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Endangered and Threatened Wildlife and Plants; Designation and Nondesignation of Critical Habitat on Molokai, Lanai, Maui, and Kahoolawe for 135 Species; Final Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R1–ES–2015–0071; 4500030114]

RIN 1018–AZ25

Endangered and Threatened Wildlife and Plants; Designation and Nondesignation of Critical Habitat on Molokai, Lanai, Maui, and Kahoolawe for 135 Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service, designate or revise critical habitat for 125 listed species on the islands of Maui, Molokai, and Kahoolawe in the State of Hawaii. We are designating critical habitat for 50 plant and animal species, and revising critical habitat for 85 plant species. In total, approximately 157,002 acres (ac) (63,537 hectares (ha)) on the islands of Molokai, Maui, and Kahoolawe fall within the boundaries of the critical habitat designation. Although we proposed critical habitat on 25,413 ac (10,284 ha) on the island of Lanai, this area is excluded from final designation under section 4(b)(2) of the Endangered Species Act. In addition, under section 4(b)(2), approximately 59,479 ac (24,070 ha) on the islands of Maui and Molokai are excluded from critical habitat designation. These exclusions mean that we are not designating critical habitat for 10 of the species included in our proposed rule. We also removed 29,170 ac (11,805 ha) of areas we determined do not meet the definition of critical habitat. In this final rule, we accept name changes or corrections for 10 endangered plants and 2 endangered birds. The effect of this rule is to conserve these 125 species and their habitats under the Endangered Species Act.

DATE: This rule is effective on April 29, 2016.

ADDRESSES: This final rule, final economic analysis, and the document ''Supplementary Information for the Designation and Nondesignation of Critical Habitat on Molokai, Lanai, Maui, and Kahoolawe for 135 Species'' are available on the Internet at *http://www.regulations.gov* under Docket No. FWS–R1–ES–2015–0071. Comments and materials received, as well as supporting documentation used in preparing this final rule, are available for public inspection, by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, 300 Ala Moana Boulevard, Room 3–122, Honolulu, HI 96850; by telephone at 808–792–9400; or by facsimile at 808–792–9581.

The coordinates or plot points or both from which the maps are generated are included in the administrative record for this critical habitat designation and are available at *http://www.fws.gov/pacificislands,* at *http://www.regulations.gov* under Docket No. FWS–R1–ES–2015–0071, and at the Pacific Islands Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

FOR FURTHER INFORMATION CONTACT: Mary Abrams, Field Supervisor, U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, 300 Ala Moana Boulevard, Room 3–122, Honolulu, HI 96850; by telephone at 808–792–9400; or by facsimile at 808–792–9581. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Organization of the Final Rule

This final rule describes the final critical habitat designation for 135 Maui Nui species under the Endangered Species Act of 1973, as amended (Act or ESA) (16 U.S.C. 1531 *et seq.*). The pages that follow summarize the comments and information received during multiple open comment periods and a public hearing in response to the proposed rule published on June 11, 2012 (77 FR 34464), and in response to the notice of availability of the draft economic analysis of the proposed designation published on January 31, 2013 (78 FR 6785), describe any changes from the proposed rule, and detail the final designation for the Maui Nui species. To assist the reader, the content of the document is organized as follows:

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I. Executive Summary

Why we need to publish a rule. This is a final rule to designate or revise critical habitat for 135 species from the island cluster of Maui Nui (Molokai, Maui, Lanai, and Kahoolawe) in the State of Hawaii. Under the Act, any species that is determined to be an endangered or threatened species requires critical habitat to be designated, to the maximum extent prudent and determinable. Designations and revisions of critical habitat can only be completed by issuing a rule.

We, the U.S. Fish and Wildlife Service (Service), listed 96 of the 135 species as endangered or threatened species at various times (see 77 FR 34464; June 11, 2012). On June 11, 2012, we published in the **Federal Register** a proposed rule to list 38 Maui Nui species as endangered, reaffirm the listing of 2 species as endangered, and designate or revise critical habitat for 135 Maui Nui species (77 FR 34464). On May 28, 2013 (78 FR 32014) we listed 38 Maui Nui species as endangered and reaffirmed the listing of 2 species as endangered. Section 4(b)(2) of the Act states that the Secretary shall designate critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat.

The critical habitat areas we are designating in this rule constitute our current best assessment of the areas that meet the definition of critical habitat for

125 of the 135 Maui Nui species. Here we are designating as critical habitat approximately 157,002 acres (ac) (63,537 hectares (ha)) in 165 unique units for 125 Maui Nui species: 31,513 ac (12,753 ha) on Molokai; 119,349 ac (48,299 ha) on Maui; and 6,142 ac (2,486 ha) on Kahoolawe. No critical habitat is designated on the island of Lanai as a consequence of exclusions under section 4(b)(2) of the Act; as a consequence, final critical habitat is not designated for 10 of the Maui Nui species.

In this final rule, 29,170 ac (11,805 ha) have been removed from the area originally proposed as a result of refinement in unit areas made in response to public comments and additional field visits. We removed these areas based on our determination that they do not meet the definition of critical habitat. In addition, 84,891 ac (34,354 ha) of non-Federal lands on Maui, Molokai, and Lanai have been excluded from final designation under section 4(b)(2) of the Act. For these lands, the Secretary has determined that the benefits of exclusion outweigh the benefits of critical habitat designation and that these exclusions will not result in the extinction of the species.

In this final rule, we also recognize taxonomic changes and spelling corrections of the scientific names for 10 plant species and 2 bird species, and revise the List of Endangered and Threatened Plants and the List of Endangered and Threatened Wildlife accordingly.

We have prepared an economic analysis of the designation of critical habitat. In order to consider economic impacts, we have prepared an analysis of the economic impacts of the critical habitat designation and related factors. We announced the availability of the draft economic analysis (DEA) in the **Federal Register** on January 31, 2013 (78 FR 6785), allowing the public to provide comment on our analysis. We also held a public information meeting and public hearing on our proposed rulemaking and associated DEA in Kihei, Maui, on February 21, 2013. We have considered the comments and have completed the final economic analysis (FEA) concurrently with this final determination.

Peer review and public comment. We sought comments from independent specialists to ensure that our designation is based on scientifically sound data and analyses. We obtained opinions from four knowledgeable individuals with scientific expertise to review our technical assumptions and analysis, and to determine whether or not we had used the best available scientific information. These peer reviewers generally concurred with our methods and conclusions, and provided additional information, clarifications, and suggestions to improve this final rule. Information we received from peer review is incorporated into this final designation. We also considered all comments and information we received from the public during multiple comment periods, which totaled 135 days in length.

II. Previous Federal Actions

Federal actions for these species are outlined in our May 28, 2013 (78 FR 32014), final rule to list 38 Maui Nui species and reaffirm the listing of 2 endangered plants and in our June 11, 2012 (77 FR 34464), proposed rule to list 38 species as endangered and designate critical habitat for 135 Maui Nui species. (Please note that because the proposed rule to designate critical habitat was originally published in conjunction with the proposed listing rule, which has already been finalized, the proposed rule critical habitat rule and associated documents, such as the draft economic analysis, are posted at *http://www.regulations.gov* under the original Docket No. FWS–R1–ES–2011–0098). Publication of the June 11, 2012, proposed rule opened a 60-day comment period, which was extended on August 9, 2012 (77 FR 47587) for an additional 30 days and closed on September 10, 2012. In addition, we published a public notice of the proposed rule on June 20, 2012, in the local Honolulu Star Advertiser, Maui Times, and Molokai Dispatch newspapers. On January 31, 2013 (78 FR 6785), we reopened the comment period for an additional 30 days on the entire June 11, 2012, proposed rule (77 FR 34464), as well as on the draft economic analysis on the proposed critical habitat designation, and announced both a public information meeting and a hearing to be held in Kihei, Maui, on February 21, 2013. This second comment period closed on March 4, 2013. We opened a final comment period on the proposed critical habitat designation for an additional 15 days on June 10, 2015 (80 FR 32922).

III. Background

Maui Nui Species Addressed in This Final Rule

The table below (Table 1) provides the common name, scientific name, and listing status for the species that are the subject of this final rule.

TABLE 1—THE MAUI NUI SPECIES ADDRESSED IN THIS FINAL RULE

[Note that many of the species share the same common name. "NCN" indicates no common name. "E" denotes endangered status under the act; "T" denotes threatened status under the act]

Scientific name	Common name(s)	Listing status	Critical habitat [1]
Plants:			
Abutilon eremitopetalum	[NCN]	E	Final.
Acaena exigua	liliwai	E	Final.
Adenophorus periens	pendent kihi fern	E	Revised—2003.
Alectryon macrococcus	mahoe	E	Revised—2003.
Argyroxiphium sandwicense ssp. *macrocephalum*	ahinahina (= Haleakala silversword)	T	Revised—2003.
Asplenium dielerectum	asplenium-leaved diellia	E	Revised—2003.
Asplenium peruvianum var. *insulare*	[NCN]	E	Revised—2003.
Bidens campylotheca ssp. *pentamera*	kookoolau	E	Final.
Bidens campylotheca ssp. *waihoiensis*	kookoolau	E	Final.
Bidens conjuncta	kookoolau	E	Final.
Bidens micrantha ssp. *kalealaha*	kookoolau	E	Revised—2003.
Bidens wiebkei	kookoolau	E	Revised—2003.
Bonamia menziesii	[NCN]	E	Revised—2003.
Brighamia rockii	pua ala	E	Revised—2003.
Calamagrostis hillebrandii	[NCN]	E	Final.
Canavalia molokaiensis	awikiwiki	E	Revised—2003.
Canavalia pubescens	awikiwiki	E	Final.

TABLE 1—THE MAUI NUI SPECIES ADDRESSED IN THIS FINAL RULE—Continued

[Note that many of the species share the same common name. "NCN" indicates no common name. "E" denotes endangered status under the act; "T" denotes threatened status under the act]

