*Cyanea shipmanii*—a, Hawaii 30—*Cyanea shipmanii*—b, and Hawaii 30—*Cyanea shipmanii*—c, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Cyanea shipmanii* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Montane mesic forest dominated by *Acacia koa*-*Metrosideros polymorpha*

and containing one or more of the following associated native plant species: *Cheirodendron trigynum*, *Ilex anomala*, or *Myrsine lessertiana*; and

(ii) Elevations between 1,629 and 2,025 m (5,345 and 6,645 ft).

**Family Campanulaceae: *Cyanea stictophylla* (haha)**

Hawaii 15—*Cyanea stictophylla*—a, Hawaii 16—*Cyanea stictophylla*—b, Hawaii 24—*Cyanea stictophylla*—c, and Hawaii 30—*Cyanea stictophylla*—d, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Cyanea stictophylla* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Acacia koa* or wet *Metrosideros polymorpha* forests, containing one or more of the following associated native plant species: *Cibotium* sp., *Melicope* spp., or *Urera glabra*; and

(ii) Between elevations of 1,056 and 1,917 m (3,466 and 6,288 ft).

**Family Campanulaceae: *Delissea undulata* (NCN)**

Hawaii 10—*Delissea undulata*—a and Hawaii 10—*Delissea undulata*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Delissea undulata* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Dry cinder cones and open *Metrosideros polymorpha* and *Sophora chrysophylla* forest, and containing one or more of the following associated native plant species: *Acacia koa*, *Diospyros sandwicensis*, *Dodonaea viscosa*, *Nothocestrum breviflorum*, *Psychotria* spp., *Santalum paniculatum*, or *Sophora chrysophylla*; and

(ii) Elevations between 893 to 1,734 m (2,928 to 5,690 ft).

**Family Caryophyllaceae: *Silene hawaiiensis* (NCN)**

Hawaii 25—*Silene hawaiiensis*—a and Hawaii 27—*Silene hawaiiensis*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Silene hawaiiensis* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Weathered lava or variously aged lava flows and cinder substrates in montane and subalpine dry shrubland containing one or more of the following

associated native plant species: *Dodonaea viscosa*, *Leptecophylla tameiameia*, *Metrosideros polymorpha*, *Rumex giganteus*, *Sophora chrysophylla*, or *Vaccinium reticulatum*; and

(ii) Elevations between 1,022 and 2,413 m (3,352 and 7,915 ft).

**Family Convolvulaceae: *Bonamia menziesii* (NCN)**

Hawaii 10—*Bonamia menziesii*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Bonamia menziesii* on Hawaii. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Dry forest, containing one or more of the following associated native plant species: *Argemone glauca*, *Canavalia hawaiiensis*, *Chenopodium oahuense*, *Diospyros sandwicensis*, *Dodonaea viscosa*, *Erythrina sandwicensis*, *Metrosideros polymorpha*, *Myrsine lanaiensis*, *Nototrichium sandwicense*, *Osteomeles anthyllidifolia*, *Peperomia blanda* var. *floribunda*, *Pouteria sandwicensis*, *Psilotum nudum*, *Santalum paniculatum*, *Sapindus saponaria*, *Senna gaudichaudii*, *Sida fallax*, *Sophora chrysophylla*, or *Xylosma hawaiiense*; and

(ii) Elevations between 492 and 697 m (1,614 and 2,285 ft).

**Family Cucurbitaceae: *Sicyos alba* (anunu)**

Hawaii 30—*Sicyos alba*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Sicyos alba* on Hawaii. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Metrosideros polymorpha-Cibotium glaucum* dominated montane wet forests, containing one or more of the following associated native plant species: *Astelias menziesiana*, *Athyrium microphyllum* and other ferns, *Broussaisia arguta*, *Cheirodendron trigynum*, *Coprosma* sp., *Cyanea tritomantha*, *Cyrtandra lysiosepala*, *Perrottetia sandwicensis*, *Platydesma spathulata*, *Pritchardia beccariana*, *Psychotria* sp., or *Stenogyne* sp.; and

(ii) Elevations between 966 and 1,546 m (3,170 and 5,072 ft).