Scientific name	Common name(s)	Listing status	Critical habitat [1]
Cenchrus agrimonioides	kamanomano (= sandbur, agrimony)	E	Revised—2003.
Clermontia lindseyana	oha wai	E	Revised—2003.
Clermontia oblongifolia ssp. *brevipes*	oha wai	E	Revised—2003.
Clermontia oblongifolia ssp. *mauiensis*	oha wai	E	Revised—2003.
Clermontia peleana	oha wai	E	Revised—2003.
Clermontia samuelii	oha wai	E	Revised—2003.
Colubrina oppositifolia	kauila	E	Revised—2003.
Ctenitis squamigera	pauoa	E	Revised—2003.
Cyanea asplenifolia	haha	E	Final.
Cyanea copelandii ssp. *haleakalaensis*	haha	E	Revised—2003.
Cyanea dunbariae	haha	E	Revised—2003.
Cyanea duvalliorum	haha	E	Final.
Cyanea gibsonii	haha	E	Final.
Cyanea glabra	haha	E	Revised—2003.
Cyanea grimesiana ssp. *grimesiana*	haha	E	Final.
Cyanea hamatiflora ssp. *hamatiflora*	haha	E	Revised—2003.
Cyanea horrida	haha nui	E	Final.
Cyanea kunthiana	haha	E	Final.
Cyanea lobata	haha	E	Revised—2003.
Cyanea magnicalyx	haha	E	Final.
Cyanea mannii	haha	E	Revised—2003.
Cyanea maritae	haha	E	Final.
Cyanea mauiensis	haha	E	Not Determinable
Cyanea mceldowneyi	haha	E	Revised—2003.
Cyanea munroi	haha	E	Final.
Cyanea obtusa	haha	E	Final.
Cyanea procera	haha	E	Revised—2003.
Cyanea profuga	haha	E	Final.
Cyanea solanacea	popolo	E	Final.
Cyperus fauriei	[NCN]	E	Revised—2003.
Cyperus pennatiformis	[NCN]	E	Revised—2003.
Cyperus trachysanthos	puukaa	E	Revised—2003.
Cyrtandra ferripilosa	haiwale	E	Final.
Cyrtandra filipes	haiwale	E	Final.
Cyrtandra munroi	haiwale	E	Revised—2003.
Cyrtandra oxybapha	haiwale	E	Final.
Diplazium molokaiense	[NCN]	E	Revised—2003.
Dubautia plantaginea ssp. *humilis*	naenae	E	Revised—2003.
Eugenia koolauensis	nioi	E	Revised—2003.
Festuca molokaiensis	[NCN]	E	Final.
Flueggea neowawraea	mehamehame	E	Revised—2003.
Geranium arboreum	Hawaiian red-flowered geranium	E	Revised—2003.
Geranium hanaense	nohoanu	E	Final.
Geranium hillebrandii	nohoanu	E	Final.
Geranium multiflorum	nohoanu	E	Revised—2003.
Gouania hillebrandii	[NCN]	E	Revised—1984
Gouania vitifolia	[NCN]	E	Revised—2003.
Hesperomannia arborescens	[NCN]	E	Revised—2003.
Hesperomannia arbuscula	[NCN]	E	Revised—2003.
Hibiscus arnottianus ssp. *immaculatus*	kokio keokeo	E	Revised—2003.
Hibiscus brackenridgei	mao hau hele	E	Revised—2003.
Huperzia mannii	wawaeiole	E	Final.
Ischaemum byrone	Hilo ischaemum	E	Revised—2003.
Isodendrion pyrifolium	wahine noho kula	E	Revised—2003.
Kadua cordata ssp. *remyi*	kopa	E	Final.
Kadua coriacea	kioele	E	Revised—2003.
Kadua laxiflora	pilo	E	Revised—2003.
Kanaloa kahoolawensis	kohe malama malama o kanaloa	E	Revised—2003.
Kokia cookei	Cooke's kokio	E	Final.
Labordia tinifolia var. *lanaiensis*	kamakahala	E	Final.
Labordia triflora	kamakahala	E	Revised—2003.
Lysimachia lydgatei	[NCN]	E	Revised—2003.
Lysimachia maxima	[NCN]	E	Revised—2003.
Marsilea villosa	ihi ihi	E	Revised—2003.
Melanthera kamolensis	nehe	E	Revised—2003.
Melicope adscendens	alani	E	Revised—2003.
Melicope balloui	alani	E	Revised—2003.
Melicope knudsenii	alani	E	Revised—2003.
Melicope mucronulata	alani	E	Revised—2003.

TABLE 1—THE MAUI NUI SPECIES ADDRESSED IN THIS FINAL RULE—Continued

[Note that many of the species share the same common name. "NCN" indicates no common name. "E" denotes endangered status under the act; "T" denotes threatened status under the act]

Scientific name	Common name(s)	Listing status	Critical habitat [1]
Melicope munroi	alani	E	Final.
Melicope ovalis	alani	E	Revised—2003.
Melicope reflexa	alani	E	Revised—2003.
Mucuna sloanei var. *persericea*	sea bean	E	Final.
Myrsine vaccinioides	kolea	E	Final.
Neraudia sericea	[NCN]	E	Revised—2003.
Nototrichium humile	kului	E	Revised—2003.
Peperomia subpetiolata	alaala wai nui	E	Final.
Peucedanum sandwicense	makou	T	Revised—2003.
Phyllostegia bracteata	[NCN]	E	Final.
Phyllostegia haliakalae	[NCN]	E	Final.
Phyllostegia hispida	[NCN]	E	Final.
Phyllostegia mannii	[NCN]	E	Revised—2003.
Phyllostegia pilosa	[NCN]	E	Final.
Pittosporum halophilum	hoawa	E	Final.
Plantago princeps	laukahi kuahiwi	E	Revised—2003.
Platanthera holochila	[NCN]	E	Revised—2003.
Pleomele fernaldii	hala pepe	E	Final.
Portulaca sclerocarpa	poe	E	Revised—2003.
Pteris lidgatei	[NCN]	E	Revised—2003.
Remya mauiensis	Maui remya	E	Revised—2003.
Sanicula purpurea	[NCN]	E	Revised—2003.
Santalum haleakalae var. *lanaiense*	iliahi	E	Final.
Schenkia sebaeoides	awiwi	E	Revised—2003.
Schiedea haleakalensis	[NCN]	E	Revised—2003.
Schiedea jacobii	[NCN]	E	Final.
Schiedea laui	[NCN]	E	Final.
Schiedea lydgatei	[NCN]	E	Revised—2003.
Schiedea salicaria	[NCN]	E	Final.
Schiedea sarmentosa	[NCN]	E	Revised—2003.
Sesbania tomentosa	ohai	E	Revised—2003.
Silene alexandri	[NCN]	E	Revised—2003.
Silene lanceolata	[NCN]	E	Revised—2003.
Solanum incompletum	popolo ku mai	E	Final.
Spermolepis hawaiiensis	[NCN]	E	Revised—2003.
Stenogyne bifida	[NCN]	E	Revised—2003.
Stenogyne kauaulaensis	[NCN]	E	Final.
Tetramolopium capillare	pamakani	E	Revised—2003.
Tetramolopium lepidotum ssp. *lepidotum*	[NCN]	E	Revised—2003.
Tetramolopium remyi	[NCN]	E	Revised—2003.
Tetramolopium rockii	[NCN]	T	Revised—2003.
Vigna o-wahuensis	[NCN]	E	Revised—2003.
Viola lanaiensis	[NCN]	E	Final.
Wikstroemia villosa	akia	E	Final.
Zanthoxylum hawaiiense	ae	E	Revised—2003.
Animals:			
Birds:			
Palmeria dolei	Akohekohe, crested honeycreeper	E	Final.
Pseudonestor xanthophrys	Kiwikiu, Maui parrotbill	E	Final.
Snails:			
Newcombia cumingi	Newcomb's tree snail	E	Final.
Partulina semicarinata	Lanai tree snail	E	Final.
Partulina variabilis	Lanai tree snail	E	Final.

[1] Listed species for which critical habitat is designated for the first time are classified here as "Final." If this is a revision of previously designated critical habitat, the species is classified as 'Revised" followed by the year of the original designation.

Taxonomic Changes and Spelling Corrections Since Listing for 2 Bird Species and 10 Plant Species From Maui Nui

As described in detail in our proposed rule (June 11, 2012; 77 FR 34464), in this final rule we are accepting name or spelling changes for 2 bird species and 10 plant species. In brief, we accept the recently adopted Hawaiian common name, kiwikiu, for the Maui parrotbill (*Pseudonestor xanthophrys*). We also add the Hawaiian common name, akohekohe, to the listing for the crested honeycreeper (*Palmeria dolei*). Additionally, based on recent botanical work, we accept various name changes and spelling corrections for 10 endangered plant species listed between 1991 and 1999 (Table 2).

TABLE 2—NAME CHANGES AND SPELLING CORRECTIONS FOR 2 LISTED ENDANGERED HAWAIIAN BIRDS AND 10 LISTED ENDANGERED HAWAIIAN PLANTS

Listing	Family	Name as previously listed	Newly accepted name	Change in range of listed entity?
Birds:				
32 FR 4001	Fringillidae	Maui parrotbill (*Pseudonestor xanthophrys*)	Kiwikiu, Maui parrotbill (*Pseudonestor xanthophrys*)	No.
32 FR 4001	Fringillidae	Crested honeycreeper (*Palmeria dolei*)	Akohekohe, crested honeycreeper (*Palmeria dolei*).	No.
Plants:				
59 FR 49025	Aspleniaceae	*Asplenium fragile* var. *insulare*	*Asplenium peruvianum* var. *insulare*	No.
56 FR 55770	Gentianaceae	*Centaurium sebaeoides*	*Schenkia sebaeoides*	No.
61 FR 53130	Campanulaceae	*Cyanea dunbarii*	*Cyanea dunbariae*	No.
56 FR 47686	Campanulaceae	*Cyanea macrostegia* ssp. *gibsonii*	*Cyanea gibsonii*	No.
59 FR 56333	Aspleniaceae	*Diellia erecta*	*Asplenium dielerectum*	No.
64 FR 48307	Rubiaceae	*Hedyotis schlechtendahliana* var. *remyi*	*Kadua cordata* ssp. *remyi*	No.
57 FR 46325	Rubiaceae	*Hedyotis mannii*	*Kadua laxiflora*	No.
57 FR 20772	Asteraceae	*Lipochaeta kamolensis*	*Melanthera kamolensis*	No.
59 FR 10305	Cyperaceae	*Mariscus fauriei*	*Cyperus fauriei*	No.
57 FR 20772	Lycopodiaceae	*Phlegmariurus mannii*	*Huperzia mannii*	No.

All of the aforementioned taxonomic changes and spelling corrections are currently accepted by the scientific community; detailed background information on each of the changes is provided in our supporting document ''Supplementary Information for the Designation and Nondesignation of Critical Habitat on Molokai, Lanai, Maui, and Kahoolawe for 135 Species,'' available at *http://www.regulations.gov* and at *http://www.fws.gov/pacificislands* (see **ADDRESSES**). In accordance with the references cited in our proposed rule (June 11, 2012; 77 FR 34464) and our supporting documentation, we are revising the List of Endangered and Threatened Plants at 50 CFR 17.12 and the List of Endangered and Threatened Wildlife at 50 CFR 17.11. In addition, we made editorial revisions to a limited number of units and species descriptions in 50 CFR 17.99(a)(1) and (b) (Kauai), 50 CFR 17.99(i) and (j) (Oahu), 50 CFR 17.99(k) and (l) (Hawaii Island) to adopt the taxonomic changes.

Current Status of 135 Listed Maui Nui Species

Plants

In order to avoid confusion regarding the number of locations of each species, we use the word ''occurrence'' instead of ''population.'' It is important to note that a ''location'' or ''occurrence'' as used here is not the same as a ''population,'' as in many cases a location or occurrence may represent only one or very few representative individuals of the species present. A population, on the other hand, represents a group of interbreeding organisms sufficiently represented in numbers of individuals, age class, and genetic diversity to remain viable over the long term in the face of demographic, environmental, and genetic stochasticity, and natural catastrophes. This distinction is particularly important in evaluating the current status of each species relative to the determination of what is essential for the conservation of the species, as guided, for example, by the recovery plan for the plant or animal species, if available (*e.g.,* as defined for several of the plant species in this final rule in the Recovery Plan for the Maui Plant Cluster; Service 1997, pp. iv–v), or by the general guidelines of the Hawaii and Pacific Plant Recovery Coordinating Committee (HPPRCC, 1998, 32 pp. + appendices). In general, populations are considered as meeting the objectives for conservation if they are secure, stable, and naturally reproducing over some minimum period of time, depending upon their life history. As reported here, each occurrence is composed only of wild (*i.e.,* not propagated and outplanted) individuals, unless otherwise specified. In this rule, outplanted occurrences are generally not considered as meeting specified recovery objectives because currently these outplants have not been observed to be naturally reproducing and stable (over at least two generations), and as such have not demonstrated the capacity for reproduction and recruitment necessary to maintain or increase the population over time.

Abutilon eremitopetalum (no common name (NCN)), a short-lived perennial shrub in the mallow family (Malvaceae), is endemic to Lanai (Bates 1999, pp. 871–872). At the time we designated critical habitat in 2003, *A. eremitopetalum* was known from a single occurrence of seven individuals on Lanai (68 FR 1220, January 9, 2003). Currently, there are nine individuals at Puu Mahanalua in the lowland dry ecosystem (TNC 2007; HBMP 2010; PEPP 2008, p. 45: PEPP 2011, p. 49).