**Family Cyperaceae: *Mariscus fauriei* (NCN)**

Hawaii 19—*Mariscus fauriei*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Mariscus fauriei* on

Hawaii. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Diospyros sandwicensis-Metrosideros polymorpha-Sapindus saponaria* dominated lowland dry forests, often on a lava substrate, and containing one or more of the following associated native plant species: *Myoporum sandwicense*, *Osteomeles anthyllidifolia*, *Peperomia blanda* var. *floribunda*, *Psydrax odorata*, *Rauvolfia sandwicensis*, or *Sophora chrysophylla*; and

(ii) Elevations between 278 and 342 m (913 and 1,123 ft).

**Family Euphorbiaceae: *Flueggea neowawraea* (mehamehame)**

Hawaii 17—*Flueggea neowawraea*—a and Hawaii 18—*Flueggea neowawraea*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Flueggea neowawraea* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Mesic *Metrosideros polymorpha* forest, containing one or more of the following associated native plant species: *Antidesma platyphyllum*, *Antidesma pulvinatum*, *Diospyros sandwicensis*, *Nephrolepis* spp., *Nestegis sandwicensis*, *Pipturus albidus*, *Pisonia* spp., *Pittosporum hosmeri*, *Psychotria hawaiiensis*, or *Psydrax odorata*; and

(ii) Elevations between 499 and 818 m (1,637 and 2,684 ft).

**Family Fabaceae: *Sesbania tomentosa* (ohai)**

Hawaii 20—*Sesbania tomentosa*—a and Hawaii 23—*Sesbania tomentosa*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Sesbania tomentosa* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Open, dry *Metrosideros polymorpha* forest with mixed native grasses, *Scaevola taccada* coastal dry shrubland on windswept slopes, and weathered basaltic slopes, and containing one or more of the following associated native plant species: *Dodonaea viscosa*, *Fimbristylis hawaiiensis*, *Ipomoea pes-caprae*, *Jacquemontia ovalifolia* ssp. *sandwicensis*, *Leptecophylla tameiameia*, *Melanthera integrifolia*, *Myoporum sandwicense*, *Sida fallax*,

*Sporobolus virginicus*, or *Waltheria indica*; and

(ii) Elevations between sea level and 922 m (0 and 3,025 ft).

**Family Fabaceae: *Vigna o-wahuensis* (NCN)**

Hawaii 4—*Vigna o-wahuensis*—a, Hawaii 4—*Vigna o-wahuensis*—b, and Hawaii 4—*Vigna o-wahuensis*—c, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Vigna o-wahuensis* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Dodonaea viscosa* lowland dry shrubland, containing one or more of the following associated native plant species: *Chenopodium oahuense*, *Dodonaea viscosa*, *Osteomeles anthyllidifolia*, *Sida fallax*, or *Wikstroemia* sp.; and

(ii) Elevations between 717 and 993 m (2,352 and 3,259 ft).

**Family Gesneriaceae: *Cyrtandra giffardii* (haiwale)**

Hawaii 3—*Cyrtandra giffardii*—a, Hawaii 29—*Cyrtandra giffardii*—b, and Hawaii 30—*Cyrtandra giffardii*—c, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Cyrtandra giffardii* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Wet montane forest dominated by *Cibotium* sp. or *Metrosideros polymorpha*, and *Metrosideros polymorpha-Acacia koa* lowland wet forests, and containing one or more of the following associated native plant species: *Astelias menziesiana*, *Diplazium sandwicense*, *Hedyotis terminalis*, *Perrottetia sandwicensis*, or other species of *Cyrtandra*; and

(ii) Between elevations of 654 and 1,440 m (2,146 and 4,723 ft).

**Family Gesneriaceae: *Cyrtandra tintinnabula* (haiwale)**

Hawaii 3—*Cyrtandra tintinnabula*—a and Hawaii 29—*Cyrtandra tintinnabula*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Cyrtandra tintinnabula* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Lowland wet forest dominated by dense *Acacia koa*, *Metrosideros polymorpha*, and *Cibotium* spp. and

containing one or more of the following associated native plant species:

*Cyrtandra* spp. or *Hedyotis* spp.; and  
(ii) Between elevations 641 and 1,391 m (2,102 and 4,565 ft).

**Family Lamiaceae: *Phyllostegia racemosa* (kiponapona)**

Hawaii 1—*Phyllostegia racemosa*—a, Hawaii 2—*Phyllostegia racemosa*—b, and Hawaii 30—*Phyllostegia racemosa*—c, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Phyllostegia racemosa* on Hawaii.

Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Tree trunks in *Acacia koa*, *Metrosideros polymorpha*, and *Cibotium* sp. dominated montane mesic or wet forests and containing one or more of the following associated native plant species: *Dryopteris wallichiana*, *Rubus hawaiiensis*, or *Vaccinium calycinum*; and

(ii) Elevations between 1,371 and 1,935 m (4,498 and 6,349 ft).

**Family Lamiaceae: *Phyllostegia velutina* (NCN)**

Hawaii 24—*Phyllostegia velutina*—a and Hawaii 30—*Phyllostegia velutina*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Phyllostegia velutina* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Metrosideros polymorpha*-*Acacia koa* dominated montane mesic and wet forests containing one or more of the following native plant species: *Athyrium microphyllum* and other native wet forest terrestrial ferns, *Cheirodendron trigynum*, *Cibotium* spp., *Coprosma* sp., *Dryopteris wallichiana*, *Ilex anomala*, *Myrsine lessertiana*, *Pipturus albidus*, *Rubus hawaiiensis*, or *Vaccinium calycinum*; and

(ii) Elevations between 966 and 1,881 m (3,168 and 6,170 ft).

**Family Lamiaceae: *Phyllostegia warshaueri* (NCN)**

Hawaii 3—*Phyllostegia warshaueri*—a and Hawaii 8—*Phyllostegia warshaueri*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Phyllostegia warshaueri* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Metrosideros polymorpha* and *Cibotium* montane and lowland wet forest, in which *Acacia koa* or *Cheirodendron trigynum* may co-dominate, and containing one or more of the following associated native plant species: *Antidesma platyphyllum*, *Athyrium sandwicensis*, *Broussaisia arguta*, *Clermontia parviflora*, *Coprosma* sp., *Cyanea pilosa*, *Cyanea* spp., *Hedyotis* sp., *Machaerina angustifolia*, *Pipturus albidus*, *Psychotria hawaiiensis*, or *Sadleria pallida*; and

(ii) Elevations between 681 and 1,411 m (2,234 and 4,629 ft).

**Family Liliaceae: *Pleomele hawaiiensis* (hala pepe)**

Hawaii 7—*Pleomele hawaiiensis*—a, Hawaii 10—*Pleomele hawaiiensis*—b, Hawaii 18—*Pleomele hawaiiensis*—c, and Hawaii 23—*Pleomele hawaiiensis*—d, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Pleomele hawaiiensis* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Open aa lava in diverse lowland dry forests and *Metrosideros-Diospyros* lowland dry forest, and containing one or more of the following associated native plant species: *Bidens micrantha* ssp. *ctenophylla*, *Bobea timonioides*, *Caesalpinia kavaensis*, *Cocculus trilobus*, *Colubrina oppositifolia*, *Diospyros sandwicensis*, *Dodonaea viscosa*, *Erythrina sandwicensis*, *Kokia drynarioides*, *Metrosideros polymorpha*, *Myoporum sandwicense*, *Neraudia ovata*, *Nestegis sandwicensis*, *Nothocestrum breviflorum*, *Nototrichium sandwicense*, *Osteomeles anthyllidifolia*, *Psydrax odorata*, *Reynoldsia sandwicensis*, *Santalum paniculatum*, *Sida fallax*, or *Sophora chrysophylla*; and

(ii) Elevations between 86 and 892 m (281 and 2,925 ft).

**Family Malvaceae: *Hibiscadelphus giffardianus* (hau kuahiwi)**

Hawaii 26—*Hibiscadelphus giffardianus*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Hibiscadelphus giffardianus* on Hawaii. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Mixed montane mesic forest containing one or more of the following native plant species: *Acacia koa*, *Coprosma rhynchocarpa*, *Dodonaea viscosa*, *Melicope* spp., *Metrosideros polymorpha*, *Myoporum sandwicense*,

*Nestegis sandwicensis*, *Pipturus albidus*, *Psychotria* sp., or *Sapindus saponaria*; and

(ii) Elevations between 1,193 and 1,274 m (3,914 and 4,181 ft).