Acaena exigua (liliwai), a short-lived perennial herb in the rose family (Rosaceae), is known from west Maui and Kauai (Wagner *et al.* 1999p, pp. 1,102–1,103). *Acaena exigua* was rediscovered in 1997 at Puu Kukui on west Maui, when one individual was found growing in a bog in the montane wet ecosystem, but this individual died in 2000 (TNC 2007; Oppenheimer *et al.* 2002, p. 1). This area on west Maui was searched as recently as 2008 by botanists; however, no plants were found (Aruch 2010, in litt.). Botanists continue to survey the potentially suitable habitat in the area where this species was last observed.

Adenophorus periens (pendant kihi fern), a short-lived perennial fern in the grammitis family (Grammitidaceae), is epiphytic on the native tree *Acacia koa* (koa). *Adenophorus periens* is known from Kauai, Oahu, Lanai, Maui, and the island of Hawaii (Palmer 2003, p. 39). At the time we designated critical habitat in 2003 and 2012, *A. periens* was known from Kauai, Molokai, the island of Hawaii, and Oahu (68 FR 9116, February 27, 2003; 68 FR 12982, March 18, 2003; 68 FR 39624, July 2, 2003; 77 FR 57648, September 18, 2012). *Adenophorus periens* was last seen on Molokai in 1995, in the montane wet ecosystem, at the edge of Pepeopae bog (Perlman 2008b, in litt.). It was last collected in the late 1800s to early 1900s

from the montane wet ecosystem on east Maui and Lanai (TNC 2007; HBMP 2010).

Alectryon macrococcus (mahoe), a long-lived perennial tree in the soapberry family (Sapindaceae), is known from two varieties: *Alectryon macrococcus* var. *auwahiensis* (east Maui) and *A. macrococcus* var. *macrococcus* (Kauai, Oahu, Molokai, and Maui) (Wagner *et al.* 1999x, p. 1,225). At the time we designated critical habitat in 2003, *A. macrococcus* var. *auwahiensis* was known from three occurrences on east Maui (68 FR 25934, May 14, 2003). Currently, *A. macrococcus* var. *auwahiensis* is found in one occurrence of seven individuals in Auwahi, in the lowland dry ecosystem (TNC 2007; HBMP 2010; NTBG Provenance Report 1993; PEPP 2009, p. 33). This variety was historically found in the lowland dry, montane dry, and montane mesic ecosystems, not lower than 1,200 feet (ft) (360 meters (m)) in elevation (TNC 2007; HBMP 2010; Wagner *et al.* 1999, p. 1,225). At the time we designated critical habitat in 2003 and 2012, *A. macrococcus* var. *macrococcus* was found on Kauai, Molokai, west Maui, and Oahu (68 FR 9116, February 27, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). Currently, on Molokai, this variety is found in three known occurrences: One individual at Kahawai, eight individuals from Kaunakakai to Kawela, and one individual in Makolelau, in the lowland mesic and montane mesic ecosystems. On west Maui, *A. macrococcus* var. *macrococcus* is found in 6 occurrences totaling 11 individuals (1 individual each at Honokowai Stream, Wahikuli, Kahoma Ditch Trail, Olowalu, and Iao Valley, and 6 individuals at Honokowai) in the lowland wet and wet cliff ecosystems. On east Maui, there are an unknown number of individuals at Kahakapao in the montane mesic ecosystem (TNC 2007; HBMP 2008; Oppenheimer 2010p, in litt.).

Argyroxiphium sandwicense ssp. *macrocephalum* (ahinahina, Haleakala silversword) is a short-lived perennial rosette shrub in the sunflower family (Asteraceae) and is known from within a 2,500-ac (1,000-ha) area, between 6,900 to 9,800 ft (2,100 to 3,000 m) in elevation, at the summit and crater of Haleakala on east Maui (Carr 1999a, p. 261; Service 2010, in litt.; Haleakala National Park (HNP) 2012, in litt.; Service 2015, in litt.). In 2006, seven occurrences totaled approximately 50,000 individuals (a decline from 75,000 known individuals in 1990), and span across adjoining dry cliff, subalpine, and alpine ecosystems (TNC 2007; Perlman 2008c, in litt., p. 1; Service 2010, in litt.; HNP 2012, in litt.; Service 2015, in litt.). These seven occurrences are generally considered to represent one single population, which is greatly reduced in its distribution from its historical range on Haleakala. One individual is found in Hanawi Natural Area Reserve (NAR) in the montane mesic ecosystem (TNC 2007; Perlman 2008c, p. 1; HBMP 2010). This species is monocarpic (dies after flowering) and reaches full maturity after 15 to 50 years. The triggers for blooming are unknown, and plants flower sporadically, or sometimes all at once, from June through October (Starr *et al.* 2007, in litt.; Starr *et al.* 2009, p. 1). This species experiences reduced reproductive success in low-flowering years (Forsyth 2003; Krushelnycky *et al.* 2012, p. 8). As populations and numbers of individuals decrease in numbers, they are less likely to be visited by pollinators, and fitness is reduced as population size decreases, with extinction of these groups of plants becoming more likely as the population declines (Forsyth 2002, pp. 26–27; Krushelnycky *et al.* 2012, p. 9; Krushelnycky 2014, p. 12). In addition, this species is an obligate out-crosser, meaning it cannot fertilize itself, but must have pollen from other non-related individuals to set fertile seed (Krushelnycky 2014, p. 5). Lower numbers of populations and individuals increases the distances pollinators are required to travel, also contributing to lack of pollination from other non-related individuals (Forsyth 2002, p. 40). Research also indicated that, even with greater than 2,700 individuals blooming simultaneously, there would be very little, if any, seed set (Forsyth 2002, p. 40). Furthermore, because all of the plants that flower die afterward, large numbers of individuals are lost following such an event, and without subsequent seed set and recruitment, this represents a significant loss to the total population. Given that there are very low-flowering years in the current population of approximately 50,000 individuals, it is likely that, if the population continues to decline, even fewer plants would have reproductive success (Forsyth 2002, p. 42). Altogether, this combination of life history characteristics results in a population that may appear to be relatively large, but is actually highly vulnerable to large losses of individuals very quickly under certain circumstances (such as when environmental conditions trigger large numbers of adults to flower and die all at once). Yearly measurements in census plots indicate a population decline of 73 percent since 1982, likely associated with changing climatic conditions (Starr *et al.* 2009; in litt.; Krushelnycky *et al.* 2012, p. 8). Threats, including competition with nonnative plants, loss of native pollinators (affecting seed set), drought, predation by rats (*Rattus* spp.), slugs, and nonnative insects, and predation and competition with native pollinators by nonnative ants, continue to affect this species (Cole *et al.* 1992, pp. 1320–1321; Starr and Starr 2002, pp. 3–4; Forsyth 2002, p. 81; Krusheknycky 2014, pp. 8–10). Weather and rainfall changes resulting from climate change are potential threats, as suitable habitat to the summit of Haleakala will continue to diminish over time (Starr *et al.* 2009, in litt.). To attain delisting goals, the threats to its pollinators must be controlled, and the widespread occurrences must exceed and be maintained at over 50,000 individuals to ensure genetic variability and long-term persistence (Forsyth 2002, p. 42; Krushelnycky *et al.* 2012, p. 12). Because of its unique reproductive features, the ongoing and potential threats to this species, and the small range of its current occurrences at higher elevations on east Maui, and to accommodate loss of habitat with expected climate change, we consider the single remaining population of *A. sandwicense* ssp. *macrocephalum* to be vulnerable to extinction. The establishment of additional populations in currently unoccupied habitat (in addition to occupied habitat) is essential to this species' conservation, to achieve redundancy in populations and provide the species with the resiliency to withstand threats and respond to climate change over time. For this species in particular, with all remaining individuals highly concentrated in one small area, it is essential to achieve a widespread distribution of multiple populations across areas that are presently unoccupied to reduce risk from stochastic events, as well as to allow for blooming at different times so not all reproductive individuals in a population die simultaneously.

Asplenium dielerectum (asplenium-leaved diellia) (formerly *Diellia erecta*), a short-lived perennial fern in the spleenwort family (Aspleniaceae), is historically known from Kauai, Oahu, Molokai, Lanai, Maui, and the island of Hawaii (Palmer 2003, pp. 117–119). At the time we designated critical habitat in 2003 and 2012, this species was known from Kauai, Molokai, Maui, the island of Hawaii, and Oahu (68 FR 9116, February 27, 2003; 68 FR 12982, March

18, 2003; 68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003; 77 FR 57648, 77 FR 57648). Currently, *A. dielerectum* is known from two occurrences on Molokai, where an unknown number of plants were last seen in Onini and Makolelau gulches in the 1990s, in the lowland mesic ecosystem (Lau 2010, in litt.). Historically, this species was also found in the montane mesic and lowland wet ecosystems (HBMP 2010). Botanists believe that additional individuals of this species may be found during further searches of potentially suitable habitat on Molokai (Lau 2010, in litt.). In addition, there are two occurrences totaling five individuals on Maui. Four individuals occur on west Maui at Hanaulaiki in the lowland dry ecosystem, and on east Maui, one individual occurs at Polipoli in the montane mesic ecosystem (Oppenheimer 2010q, in litt.). Historically, *A. dielerectum* was also found in the lowland mesic and lowland wet ecosystems on west Maui, and in the lowland dry and dry cliff ecosystems on Lanai (HBMP 2010).

Asplenium peruvianum var. *insulare* (NCN) (formerly *Asplenium fragile* var. *insulare*) is a short-lived perennial terrestrial fern in the spleenwort (Aspleniaceae) family, from Maui and the island of Hawaii (Palmer 2003, pp. 70–71). At the time we designated critical habitat in 2003, this variety was found on east Maui in 2 occurrences and on the island of Hawaii in 36 occurrences (68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003). Currently, on east Maui, *A. peruvianum* var. *insulare* is known from five occurrences at Waikamoi Stream, at Puu Luau, east of Hosmer Grove, north of Kalapawili Ridge, and in Hanawi Natural Area Reserve. These occurrences total as many as 100 individuals, in the montane wet, montane mesic, and subalpine ecosystems (TNC 2007; HBMP 2010; Oppenheimer 2010r, in litt.).

Bidens campylotheca ssp. *pentamera* (kookoolau), a short-lived perennial herb in the sunflower family (Asteraceae), occurs only on the island of Maui (Ganders and Nagata 1999, pp. 271, 273). Historically, *B. campylotheca* spp. *pentamera* was found on Maui's eastern volcano (Haleakala). Currently, this subspecies is found on east Maui in the montane mesic, montane wet, dry cliff, and wet cliff ecosystems of Waikamoi Preserve and Kipahulu Valley (in Haleakala National Park) (TNC 2007; Welton 2008, in litt.; National Tropical Botanical Garden (NTBGa) 2009, pp. 1–2; Fay 2010, in litt.; HBMP 2010). It is uncertain if plants observed in the Hana FR at Waihoi Valley are *B. campylotheca* ssp. *pentamera* (Osterneck 2010, in litt.; Haleakala National Park (HNP) 2012, in litt.). On west Maui, *B. campylotheca* ssp. *pentamera* is found on and near cliff walls in the lowland dry and lowland mesic ecosystems of Papalaua Gulch (West Maui FR) and Kauaula Valley (NTBG 2009a, pp. 1–2; Perlman 2009a, in litt.). The 6 occurrences on east and west Maui total approximately 200 individuals.

Bidens campylotheca ssp. *waihoiensis* (kookoolau), a short-lived perennial herb in the sunflower family (Asteraceae), occurs only on the island of Maui (Ganders and Nagata 1999, pp. 271, 273). Historically, *B. campylotheca* ssp. *waihoiensis* was found on Maui's eastern volcano in Waihoi Valley and Kaumakani ridge (HBMP 2010). Currently, this subspecies is found in the lowland wet, montane wet, and wet cliff ecosystems in Kipahulu Valley (Haleakala National Park) and possibly in Waihoi Valley (Hana Forest Reserve) on east Maui (TNC 2007; HBMP 2010; Welton 2008, in litt.). Approximately 200 plants are scattered over an area of about 2.5 miles (mi) (4 kilometers (km)) in Kipahulu Valley (Welton 2010a, in litt.). In 1974, hundreds of individuals were observed in Waihoi Valley along Waiohonu stream (NTBG 2009b, p. 4).