**Family Malvaceae: *Hibiscadelphus hualalaiensis* (hau kuahiwi)**

Hawaii 10—*Hibiscadelphus hualalaiensis*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Hibiscadelphus hualalaiensis* on Hawaii. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Dry-mesic to dry *Metrosideros* forest on rocky substrate in deep soils and containing one or more of the following native plant species: *Acacia koa*, *Coprosma rhynchocarpa*, *Dodonaea viscosa*, *Melicope* spp., *Metrosideros polymorpha*, *Myoporum sandwicense*, *Nestegis sandwicensis*, *Pipturus albidus*, *Psychotria* sp., or *Sapindus saponaria*; and

(ii) Between elevations 512 and 1,223 m (1,679 and 4,012 ft).

**Family Malvaceae: *Hibiscus brackenridgei* (mao hau hele)**

Hawaii 10—*Hibiscus brackenridgei*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Hibiscus brackenridgei* on Hawaii. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Acacia koa* lowland mesic forest containing one or more of the following native plants species: *Reynoldsia sandwicensis* or *Sida fallax*; and

(ii) Elevations between 649 and 847 (2,130 and 2,779 ft).

**Family Plantaginaceae: *Plantago hawaiiensis* (laukahi kuahiwi)**

Hawaii 24—*Plantago hawaiiensis*—a, Hawaii 25—*Plantago hawaiiensis*—b, and Hawaii 30—*Plantago hawaiiensis*—c, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Plantago hawaiiensis* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Montane wet sedge land (often in damp cracks of pahoe-hoe lava) with mixed sedges and grasses, montane mesic forest, dry subalpine woodland, or *Metrosideros polymorpha* and native shrub, and containing one or more of the following associated native plant

species: *Acacia koa*, *Coprosma ernodeoides*, *Coprosma montana*, *Dodonaea viscosa*, *Leptecophylla tameiameia*, *Metrosideros polymorpha*, or *Vaccinium reticulatum*; and

(ii) Elevations between 1,584 and 2,513 m (5,198 and 8,243 ft).

**Family Poaceae: *Ischaemum byrone* (Hilo ischaemum)**

Hawaii 21—*Ischaemum byrone*—a and Hawaii 22—*Ischaemum byrone*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Ischaemum byrone* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Coastal wet to dry shrubland, near the ocean, rocks or pahoehoe lava in cracks and holes, and containing one or more of the following associated native plant species: *Fimbristylis cymosa*, or *Scaevola taccada*; and

(ii) Elevations between sea level and 28 m (0 and 91 ft).

**Family Portulacaceae: *Portulaca sclerocarpa* (poe)**

Hawaii 27—*Portulaca sclerocarpa*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Portulaca sclerocarpa* on Hawaii. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Weathered Mauna Kea soils, cinder cones, or geologically young lavas, in montane dry shrubland, often on bare cinder, near steam vents, or in open *Metrosideros polymorpha* dominated woodlands, and containing one or more of the following associated native plant species: *Dodonaea viscosa*, *Melanthera venosa*, or *Sophora chrysophylla*; and

(ii) Elevations between 941 and 1,634 m (3,087 to 5,360 ft).

**Family Rhamnaceae: *Colubrina oppositifolia* (kauila)**

Hawaii 10—*Colubrina oppositifolia*—a and Hawaii 18—*Colubrina oppositifolia*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Colubrina oppositifolia* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Lowland dry and mesic forests dominated by *Diospyros sandwicensis* or *Metrosideros polymorpha* and containing one or more of the following associated native plant species: *Bobea*

*timonioides*, *Erythrina sandwicensis*, *Leptecophylla tameiameia*, *Nestegis sandwicensis*, *Nothocestrum breviflorum*, *Nototrichium sandwicense*, *Peperomia* sp., *Pleomele hawaiiensis*, *Psydrax odorata*, *Rauvolfia sandwicensis*, *Reynoldsia sandwicensis*, or *Sophora chrysophylla*; and

(ii) Elevations between 177 and 927 m (580 and 3,042 ft).

**Family Rhamnaceae: *Gouania vitifolia* (NCN)**

Hawaii 18—*Gouania vitifolia*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Gouania vitifolia* on Hawaii. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Dry, rocky ridges and slopes in dry shrubland or dry to mesic *Nestegis-Metrosideros* forests on old substrate kipuka and containing one or more of the following associated native plant species: *Nephrolepis* spp., *Nestegis sandwicensis*, *Pipturus albidus*, *Wikstroemia phillyreifolia*, or *W. sandwicensis*; and

(ii) Elevations between 536 and 1,020 m (1,757 and 3,346 ft).