Bidens conjuncta (kookoolau), a short-lived perennial herb in the sunflower family (Asteraceae), occurs only on west Maui (Ganders and Nagata 1999, pp. 273–274). Historically, this species was known from the mountains of the Honokohau drainage basin, from the west Maui summit to as low as 2,500 ft (760 m) elevation (Sherff 1923, p. 162; HBMP 2010). In the 1990s, this species occurred in two areas encompassing over 800 ac (330 ha). Currently, *B. conjuncta* is found scattered in nine locations at elevations above 3,000 ft (914 m) in the lowland wet, montane wet, and wet cliff ecosystems. The largest numbers of individuals are found in two upper elevation areas encompassing only 135 ac (55 ha). A rough estimate is that all known occurrences may total from 3,000 to as many as 7,000 individuals (Oppenheimer 2005–GIS data; TNC 2007; Oppenheimer 2008a, in litt.; HBMP 2010; Perlman 2010, in litt.). However, it is not known whether any of these occurrences may meet the criteria for qualifying as a self-sustaining population. Currently, the greatest threat to *B.conjuncta* is competition with nonnative plants. Other threats include habitat modification by pigs, goats, and nonnative plants, herbivory by pigs, goats, slugs, and rats, seed predation by rats, hurricanes, and effects of climate change. To be considered for delisting, these threats must be managed or controlled, with a minimum of 8 to 10 self-sustaining populations consisting of all size classes sustained over a period of 5 years. These goals have not yet been met; in addition, all threats are not being sufficiently managed throughout all of the occurrences. Designation of unoccupied habitat (in addition to occupied habitat) is essential to the conservation of *B. conjuncta* as it remains in danger of extinction throughout its range, therefore it requires sufficient habitat to allow the species to persist in the face of ongoing threats and to provide for the expansion and reestablishment of populations in areas presently unoccupied by the species to meet recovery goals.

Bidens micrantha ssp. *kalealaha* (kookoolau), a short-lived perennial herb in the sunflower family (Asteraceae), is known from Lanai and Maui (Ganders and Nagata 1999, pp. 278–279). At the time we designated critical habitat in 2003, this subspecies was known from one occurrence on Lanai and four occurrences on east Maui (68 FR 1220, January 9, 2003; 68 FR 25934, May 14, 2003). Currently, *B. micrantha* ssp. *kalealaha* is known from 4 occurrences totaling over 200 individuals on Lanai and Maui. On Lanai, this subspecies is known from 1 occurrence of 12 to 14 individuals north of Waiapaa Gulch in the lowland mesic ecosystem (Puttock 2003, p. 1; TNC 2007; HBMP 2010). On east Maui, there are 4 occurrences: approximately 200 individuals south of Puu Keokea, a few individuals above Polipoli State Park, and 2 wild occurrences in Haleakala National Park (with an unreported number of individuals) (National Park Service (NPS) 2012, in litt.). The Park has outplanted 585 individuals at 18 locations (NPS 2012, in litt.). Two occurrences are in the subalpine ecosystem, and two are in the dry cliff ecosystem (TNC 2007; Oppenheimer 2010s, in litt.; NPS 2012, in litt.; HNP 2012, in litt.). On west Maui, there are four to six individuals at Honokowai in the lowland wet ecosystem (TNC 2007; HBMP 2010). This subspecies was historically known from the lowland dry and dry cliff ecosystems on Lanai, and from the montane mesic and lowland dry ecosystems on east Maui (TNC 2007; HBMP 2010).

Bidens wiebkei (kookoolau), a short-lived perennial herb in the sunflower family (Asteraceae), is endemic to Molokai (Ganders and Nagata 1999, pp. 282–283). At the time we designated critical habitat in 2003, this species was known from five occurrences on

Molokai (68 FR 12982, March 18, 2003). Currently, *B. wiebkei* is known from 6 occurrences totaling as many as 500 individuals. In the coastal ecosystem, several hundred plants occur on the windward sea cliffs from Papalaua Valley to Puahaunui Point, and 200 or more individuals are found on rolling hills and sea cliffs at Lamaloa Gulch. Approximately 40 individuals occur west of Waialua near Kahawaiiki Gulch in the lowland wet ecosystem, and about 10 individuals occur at Kumueli in the montane wet ecosystem. In the montane mesic ecosystem, there are 2 occurrences: 10 to 20 individuals below Puu Kolekole, and 1 individual at Kawela Gulch (Wood and Perlman 2002, pp. 1–2; Perlman 2006a, pp. 1–2; TNC 2007; Oppenheimer 2009a, in litt.; Wood 2009b, pp. 1–2; HBMP 2010).

Bonamia menziesii (NCN) is a short-lived perennial liana (vine) in the morning glory family (Convolvulaceae). *Bonamia menziesii* is known from Kauai, Oahu, Molokai, Lanai, Maui, and Hawaii Island (Austin 1999, p. 550; HBMP 2010). At the time we designated critical habitat in 2003 and 2012, *B. menziesii* was known from 3 occurrences on Lanai, 9 occurrences on Kauai, 6 occurrences on Maui, 2 occurrences on Hawaii Island, and 12 to 13 occurrences on Oahu (68 FR 1220, January 9, 2003; 68 FR 9116, February 27, 2003; 68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003; 77 FR 57648, September 18, 2012). However, no critical habitat was designated for this species on Lanai or Molokai in 2003 (68 FR 1220, January 9, 2003; 68 FR 12982, March 18, 2003). Currently, *B. menziesii* is known from 6 occurrences on Lanai and Maui, totaling over 10 individuals. On Lanai, *B. menziesii* is found at Kanepuu (one individual observed dead in 2008, two other individuals not observed since 2001) and at Puhielelu Ridge (two individuals were observed in 1996) in the lowland mesic ecosystem (TNC 2007; HBMP 2010; Oppenheimer 2010t, in litt.). This species is found on west Maui at Honokowai (two individuals) in the wet cliff ecosystem, and on east Maui at Puu o Kali (one individual), Kaloi (one individual), and Kanaio NAR (four individuals), in the lowland dry ecosystem (TNC 2007; Bily 2010, in litt.; HBMP 2010). This species was last seen in the dry cliff ecosystem on west Maui in 1920 (TNC 2007; HBMP 2010). *Bonamia menziesii* has not been observed on Molokai (in the lowland dry and lowland mesic ecosystems) since the early 1900s (HBMP 2010).

Brighamia rockii (pua ala), a short-lived perennial stem succulent in the bellflower family (Campanulaceae), is known from east Molokai and Lanai, and may have occurred on Maui (Lammers 1999, p. 423). At the time we designated critical habitat on Maui and Molokai in 2003, this species was known from five occurrences on Molokai (68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003). Currently, *B. rockii* is found on Molokai at Lepau Point (one individual); at Waiehu, (four individuals), and on Huelo islet (one individual), in the coastal and wet cliff ecosystems (TNC 2007; HBMP 2010; NTBG 2009i; Oppenheimer 2010u, in litt.). This species was last observed on Lanai in 1911, in the dry cliff ecosystem (HBMP 2010). According to Lammers (1999, p. 423), *B. rockii* was likely found in the coastal ecosystem on Maui.

Calamagrostis hillebrandii (NCN), a short-lived perennial in the grass family (Poaceae), occurs only on the island of Maui (O'Connor 1999, p. 1,509). Historically, this species was known from Puu Kukui in the west Maui mountains (Wagner *et al.* 2005a—*Flora of the Hawaiian Islands database*). Currently, this species is found in bogs in the montane wet ecosystem in the west Maui mountains, from Honokohau to Kahoolewa ridge, including East Bog and Eke Crater, in three occurrences totaling a few hundred individuals (TNC 2007; HBMP 2010; Oppenheimer 2010a, in litt.).

Canavalia molokaiensis (awikiwiki), a short-lived perennial climbing herb in the pea family (Fabaceae), is endemic to east Molokai (Wagner and Herbst 1999, p. 653). At the time we designated critical habitat in 2003, this species was known from seven occurrences on Molokai (68 FR 12982, March 18, 2003). Currently, *C. molokaiensis* is found in 9 occurrences totaling approximately 170 individuals in the following locations: Kawailena drainage in Pelekunu Valley (1 individual); Kua Gulch (approximately 100 individuals); near the junction at Kupiaia Gulch (10 to 20 individuals); Waiehu (5 to 10 individuals); west Kawela Gulch (6 individuals); Kukaiwaa (approximately 15 individuals); Mokomoko Gulch (a few individuals); Wailua (10 individuals); and Waialeia Stream (a few individuals) (Perlman 2008d, pp. 1–2; HBMP 2010; Tangalin 2010, in litt.). These plants are found in the coastal, lowland mesic, lowland wet, and wet cliff ecosystems (TNC 2007).

Canavalia pubescens (awikiwiki), a short-lived perennial climber in the pea family (Fabaceae), is currently found only on the island of Maui, although it was also historically known from Niihau, Kauai, and Lanai (Wagner and Herbst 1999, p. 654). On Niihau, this species was known from one population in Haao Valley that was last observed in 1949 (HBMP 2010). On Kauai, this species was known from six populations ranging from Awaawapuhi to Wainiha, where it was last observed in 1977 (HBMP 2010). On Lanai, this species was known from Kaena Point to Huawai Bay. Eight individuals were reported in the coastal ecosystem west of Hulupoe, but they have not been seen since 1998 (Oppenheimer 2007a, in litt.; HBMP 2010). At present, the only known occurrence is on east Maui, from Puu o Kali south to Pohakea, in the lowland dry ecosystem (Oppenheimer 2006a, in litt.; Starr 2006, in litt.; Altenburg 2007, pp. 12–13; Oppenheimer 2007, in litt.; Greenlee 2013, in litt.). All plants of this species that formerly were found in the Ahihi-Kinau NAR on Maui were destroyed by feral goats (*Capra hircus*) by the end of 2010 (Fell-McDonald 2010, in litt.). In addition, although approximately 20 individuals of *Canavalia pubescens* were reported from the Palauea-Keahou area as recently as 2010 (Altenberg 2010, in litt.), no individuals have been found in site visits to this area over the last 2 years (Greenlee 2013, in litt.). Greenlee (2013, in litt.) reports that these plants may have succumbed to prolonged drought. In April of 2010, *C. pubescens* totaled as many as 500 individuals; however, with the loss of the plants at Ahihi-Kinau NAR and the loss of plants at Palauea-Keahou, *C. pubescens* may currently total fewer than 200 individuals at a single location.

Cenchrus agrimonioides (kamanomano (also known as sandbur or agrimony)), a short-lived perennial in the grass family (Poaceae), is known from two varieties: *C. agrimonioides* var. *agrimonioides* (Lanai, Maui, Oahu, and Hawaii) and *C. agrimonioides* var. *laysanensis* (Kure Atoll, Midway Atoll, and Laysan) (O'Connor 1999, pp. 1,511–1,512). At the time we designated critical habitat in 2003 and 2012, *C. agrimonioides* was known from one occurrence on east Maui, one occurrence on west Maui, and three to six occurrences on Oahu (HBMP 2010; 68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). Currently, on Maui, *C. agrimonioides* is known from four occurrences totaling five individuals in the lowland dry ecosystem. On west Maui, this variety occurs in Hanaulaiki and Papalaua gulches (one individual at each location). On east Maui, *C. agrimonioides* occurs in Kanaio (2 individuals), and within the Kanio NAR (one individual) (TNC 2007; PEPP 2008, pp. 47–48; PEPP 2009, p. 39; HBMP 2010). This plant was last observed on

Lanai in 1915, in the lowland mesic ecosystem (TNC 2007; HBMP 2010).

Clermontia lindseyana (oha wai), a short-lived perennial shrub or tree in the bellflower family (Campanulaceae), is known from Maui and Hawaii Island (Lammers 1999, p. 431). At the time we designated critical habitat in 2003, *C. lindseyana* was known from 2 occurrences on Maui and from 15 occurrences on Hawaii Island (68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003). Currently, there is 1 known occurrence totaling approximately 30 individuals on east Maui at Wailaulau in the montane mesic ecosystem (Perlman 2007a, in litt.; TNC 2007; PEPP 2009, pp. 40–41; Wood 2009c, in litt.; HBMP 2010; Oppenheimer 2010a, in litt.; Oppenheimer 2010b, in litt.; Oppenheimer 2010v, in litt.; Oppenheimer 2010w, in litt.).

Clermontia oblongifolia ssp. *brevipes* (oha wai), a short-lived perennial shrub or tree in the bellflower family (Campanulaceae), is endemic to east Molokai (Lammers 1999, pp. 432–433). At the time we designated critical habitat in 2003, this species was known from one occurrence in Kamakou Preserve (68 FR 12982, March 18, 2003; Perlman 2009d, in litt.). Currently, *C. oblongifolia* ssp. *brevipes* is found in 1 known occurrence totaling 11 individuals on Uapa Ridge in the montane wet ecosystem (TNC 2007; HBMP 2010; Bakutis 2009a, in litt.; Perlman 2009d, in litt.). Historically, this subspecies also occurred in the lowland mesic, lowland wet, and wet cliff ecosystems (TNC 2007; HBMP 2010).

Clermontia oblongifolia ssp. *mauiensis* (oha wai), a short-lived perennial shrub or tree in the bellflower family (Campanulaceae), is known from Lanai and Maui (Lammers 1999, pp. 432–433). At the time we designated critical habitat in 2003, this species was known from one occurrence of two individuals on west Maui, and from historical occurrences on Lanai and east Maui (68 FR 1220, January 9, 2003; 68 FR 25934, May 14, 2003; Perlman 2009e, in litt.; HBMP 2010). However, no critical habitat was designated for this species on Maui in 2003 (68 FR 25934, May 14, 2003). Currently, *C. oblongifolia* ssp. *mauiensis* is found in one known occurrence totaling four individuals in Haipuena Gulch in the montane wet ecosystem on east Maui (TNC 2007; Perlman 2009e, in litt.; HBMP 2010). Historically, this species was also found in the lowland mesic and lowland wet ecosystem on Lanai, and the lowland wet ecosystem on Maui (TNC 2007; HBMP 2010). An examination of the type specimen and other collections indicates that *C. oblongifolia* ssp. *mauiensis* may be a hybrid; however, further examination of specimens from Lanai and Maui are necessary (Albert 2001, in litt.; Oppenheimer 2010s, in litt.).

Clermontia peleana (oha wai) is a short-lived perennial shrub or tree in the bellflower family (Campanulaceae). There are two subspecies: *C. peleana* ssp. *peleana* (Hawaii Island) and *C. peleana* ssp. *singuliflora* (east Maui and Hawaii Island) (Lammers 1999, p. 435). This species is observed to be epiphytic on *Metrosideros* spp. (ohia), *Acacia koa* (koa), and *Cheirodendron* (olapa) (Lammers 1999, p. 435). At the time we designated critical habitat on Maui in 2003, *C. peleana* had not been observed on either island since the early 1900s (68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003). Critical habitat was designated on the island of Hawaii in 2003 (68 FR 39624, July 2, 2003). Currently, there are no known individuals of *C. peleana* spp. *singuliflora* on Maui; however, this subspecies was recently rediscovered on Hawaii Island (TNC 2010). *Clermontia peleana* ssp. *singuliflora* was last seen in 1920, on east Maui in the lowland wet ecosystem (TNC 2007; HBMP 2010).

Clermontia samuelii (oha wai), a short-lived perennial shrub in the bellflower family (Campanulaceae), is known from Maui (Lammers 1999, p. 436). There are two subspecies: *C. samuelii* ssp. *hanaensis,* which generally is found at lower elevations, and *C. samuelii* ssp. *samuelii* (Lammers 1995, p. 344). At the time we designated critical habitat in 2003, *C. samuelii* was known from seven occurrences on east Maui (68 FR 25934, May 14, 2003). Currently, *C. samuelii* ssp. *hanaensis* is found in bog margins in the lowland wet and montane wet ecosystems at Kopiliula, and at Kawaipapa, with historical occurrences at Kuhiwa Valley, Palikea Stream, and Waihoi Valley (TNC 2007; HBMP 2010; Oppenheimer 2010b, in litt.; Welton 2010a, in litt.). *Clermontia samuelii* ssp. *samuelii* is found in 2 known occurrences, in East Maui's montane wet ecosystem (TNC 2007; HBMP 2010; Welton 2010a, in litt.). Five individuals have been outplanted in two locations within Haleakala National Park (NPS 2012, in litt.) There is a report of one individual (subspecies unknown) at Papanalahou Point on west Maui (HBMP 2010).

Colubrina oppositifolia (kauila), a long-lived perennial tree in the buckthorn family (Rhamnaceae), is known from Maui, Oahu, and Hawaii (Wagner *et al.* 1999y, p. 1,094). At the time we designated critical habitat in 2003 and 2012, this species was known from two occurrences on west Maui, five occurrences on Hawaii Island, and four occurrences on Oahu (68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003; 77 FR 57648, September 18, 2012). Currently, on west Maui, there are two individuals in the lowland mesic ecosystem. Historically, this species was also reported from the lowland dry ecosystem on east Maui (TNC 2007; Perlman 2008e, in litt.; Oppenheimer 2009b, in litt.; HBMP 2010).

Ctenitis squamigera (pauoa), a short-lived perennial terrestrial fern in the spleenwort family (Aspleniaceae), is known from Kauai, Oahu, Molokai, Lanai, Maui, and the island of Hawaii (Palmer 2003, pp. 100–102). At the time we designated critical habitat in 2003 on Kauai, Molokai, and Maui, and in 2012 on Oahu, *C. squamigera* was known from 2 occurrences on Lanai, 1 occurrence on Molokai, 12 occurrences on Maui, and 4 occurrences on Oahu (68 FR 1220, January 9, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). No critical habitat was designated for this species on Lanai or Hawaii in 2003 (68 FR 1220, January 9, 2003; 68 FR 39624, July 2, 2003). Currently, *C. squamigera* is found in 12 known occurrences totaling over 120 individuals on Lanai, Molokai, and west Maui (Oppenheimer 2010i, in litt.). On Lanai, an unknown number of individuals occur on the leeward (south) side of the island at Waiapaa in the wet cliff ecosystem. There are historical records from the dry cliff and wet cliff ecosystems at upper Kehewai Gulch, Haalelepaakai, and Kaiholena (HBMP 2010). On Molokai, 20 individuals occur at Wawaia in the lowland mesic ecosystem. On west Maui, there are 9 occurrences totaling 80 to 84 individuals in the lowland dry, lowland mesic, lowland wet, montane mesic, and wet cliff ecosystems. *Ctenitis squamigera* is found in Honokowai Valley (20 individuals), Puu Kaeo (2 to 4 individuals), Kahana Iki (1 individual), Kahana (14 individuals), Kanaha Valley (10 individuals), Kahoma (1 individual), Puehuehunui (1 to 2 individuals), Ukumehame Valley (1 to 2 individuals), and Iao Valley (approximately 30 individuals). On east Maui, there are 28 individuals at Pohakea in the lowland dry ecosystem and a historical record from the lowland mesic ecosystem. This species was apparently found in the Kipahulu FR (Kaapahu) area on east Maui, but no further details have been provided (Wood and Perlman 2002, p. 7; East Maui Watershed Partnership 2006, p.

17; TNC 2007; HBMP 2010; Oppenheimer 2010r, in litt.).

Cyanea asplenifolia (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), is found only on the island of Maui. This species was known historically from Waihee Valley and Kaanapali on west Maui, and Halehaku ridge on east Maui (Lammers 1999, p. 445; HBMP 2010). On west Maui, in the lowland wet ecosystem, there are 3 occurrences totaling 14 individuals in the Puu Kukui Preserve and two occurrences totaling 5 individuals in the West Maui NAR. On east Maui, *C. asplenifolia* is found in 1 occurrence each in the lowland mesic ecosystem in Haleakala National Park (53 individuals) and Kipahulu FR (140 individuals), and 1 occurrence in the lowland wet ecosystem in the Makawao FR (5 individuals) (TNC 2007; Oppenheimer 2008b, in litt, 2010b, in litt.; PEPP 2008, p. 48; Welton and Haus 2008, p. 12; NTBG 2009c, pp. 3–5; HBMP 2010; Welton 2010a, in litt.). Currently, *C. asplenifolia* is known from 8 occurrences totaling fewer than 200 individuals. The occurrence at Haleakala National Park is protected by a temporary exclosure (Haleakala National Park (HNP) 2012, in litt.).

Cyanea copelandii ssp. *haleakalaensis* (haha), a short-lived perennial vine-like shrub in the bellflower family (Campanulaceae), is known from Maui (Lammers 1999, pp. 445–446). At the time we designated critical habitat in 2003, this subspecies was known from five occurrences on Maui (68 FR 25934, May 14, 2003). Currently, *C. copelandii* ssp. *haleakalaensis* is found in 7 widely distributed occurrences totaling over 600 individuals on east Maui. One occurrence of over 20 scattered individuals is found in east Makaiwa in the lowland wet ecosystem; 4 occurrences totaling approximately 100 individuals are found along streams in Keanae in the lowland wet and montane wet ecosystems; 2 occurrences totaling approximately 500 individuals are found in Kipahulu Valley, in the montane wet, wet cliff, and lowland wet ecosystems; and a few individuals are found at Kaapahu in the montane wet and lowland mesic ecosystems (HNP 2004, pp. 5–6; HNP 2005, pp. 5–6; HNP 2007, pp. 2, 4; TNC 2007; Perlman 2007b, in litt.; Bily *et al.* 2008, p. 37; Welton and Haus 2008, pp. 12–13; Wood 2009d, in litt; HBMP 2010; Oppenheimer 2010b, in litt.; 2010x, in litt.; Welton 2010a, in litt.). Forty-six individuals have been outplanted at 10 sites within Haleakala National Park (NPS 2012, in litt.).

Cyanea dunbariae (haha) (formerly *Cyanea dunbarii*), is a short-lived perennial shrub in the bellflower family (Campanulaceae), and is endemic to Molokai (Lammers 1999, p. 448). At the time we designated critical habitat in 2003, this species was known from one occurrence at Mokomoko Gulch (68 FR 12982, March 18, 2003). Currently, there are 10 individuals in Mokomoko Gulch in the lowland mesic ecosystem (TNC 2007; PEPP 2008, p. 48; HBMP 2010; Oppenheimer 2010u, in litt.; NTBG 2011a). Historically, this species was also found in Molokai's lowland wet and montane mesic ecosystems (TNC 2007; HBMP 2010).

Cyanea duvalliorum (haha), a short-lived perennial tree in the bellflower family (Campanulaceae), is found only in the east Maui mountains (Lammers 2004, p. 89). This species was described in 2004, after the discovery of individuals of a previously unknown species of *Cyanea* at Waiohiwi Gulch (Lammers 2004, p. 91). Studies of earlier collections of sterile material extend the historical range of this species on the windward slopes of Haleakala in the lowland wet and montane wet ecosystems, east of Waiohiwi Stream, from Honomanu Stream to Wailua Iki Streams, and to Kipahulu Valley (Lammers 2004, p. 89). In 2007, one individual was observed in the lowland wet ecosystem of the Makawao FR (NTBG 2009d, p. 2). In 2008, 71 individuals were found in 2 new locations in the Makawao FR, along with many juveniles and seedlings (NTBG 2009d, p. 2). Currently there are 2 occurrences with an approximate total of 71 individuals in the montane wet ecosystem near Makawao FR, with an additional 135 individuals outplanted in Waikamoi Preserve (TNC 2007; NTBG 2009d, p. 2; Oppenheimer 2010a, in litt.).