**Family Rubiaceae: *Melicope zahlbruckneri* (alani)**

Hawaii 24—*Melicope zahlbruckneri*—a and Hawaii 26—*Melicope zahlbruckneri*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Melicope zahlbruckneri* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Acacia koa*-*Metrosideros polymorpha* dominated montane mesic forest containing one or more of the following associated native plant species: *Coprosma rhynchocarpa*, *Melicope* spp., *Myoporum sandwicense*, *Nestegis sandwicensis*, *Pipturus albidus*, *Pisonia brunoniana*, *Psychotria hawaiiensis*, *Sapindus saponaria*, or *Zanthoxylum dipetalum*; and

(ii) Elevations between 1,060 and 1,336 m (3,476 and 4,383 ft).

**Family Rutaceae: *Zanthoxylum dipetalum* var. *tomentosum* (ae)**

Hawaii 10—*Zanthoxylum dipetalum* ssp. *tomentosum*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Zanthoxylum dipetalum* var. *tomentosum* on Hawaii. Within this unit, the currently known primary constituent elements of critical habitat

include, but are not limited to, the habitat components provided by:

(i) *Metrosideros polymorpha* dominated montane mesic forest, often on aa lava, and containing one or more of the following associated native plant species: *Diospyros sandwicensis*, *Myrsine* sp., *Pouteria sandwicensis*, *Psychotria* sp., *Reynoldsia sandwicensis*, *Santalum paniculatum*, or *Sophora chrysophylla*; and

(ii) Elevations between 874 and 1,208 m (2,867 and 3,964 ft).

**Family Solanaceae: *Nothocestrum breviflorum* (aiea)**

Hawaii 5—*Nothocestrum breviflorum*—a, Hawaii 6—*Nothocestrum breviflorum*—b, and Hawaii 10—*Nothocestrum breviflorum*—c, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Nothocestrum breviflorum* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Lowland dry forest, montane dry forest, or montane mesic forest dominated by *Acacia koa*, *Diospyros sandwicensis*, or *Metrosideros polymorpha* on aa lava substrates, and containing one or more of the following associated native plant species: *Bidens micrantha* ssp. *ctenophylla*, *Caesalpinia kawaiensis*, *Colubrina oppositifolia*, *Delissea undulata*, *Dodonaea viscosa*, *Erythrina sandwicensis*, *Hibiscadelphus hualalaiensis*, *Kokia drynarioides*, *Myoporum sandwicense*, *Osteomeles anthyllidifolia*, *Psydrax odorata*, *Reynoldsia sandwicensis*, *Santalum ellipticum*, *Santalum paniculatum*, or *Sophora chrysophylla*; and

(ii) Elevations between 45 and 1,236 m (146 and 4,055 ft).

**Family Solanaceae: *Solanum incompletum* (popolo ku mai)**

Hawaii 10—*Solanum incompletum*—a and Hawaii 11—*Solanum incompletum*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Solanum incompletum* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Dry to mesic forest, diverse mesic forest, or subalpine forest, and containing one or more of the following associated native plant species: *Myoporum sandwicense*, *Myrsine lanaiensis*, or *Sophora chrysophylla*; and

(ii) Elevations between 1,185 and 2,169 m (3,887 and 7,115 ft).

**Family Urticaceae: *Neraudia ovata* (NCN)**

Hawaii 10—*Neraudia ovata*—a and Hawaii 18—*Neraudia ovata*—d, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Neraudia ovata* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Open *Metrosideros polymorpha-Sophora chrysophylla* dominated lowlands, montane dry forests, or *Metrosideros*-shrub woodland, and containing one or more of the following associated native plant species: *Bidens micrantha* ssp. *ctenophylla*, *Capparis sandwichiana*, *Cocculus orbiculatus*, *Fimbristylis hawaiiensis*, *Myoporum sandwicense*, *Myrsine lanaiensis*, *Myrsine lessertiana*, *Nothocestrum breviflorum*, *Pleomele hawaiiensis*, or *Reynoldsia sandwicensis*; and

(ii) Elevations between 28 and 1,526 m (93 to 5,005 ft).

**Family Violaceae: *Isodendron hosakae* (aupaka)**

Hawaii 4—*Isodendron hosakae*—a, Hawaii 4—*Isodendron hosakae*—b, Hawaii 4—*Isodendron hosakae*—c, Hawaii 4—*Isodendron hosakae*—d, Hawaii 4—*Isodendron hosakae*—e, and Hawaii 4—*Isodendron hosakae*—f, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Isodendron hosakae* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Cinder cones with montane dry shrubland and containing one or more of the following associated native plant species: *Bidens menziesii*, *Dodonaea viscosa*, *Dubautia linearis*, *Leptecophylla tameiameia*, *Melanthera venosa*, *Osteomeles anthyllidifolia*, *Santalum ellipticum*, *Sophora chrysophylla*, or *Wikstroemia pulcherrima*; and

(ii) Elevations between 717 and 1,242 m (2,352 and 4,074 ft).

**Family Violaceae: *Isodendron pyriforme* (wahine noho kula)**

Hawaii 12—*Isodendron pyriforme*—a and Hawaii 13—*Isodendron pyriforme*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Isodendron pyriforme* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Lowland dry forests containing one or more of the following native plant species: *Myoporum sandwicense*, *Psydrax odorata*, *Sida fallax*, *Sophora chrysophylla*, or *Waltheria indica*; and

(ii) Elevations between 29 and 128 m (94 and 420 ft).

(2) *Ferns and allies.*

**Family Aspleniaceae: *Asplenium fragile* var. *insulare* (NCN)**

Hawaii 24—*Asplenium fragile* var. *insulare*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Asplenium fragile* var. *insulare* on Hawaii. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Metrosideros polymorpha* dry montane forest; *Dodonaea viscosa* dry montane shrubland; *Myoporum sandwicense-Sophora chrysophylla* dry montane forest; *Metrosideros polymorpha-Acacia koa* forest; or subalpine dry forest and shrubland with large, moist lava tubes (3.05 to 4.6 m (10 to 15 ft) in diameter), pits, deep cracks, and lava tree molds that have at least a moderate soil or ash accumulation or that are at the interface between younger aa lava flows and much older pahoehoe lava or ash deposits with a fairly consistent microhabitat (areas that are moist and dark); and containing one or more of the following associated native plant species: *Leptecophylla tameiameia*, *Phyllostegia ambigua*, *Vaccinium reticulatum*, mosses, or liverworts; and

(ii) Elevations between 1,313 and 2,194 m (4,306 and 7,198 ft).

**Family Aspleniaceae: *Diellia erecta* (asplenium-leaved diellia)**

Hawaii 17—*Diellia erecta*—a and Hawaii 18—*Diellia erecta*—b, identified in the legal descriptions in paragraph (k) of this section, constitute critical habitat for *Diellia erecta* on Hawaii. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Metrosideros polymorpha-Nestegis sandwicensis* lowland mesic forest containing one or more of the following associated native plant species:

*Antidesma platyphyllum*, *A. pulvinatum*, *Diospyros sandwicensis*, *Microlepia* sp., *Nephrolepis* spp. *Nestegis sandwicensis*, *Psydrax odorata*, *Wikstroemia phillyreifolia*, or *Wikstroemia sandwicensis*; and

(ii) Elevations between 510 and 981 m (1,672 and 3,217 ft).

**Family Grammitidaceae: *Adenophorus periens* (pendent kihi fern)**

Hawaii 28—*Adenophorus periens*—a, identified in the legal description in paragraph (k) of this section, constitutes critical habitat for *Adenophorus periens* on Hawaii. Within this unit, the currently known primary constituent elements of critical habitat include but are not limited to, the habitat components provided by:

(i) Epiphytic on *Metrosideros polymorpha* or *Ilex anomala*, or possibly other native tree trunks, in *Metrosideros polymorpha-Cibotium glaucum* lowland wet forest containing one or more of the following associated native plant species: *Broussasia arguta*, *Cheirodendron trigynum*, *Cyanea* sp., *Cyrtandra* sp., *Dicranopteris linearis*, *Freycinetia arborea*, *Hedyotis terminalis*, *Labordia hirtella*, *Machaerina angustifolia*, *Psychotria hawaiiensis*, or *Psychotria* sp.; and

(ii) Elevations between 675 and 921 m (2,215 and 3,021 ft).

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**Paul Hoffman,**

Acting Assistant Secretary for Fish and Wildlife and Parks.

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