Cyanea gibsonii (haha) (formerly *Cyanea macrostegia* ssp. *gibsonii*), is a short-lived perennial tree in the bellflower family (Campanulaceae), and is known from Lanai (Lammers 1999, p. 457). In 2003, this species was known from two occurrences (68 FR 1220, January 9, 2003). However, no critical habitat was designated for this species on Lanai in 2003 (68 FR 1220, January 9, 2003). Currently, there are about 10 to 20 individuals in Hauola Gulch, in the montane wet ecosystem (TNC 2007; PEPP 2009, p. 53; HBMP 2010; Oppenheimer 2010t, in litt.). Historically, this species was also found north of Lanaihale and at Puu Alii in the wet cliff and montane wet ecosystems (PEPP 2009, p. 53).

Cyanea glabra (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), is endemic to Maui (Lammers 1999, pp. 449, 451). At the time we designated critical habitat in 2003, this species was known from one occurrence on west Maui (68 FR 25934, May 14, 2003). However, on west Maui, individuals identified as *C. glabra* in the lowland wet and wet cliff ecosystems may be an undescribed species related to *C. acuminata* (Lorence 2010, in litt.; Oppenheimer 2010y, in litt.). On east Maui, wild individuals of *C. glabra* in the montane wet and montane mesic ecosystems may more closely resemble the endangered *C. maritae* (Oppenheimer 2010y, in litt.). Further taxonomic study of these occurrences is needed (TNC 2007; Perlman 2009f, in litt.; HBMP 2010). In the meantime, we will continue to identify these individuals as *C. glabra.*

Cyanea grimesiana ssp. *grimesiana* (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), is known only from Oahu and Molokai (Lammers 2004 p. 84; Lammers 1999, pp. 449, 451; 68 FR 35950, June 17, 2003). On Molokai, this species was last observed in 1991 in the wet cliff ecosystem at Wailau Valley (PEPP 2010, p. 45). Currently, on Oahu there are five to six individuals in four occurrences in the Waianae and Koolau Mountains (U.S. Army 2006; HBMP 2010).

Cyanea hamatiflora ssp. *hamatiflora* (haha), a short-lived perennial palm-like tree in the bellflower family (Campanulaceae), is known from east Maui (Lammers 1999, p. 452). At the time we designated critical habitat in 2003, there were nine occurrences (68 FR 25934, May 14, 2003). Currently, there are at least 9 occurrences totaling between 458 and 558 individuals in the lowland wet and montane wet ecosystems, at Haipuaena Stream, Wailuaiki Stream, above Kuhiwa Valley, in Kipahulu Valley, and at Kaapahu (TNC 2007; PEPP 2008, pp. 50–51; Welton and Haus 2008, p. 26; HBMP 2010; Oppenheimer 2010b, in litt.; Welton 2010a, in litt.). Historically, this subspecies also occurred in the montane mesic ecosystem (TNC 2007; HBMP 2010). Seventeen individuals have been outplanted at three sites in Haleakala National Park (NPS 2012, in litt.).

Cyanea horrida (haha nui), a member of the bellflower family (Campanulaceae), is a short-lived perennial palm-like tree found only on the island of Maui. This species was known historically from the slopes of Haleakala (Lammers 1999, p. 453; HBMP 2010). Currently, *C. horrida* is known from 12 occurrences totaling 44 individuals in the montane mesic, montane wet, and wet cliff ecosystems in Waikamoi Preserve, Hanawai Natural

Area Reserve, and Haleakala National Park on east Maui (TNC 2007; PEPP 2009, p. 52; HBMP 2010; Oppenheimer 2010c, in litt.; PEPP 2010, pp. 46–47; TNCH 2010a, p. 1).

Cyanea kunthiana (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), is found only on Maui, and was historically known from both the east and west Maui mountains (Lammers 1999, p. 453; HBMP 2010). *Cyanea kunthiana* was known to occur in the montane mesic ecosystem in the east Maui mountains in upper Kipahulu Valley, in Haleakala National Park and Kipahulu FR (HBMP 2010). Currently, in the east Maui mountains, *C. kunthiana* occurs in the lowland wet and montane wet ecosystems in Waikamoi Preserve, Hanawi NAR, East Bog, Kaapahu, and Kipahulu Valley. In the west Maui mountains, *C. kunthiana* occurs in the lowland wet and montane wet ecosystems at Eke Crater, Kahoolewa ridge, and at the junction of the Honokowai, Hahakea, and Honokohau gulches (TNC 2007; HBMP 2008; NTBG 2009e, pp. 1–3; HBMP 2010; Oppenheimer 2010a, in litt.; Perlman 2010, in litt.). The 15 occurrences total 165 individuals, although botanists speculate that this species may total as many as 400 individuals with further surveys of potential habitat on east and west Maui (TNC 2007; HBMP 2010; Fay 2010, in litt.; Oppenheimer 2010a, in litt.; Osternak 2010, in litt.).

Cyanea lobata (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), is known from two subspecies, *C. lobata* ssp. *baldwinii* (Lanai) and *C. lobata* ssp. *lobata* (west Maui) (Lammers 1999, pp. 451, 454). At the time we designated critical habitat on Maui in 2003, there were no known occurrences of *C. lobata* ssp. *baldwinii* on Lanai and five occurrences of *C. lobata* ssp. *lobata* on west Maui (68 FR 1220, January 9, 2003; 68 FR 25934, May 14, 2003). However, no critical habitat was designated for this species on Lanai in 2003 (68 FR 1220, January 9, 2003). In 2006, *C. lobata* ssp. *baldwinii* was rediscovered around Hauola on Lanai, in the montane wet ecosystem (Wood 2006a, p. 15; TNC 2007; Wood 2009e, in litt.). Currently, there are three to four individuals at this location (Perlman 2007c, in litt.; Oppenheimer 2009c, in litt.; PEPP 2009, p. 53). On west Maui, there are five occurrences of *C. lobata* ssp. *lobata* totaling eight individuals at Honokohau, Honokowai, and Mahinahina, in the lowland wet and wet cliff ecosystems (TNC 2007; HBMP 2010; Oppenheimer 2010i, in litt.).

Cyanea magnicalyx (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), is known from west Maui (Lammers 1999, pp. 449, 451; Lammers 2004, p. 84). Currently, there are seven individuals in three occurrences on west Maui: Two individuals in Kaluanui, a subgulch of Honokohau Valley, in the lowland wet ecosystem; four individuals in Iao Valley in the wet cliff ecosystem; and one individual in a small drainage south of the Kauaula rim, in the montane mesic ecosystem (Lammers 2004, p. 87; Perlman 2009b in litt.; Wood 2009d, in litt.).

Cyanea mannii (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), is endemic to east Molokai (Lammers 1999, p. 456). At the time we designated critical habitat in 2003, there were eight occurrences at Puu Kolekole and Kawela Gulch (68 FR 12982, March 18, 2003). Currently, there are fewer than 200 individuals in 11 occurrences extending across the summit area from Mokomoko Gulch to Kua Gulch, in the lowland mesic, montane mesic, and montane wet ecosystems (Perlman 2002a, in litt.; Wood and Perlman 2002, p. 2; TNC 2007; Wood 2009f, in litt.; HBMP 2010; Oppenheimer 2010u, in litt.).

Cyanea maritae (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), is found only on Maui (Lammers 2004, p. 92). Sterile specimens were collected from the northwestern slopes of Haleakala in the Waiohiwi watershed and east to Kipahulu in the early 1900s. Between 2000 and 2002, fewer than 20 individuals were found in the Waiohiwi area (Lammers 2004, pp. 92, 93). Currently, there are 4 occurrences, totaling between 23 and 50 individuals in Kipahulu, Kaapahu, west Kahakapao, and in the Koolau FR in the lowland wet and montane wet ecosystems on east Maui (TNC 2007; Oppenheimer 2010b, in litt.; Welton 2010b, in litt.).

Cyanea mauiensis (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), was last observed on Maui about 100 years ago (Lammers 2004, pp. 84–85; TNC 2007). Although there are no documented occurrences of this species known today, botanists believe this species may still be extant as all potentially suitable lowland mesic and dry cliff habitat has not been surveyed.

Cyanea mceldowneyi (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), is found on east Maui (Lammers 1999, p. 457). At the time we designated critical habitat in 2003, this species was known from 11 occurrences (68 FR 25934, May 14, 2003). Currently, *C. mceldowneyi* is known from at least 10 occurrences totaling over 100 individuals in the lowland wet, montane wet, and montane mesic ecosystems (PEPP 2007, p. 39; TNC 2007; PEPP 2008, pp. 53–54; PEPP 2009, pp. 53, 57; HBMP 2010; Oppenheimer 2010b, in litt.).

Cyanea munroi (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), is known from Molokai and Lanai (Lammers 1999, pp. 449, 451; Lammers 2004, pp. 84–87). Currently, there are no known individuals on Molokai (last observed in 2001), and only two individuals on Lanai at a single location, in the wet cliff ecosystem (TNC 2007; Perlman 2008a, in litt.; Wood 2009a, in litt.; HBMP 2010; Oppenheimer 2010d, in litt.).

Cyanea obtusa (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), is found only on Maui (Lammers 1999, p. 458). Historically, this species was found in both the east and west Maui mountains (Hillebrand 1888, p. 254; HBMP 2010). Not reported since 1919 (Lammers 1999, p. 458), *C. obtusa* was rediscovered in the early 1980s at one site each on east and west Maui. However, by 1989, plants in both locations had disappeared (Hobdy *et al.* 1991, p. 3; Medeiros 1996, in litt.). In 1997, 4 individuals were observed in Manawainui Gulch in Kahikinui, and another occurrence of 5 to 10 individuals was found in Kahakapao Gulch, both in the montane mesic ecosystem on east Maui (Wood and Perlman 1997, p. 11; Lau 2001, in litt.). However, the individuals found at Kahakapao Gulch are now considered to be *Cyanea elliptica* or hybrids between *C. obtusa* and *C. elliptica* (PEPP 2007, p. 40). In 2001, several individuals were seen in Hanaula and Pohakea gulches on west Maui; however, only hybrids are currently known in this area (NTBG 2009f, p. 3). It is unknown if individuals of *C. obtusa* remain at Kahikinui, as access to the area to ascertain the status of these plants is difficult and has not been attempted since 2001 (PEPP 2008, p. 55; PEPP 2009, p. 58). Two individuals were observed on a cliff along Wailaulau Stream in the montane mesic ecosystem on east Maui in 2009 (Duvall 2010, in litt.). Currently, this species is known from one occurrence of only a few individuals in the montane mesic ecosystem on east Maui. Historically, this species also occurred in the lowland dry ecosystem at Manawainui on west Maui and at Ulupalakua on east Maui (HBMP 2010).

Cyanea procera (haha), a short-lived perennial tree in the bellflower family (Campanulaceae), is known from

Molokai (Lammers 1999, p. 460). At the time we designated critical habitat in 2003, this species was known from five occurrences (68 FR 12982, March 18, 2003). Currently, there are one to two individuals near Puuokaeha in Kawela Gulch in the montane mesic ecosystem (TNC 2007; PEPP 2008, pp. 55–56; Oppenheimer 2010u, in litt.; NTBG 2011b). Historically, this species was also found in the lowland mesic and montane wet ecosystems (TNC 2007; HBMP 2010).

Cyanea profuga (haha), a short-lived perennial shrub in the bellflower family (Campanulaceae), occurs only on Molokai (Lammers 1999, pp. 461–462; Wood and Perlman 2002, p. 4). Historically, this species was found in Mapulehu Valley and along Pelekunu Trail, and has not been seen in those locations since the early 1900s (Wood and Perlman 2002, p. 4). In 2002, six individuals were discovered along a stream in Wawaia Gulch (Wood and Perlman 2002, p. 4). In 2007, seven individuals were known from Wawaia Gulch, and an additional six individuals were found in Kumueli (Wood 2005, p. 17; USFWS 2007a; PEPP 2010, p. 55). In 2009, only four individuals remained at Wawaia Gulch; however, nine were found in Kumueli Gulch (Bakutis 2010, in litt.; Oppenheimer 2010e, in litt.; Perlman 2010, in litt.; PEPP 2010, p. 55). Currently, there are 4 occurrences totaling up to 34 individuals in the lowland mesic and montane wet ecosystems on Molokai (TNC 2007; Bakutis 2010, in litt.; Perlman 2010, in litt.).

Cyanea solanacea (popolo, haha nui), a short-lived perennial shrub in the bellflower family (Campanulaceae), is found only on Molokai. According to Lammers (1999, p. 464) and Wagner (*et al.* 2005a—*Flora of the Hawaiian Islands database*) the range of *C. solanacea* includes Molokai and may also include west Maui. In his treatment of the species of the Hawaiian endemic genus *Cyanea,* Lammers (1999, p. 464) included a few sterile specimens of *Cyanea* from Puu Kukui, west Maui and the type specimen (now destroyed) for *C. scabra* var. *sinuata* from west Maui in *C. solanacea.* However, Oppenheimer recently reported (Oppenheimer 2010a, in litt.) that the plants on west Maui were misidentified as *C. solanacea* and are actually *C. macrostegia.* Based on Oppenheimer's recent field observations, the range of *C. solanacea* is limited to Molokai. Historically, *Cyanea solanacea* ranged from central Molokai at Kalae, eastward to Pukoo in the lowland mesic, lowland wet, and montane mesic ecosystems (HBMP 2010). Currently, there are four small occurrences at Hanalilolilo, near Pepeopae Bog, Kaunakakai Gulch, and Kawela Gulch, in the montane wet ecosystem. These occurrences total 26 individuals (Bakutis 2010, in litt.; Oppenheimer 2010a, in litt.; TNCH 2011, pp. 21, 57).

Cyperus fauriei (formerly *Mariscus fauriei*) (NCN), is a short-lived perennial in the sedge family (Cyperaceae), and is known from Molokai, Lanai, and the island of Hawaii (Koyama 1999, p. 1,417). At the time we designated critical habitat in 2003, *C. fauriei* was known from 1 occurrence of 20 to 30 individuals on Molokai and 2 occurrences on the island of Hawaii (68 FR 12982, March 18, 2003; 68 FR 39624, July 2, 2003). Currently, on Molokai, an unknown number of individuals are found in the area of Makolelau, at Kamakou Preserve at Makakupaia, at Waihanau drainage, and at Kamalo, in the lowland mesic and montane mesic ecosystems (TNC 20007; HBMP 2010; Oppenheimer 2010u, in litt.). *Cyperus fauriei* was last observed on Lanai in the early 1900s, in the lowland dry ecosystem (TNC 2007; HBMP 2010).

Cyperus pennatiformis (NCN), a short-lived perennial in the sedge family (Cyperaceae), is known from Laysan Island, Kauai, Oahu, east Maui, and the island of Hawaii (Koyama 1999, pp. 1,421–1,423). There are two varieties: *C. pennatiformis* var. *bryanii* (Laysan) and *C. pennatiformis* var. *pennatiformis* (main Hawaiian Islands). At the time we designated critical habitat on Laysan, Kauai, and Maui in 2003, and on Oahu in 2012, this species was known from only one occurrence (totaling an unknown number of individuals) on Laysan Island (*C. pennatiformis* var. *bryanii*), and one occurrence (totaling 30 individuals) on east Maui (*C. pennatiformis* var. *pennatiformis*) (68 FR 9116, February 27, 2003; 68 FR 25934, May 14, 2003; 68 FR 28054, May 22, 2003; 77 FR 57648, September 18, 2012). Both occurrences were in the coastal ecosystem (68 FR 25934, May 14, 2003; 68 FR 28054, May 22, 2003). The known occurrence of *C. pennatiformis* var. *pennatiformis* in the coastal ecosystem on east Maui has not been relocated (Wagner *et al.* 2005; HBMP 2010).

Cyperus trachysanthos (puukaa), a short-lived grass-like perennial in the sedge family (Cyperaceae), is known from the islands of Niihau, Kauai, Oahu, Molokai, and Lanai (Koyama 1999, pp. 1,399–1,400). At the time we designated critical habitat in 2003 and 2012, *C. trachysanthos* was found on Kauai and Oahu, respectively (68 FR 9116, February 27, 2003; 77 FR 57648, September 18, 2012). This species has not been observed on the islands of Lanai and Molokai, in the lowland dry ecosystems since 1912 and 1919, respectively (TNC 2007; HBMP 2010).

Cyrtandra ferripilosa (haiwale), a short-lived perennial shrub in the African violet family (Gesneriaceae), occurs only on Maui (St. John 1987, pp. 497–498; Wagner and Herbst 2003, p. 29). This species was discovered in 1980 in the east Maui mountains at Kuiki in Kipahulu Valley (St. John 1987, pp. 497–498; Wagner *et al.* 2005a—*Flora of the Hawaiian Islands database*). Currently, there are a few individuals each in two occurrences at Kuiki and on the Manawainui plane in the montane mesic and montane wet ecosystems (Oppenheimer 2010f, in litt.; Welton 2010a, in litt.).

Cyrtandra filipes (haiwale), a short-lived perennial shrub in the African violet family (Gesneriaceae), is found on Maui (Wagner *et al.* 1999d, pp. 753–754; Oppenheimer 2006b, in litt.). According to Wagner *et al.* (1999d, p. 754), the range of *C. filipes* includes Maui and Molokai. Historical collections from Kapunakea (1800) and Olowalu (1971) on Maui indicate it once had a wider range on this island. In 2004, it was believed there were over 2,000 plants at Honokohau and Waihee in the west Maui mountains; however, recent studies have shown that these plants do not match the description for *C. filipes* (Oppenheimer 2006b, in litt.). Currently, there are between 134 and 155 individuals in 4 occurrences in the lowland wet and wet cliff ecosystems at Kapalaoa, Honokowai, Honolua, and Waihee Valley on west Maui, and approximately 7 individuals at Mapulehu in the lowland mesic ecosystem on Molokai, with an historical occurrence in the lowland wet ecosystem (Oppenheimer 2010c, in litt.).

Cyrtandra munroi (haiwale), a short-lived perennial shrub in the African violet family (Gesneriaceae), is known from Lanai and west Maui (Wagner *et al.* 1999d, p. 770; 68 FR 25934, May 14, 2003). At the time we designated critical habitat on Maui in 2003, *C. munroi* was known from two occurrences on Lanai and five occurrences on west Maui (68 FR 1220, January 9, 2003; 68 FR 25934, May 14, 2003). However, no critical habitat was designated for this species on Lanai (68 FR 1220, January 9, 2003). Currently, on Lanai, *C. munroi* is found in 3 occurrences totaling 23 individuals at Puu Alii (20 individuals), Waialala Gulch (1 individual), and Lanaihale (2 individuals), in the montane wet and wet cliff ecosystems (TNC 2007; HBMP 2010; Oppenheimer 2010u, in litt.). On west Maui, *C. munroi* is found in 6 occurrences totaling 45 individuals at

Makamakaole Gulch (1 individual), Honokohau Gulch (1 individual), Kahana Valley (1 individual), Hahakea Gulch (1 individual), Kapunakea Preserve (12 individuals), and Amalu Stream (29 individuals), in the lowland wet and wet cliff ecosystems (TNC 2007; HBMP 2010; Oppenheimer 2010i, in litt.).

Cyrtandra oxybapha (haiwale), a short-lived perennial shrub in the African violet family (Gesneriaceae), is found on Maui (Wagner *et al.* 1999d, p. 771). This species was discovered in the upper Pohakea Gulch in Hanaula in the west Maui mountains in 1986 (Wagner *et al.* 1989, p. 100; TNC 2007). Currently, there are 2 known occurrences with a total of 137 to 250 individuals. *Cyrtandra oxybapha* occurs in the montane wet ecosystem on west Maui, from Hanaula to Pohakea Gulch. This occurrence totals between 87 and 97 known individuals, with perhaps as many as 150 or more (Oppenheimer 2008c, in litt.). The current status of the 50 to 100 individuals in the montane mesic ecosystem in Manawainui Gulch on east Maui is unknown, as these plants have not been surveyed since 1997 (Oppenheimer 2010a, in litt.).

Diplazium molokaiense (NCN), a short-lived perennial terrestrial fern in the spleenwort family (Aspleniaceae), is known from all of the major Hawaiian Islands except Hawaii Island (Palmer 2003, p. 125). At the time we designated critical habitat on Kauai, Molokai, and Maui, in 2003, and on Oahu in 2012, *D. molokaiense* was known only from east Maui (68 FR 9116, February 27, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). Currently, *D. molokaiense* is known from three occurrences on Maui. On west Maui, there are five individuals at Puehuehunui in the montane mesic ecosystem. On east Maui, there are 2 occurrences, one at Honomanu (about 15 individuals) in the montane wet ecosystem, and one in the Kula FR (about 50 individuals) in the montane mesic ecosystem (Wood 2006b, pp. 32–34; TNC 2007; Wood 2007, p. 14; PEPP 2009, p. 71; HBMP 2010). *Diplazium molokaiense* occurred historically in the dry cliff ecosystem on east Maui, and the lowland wet and dry cliff ecosystems on west Maui (TNC 2007; HBMP 2010). It was also found in the lowland mesic and dry cliff ecosystems on Lanai, and in the lowland mesic ecosystem on Molokai (TNC 2007; HBMP 2010).

Dubautia plantaginea ssp. *humilis* (naenae), a short-lived perennial shrub or small tree in the sunflower family (Asteraceae), is known from west Maui (Carr 1999b, pp. 304–305). At the time we designated critical habitat in 2003, *D. plantaginea* ssp. *humilis* was known from 2 occurrences totaling 60 to 65 individuals on west Maui (68 FR 25934, May 14, 2003). Currently, *D. plantaginea* ssp. *humilis* is known from 1 occurrence of 35 individuals in Iao Valley, in the wet cliff ecosystem (TNC 2007; PEPP 2009, p. 72; HBMP 2010; Oppenheimer 2010i, in litt.).

Eugenia koolauensis (nioi), a long-lived perennial shrub or small tree in the myrtle family (Myrtaceae), is known from Oahu and Molokai (Wagner *et al.* 1999w, p. 960). At the time we designated critical habitat on Molokai in 2003 and on Oahu in 2012, this species was only known from 13 occurrences on Oahu (68 FR 12982, March 18, 2003; 77 FR 57648, September 18, 2012). Currently, *E. koolauensis* is extant only on Oahu. This species was last seen on Molokai in 1920, in the lowland dry ecosystem (TNC 2007; HBMP 2010).

Festuca molokaiensis (NCN), a short-lived perennial in the grass family (Poaceae), is found on Molokai (Catalan *et al.* 2009, p. 54). This species is only known from the type locality at Kupaia Gulch, in the lowland mesic ecosystem (Catalan *et al.* 2009, p. 55). Last seen in 2009, the current number of individuals is unknown; however, field surveys for *F. molokaiensis* at Kupaia Gulch are planned for 2011 (Oppenheimer 2010g, in litt.). Oppenheimer (2011, pers. comm.) suggests that the drought over the past couple of years on Molokai may have suppressed the growth of *F. molokaiensis* and prevented its observation by botanists in the field. He also suggested that this species may be an annual whose growth will be stimulated by normal rainfall patterns.

Flueggea neowawraea (mehamehame) is a long-lived perennial tree in the family Euphorbiaceae. This species is known from Kauai, Oahu, Molokai, Maui, and the island of Hawaii (Hayden 1999, pp. 620–621). At the time we designated critical habitat in 2003, there were 100 occurrences on Kauai, 4 occurrences on Maui, and 2 occurrences on the island of Hawaii; in 2012, there were 18 occurrences on Oahu, (68 FR 9116, February 27, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003; 77 FR 57648, September 18, 2012). *Flueggea neowawraea* was last observed at Waihii on Molokai in 1931 (HBMP 2010). Currently, two individuals of *F. neowawraea* are found on east Maui's southern flank of Haleakala at Auwahi, in the lowland dry ecosystem (PEPP 2009, p. 73; Oppenheimer 2010b, in litt.). *Flueggea neowawraea* was last observed on Molokai in 1931 at Waianui, in the lowland mesic ecosystem (HBMP 2010).

Geranium arboreum (Hawaiian red-flowered geranium), a short-lived perennial shrub in the geranium family (Geraniaceae), is known from east Maui (Wagner *et al.* 1999e, p. 729). At the time we designated critical habitat in 2003, there were 12 occurrences totaling 158 individuals (68 FR 25934, May 14, 2003). Currently, there are 5 occurrences totaling fewer than 30 individuals in east Maui's montane mesic and subalpine ecosystems. Historically, *G. arboreum* was also found in the montane dry ecosystem (TNC 2007; Oppenheimer 2009d, in litt.; Perlman 2009g, in litt.; Wood 2009g, in litt.; HBMP 2010; Oppenheimer 2010b, in litt.; Welton 2010a, in litt.). One hundred and eighty-nine individuals have been outplanted at 11 sites within Haleakala National Park (NPS 2012, in litt.).

Geranium hanaense (nohoanu), a short-lived perennial shrub in the geranium family (Geraniaceae), is found on Maui (Wagner *et al.* 1999e, pp. 730–732). This species was first collected in 1973, from two adjacent montane bogs on the northeast rift of Haleakala, east Maui (Medeiros and St. John 1988, pp. 214–220). At that time, there were an estimated 500 to 700 individuals (Medeiros and St. John 1988, pp. 214–220). Currently, *G. hanaense* occurs in ''Big Bog'' and ''Mid Camp Bog'' in the montane wet ecosystem on the northeast rift of Haleakala, with the same number of estimated individuals (Welton 2008, in litt.; Welton 2010a, in litt.; Welton 2010b, in litt.).

Geranium hillebrandii (nohoanu), a short-lived perennial shrub in the geranium family (Geraniaceae), is found on Maui (Aedo and Munoz Garmendia 1997; p. 725; Wagner *et al.* 1999e, pp. 732–733; Wagner and Herbst 2003, p. 28). Little is known of the historical locations of *G. hillebrandii,* other than the type collection made in the 1800s at Eke Crater, in the west Maui mountains (Hillebrand 1888, p. 56). Currently, 4 occurrences total over 10,000 individuals, with the largest 2 occurrences in the west Maui bogs, from Puu Kukui to East Bog and Kahoolewa ridge. A third occurrence is at Eke Crater and the surrounding area, and the fourth occurrence is at Lihau (HBMP 2010; Oppenheimer 2010h, in litt.). These occurrences are found in the montane wet and montane mesic ecosystems on west Maui (TNC 2007).

Geranium multiflorum (nohoanu), a short-lived perennial shrub in the geranium family (Geraniaceae), is known from east Maui (Wagner *et al.* 1999e, pp. 733–734). At the time we

designated critical habitat in 2003, there were 13 occurrences. Due to the inaccessibility of the plants, and the difficulty in determining the number of individuals (because of the plant's multi-branched form), the total number of individuals of this species was not known; however, it was assumed to not exceed 3,000 (68 FR 25934, May 14, 2003). Currently, *G. multiflorum* is found in nine occurrences on east Maui, from Koolau Gap to Kalapawili Ridge, in the subalpine, montane mesic, montane wet, and dry cliff ecosystems. It is estimated there may be as many as 500 to 1,000 individuals (Bily *et al.* 2003, pp. 4–5; TNC 2007; Perlman 2009h, in litt.; Wood 2009h, in litt.; HBMP 2010; Oppenheimer 2010b, in litt.; HNP 2012, in litt.). One hundred and fifty plants have been outplanted at eight locations within Haleakala National Park (NPS 2012, in litt.).

Gouania hillebrandii (NCN), a short-lived perennial shrub in the buckthorn family (Rhamnaceae), is known from Molokai, Lanai, Maui, and Kahoolawe (Wagner *et al.* 1999z, p. 1,095). At the time we designated critical habitat in 1984 on Maui, there was one occurrence (49 FR 44753, November 9, 1984). Currently, on Molokai, there is 1 occurrence of about 50 individuals at Puu Kolekole in the lowland mesic ecosystem (USFWS 1990, pp. 4–10; TNC 2007; PEPP 2008, p. 61; Perlman 2008f, in litt.; Wood 2009i, in litt.). On west Maui, there are fewer than 1,000 individuals in the lowland dry ecosystem (TNC 2007; HBMP 2010; Oppenheimer 2010i, in litt.). This species was last observed on Lanai and Kahoolawe in the 1800s (HBMP 2010).

Gouania vitifolia (NCN), a short-lived perennial climbing shrub or woody vine in the buckthorn family (Rhamnaceae), is known from Oahu, Maui, and the island of Hawaii (Wagner *et al.* 1999z, p. 1,097). At the time we designated critical habitat on Maui and Hawaii in 2003 and Oahu in 2012, *G. vitifolia* was only known from one occurrence on the island of Hawaii and two occurrences on Oahu (68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003; 77 FR 57648, September 18, 2012). Currently, botanists are searching potentially suitable habitat in the wet cliff ecosystem on west Maui where *G. vitifolia* was last seen in the 1800s (TNC 2007; HBMP 2010; Oppenheimer 2010z, in litt.).

Hesperomannia arborescens (NCN), a short-lived perennial shrubby tree in the sunflower family (Asteraceae), is known from Oahu, Molokai, Lanai, and Maui (Wagner *et al.* 1999m, p. 325). At the time we designated critical habitat on Molokai and Maui in 2003 and on Oahu in 2012, *H. arborescens* was known from 1 occurrence on Molokai, 4 occurrences on west Maui, and 19 occurrences on Oahu (68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). However, no critical habitat was designated for this species on Maui in 2003 (68 FR 25934, May 14, 2003). Currently, there are five or six occurrences on Molokai and Maui totaling 122 to 125 individuals. On Molokai, there are 30 individuals between Wailau and Pelekunu in the wet cliff ecosystem. Historically, this species was also reported from the montane wet ecosystem (HBMP 2010). On west Maui, 4 or 5 occurrences totaling 92 to 95 individuals are found in the lowland wet and wet cliff ecosystems, in Honokohau (30 individuals), Waihee (approximately 60 individuals), Kapilau Ridge (1 individual), and Lanilili (1 individual). There is some question regarding the identification of three individuals in Iao Valley (HBMP 2010; Oppenheimer 2010i, in litt.). This species has not been observed since 1940 on Lanai, in the wet cliff ecosystem (TNC 2007; HBMP 2010). The results of a recent research study indicate that the plants on Oahu may be genetically distinct from plants on Molokai, Maui, and Lanai (Ching-Harbin 2003, p. 81; Morden and Harbin 2013).

Hesperomannia arbuscula (NCN), a short-lived perennial tree or shrub in the sunflower family (Asteraceae), is known from Oahu and west Maui (Wagner *et al.* 1999m, p. 325). At the time we designated critical habitat in 2003 on Maui and in 2012 on Oahu, eight occurrences were found on west Maui, and five occurrences were known from Oahu (68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). Currently, on west Maui, there are three individuals in Iao Valley, in the lowland wet ecosystem (TNC 2007; HBMP 2010; Oppenheimer 2010aa, in litt.). This species was last observed in the 1990s in the wet cliff, dry cliff, and lowland dry ecosystems on west Maui (TNC 2007; HBMP 2010). The results of a recent research study indicate that the plants on west Maui may be *H. arborescens;* if a taxonomic change should be required, we will address that change in a future rulemaking (Ching-Harbin 2003, p. 81; Morden and Harbin 2013).

Hibiscus arnottianus ssp. *immaculatus* (kokio keokeo), a long-lived perennial tree in the mallow family (Malvaceae), is endemic to east Molokai (Bates 1999, pp. 882–883). At the time we designated critical habitat in 2003, this subspecies was known from three occurrences on east Molokai (68 FR 12982, March 18, 2003). Currently, *H. arnottianus* ssp. *immaculatus* is found in 5 occurrences, totaling fewer than 100 individuals, from Waiehu to Papalaua in the coastal and wet cliff ecosystems (Perlman 2002b, in litt.; TNC 2007; NTBG 2009j; Wood 2009j, in litt.; HBMP 2010; Oppenheimer 2010u, in litt.).

Hibiscus brackenridgei (mao hau hele) is a short-lived perennial shrub or small tree in the mallow family (Malvaceae). This species is known from the islands of Kauai, Oahu, Molokai, Lanai, Maui, Hawaii, and possibly Kahoolawe. There are three subspecies: *H. brackenridgei* ssp. *brackenridgei* (Lanai, Maui, and Hawaii), *H. brackenridgei* ssp. *mokuleianus* (Kauai and Oahu), and *H. brackenridgei* ssp. *molokaiana* (Molokai and Oahu) (Wilson 1993, p. 278; Bates 1999, pp. 885–886). At the time we designated critical habitat on Molokai, Maui, and Hawaii in 2003 and on Oahu in 2012, *H. brackenridgei* ssp. *brackenridgei* was known from 2 occurrences on Lanai, 5 occurrences on Maui, and 4 occurrences on Hawaii, and *H. brackenridgei* ssp. *mokuleianus* was known from 7 occurrences totaling between 47 and 50 individuals on Oahu. *Hibiscus brackenridgei* ssp. *molokaiana* was reported from one occurrence on Oahu and had not been seen on Molokai since 1920 (68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003; 77 FR 57648, September 18, 2012). No critical habitat was designated for this species on Lanai in 2003 (68 FR 1220, January 9, 2003). Currently, *H. brackenridgei* ssp. *brackenridgei* is extant on the islands of Lanai, Maui, and Hawaii. On Lanai, there are two individuals near Keomuku Road, and one individual at Kaena, both in the lowland dry ecosystem. Historically, this subspecies was also known from Lanai's coastal ecosystem (TNC 2007; Oppenheimer 2010t, in litt.). On west Maui, there are a few individuals in Kaonohue Gulch in the lowland dry ecosystem. On east Maui, there is 1 occurrence of about 10 individuals at Keokea, in the lowland dry ecosystem (TNC 2007; PEPP 2008, pp. 64–65; PEPP 2009, pp. 76–78; Oppenheimer 2010t, in litt.; 2010u, in litt.; 2010bb, in litt; PEPP 2011, p. 118). Historically, on Molokai, *Hibiscus brackenridgei* ssp. *molokaiana* was found in the coastal ecosystem at Kihaapilani (TNC 2007; HBMP 2010).

Huperzia mannii (wawaeiole), is a short-lived perennial fern ally in the hanging fir-moss family (Lycopodiaceae) that is typically epiphytic on native plants such as *Metrosideros polymorpha* or *Acacia koa*. This species is known

from Kauai, Maui, and the island of Hawaii (Palmer 2003, p. 256). At the time we designated critical habitat on Kauai and Maui in 2003, this species was known from Maui and the island of Hawaii (68 FR 25934, May 14, 2003). No critical habitat was designated for this species on Hawaii in 2003 (68 FR 39624, July 2, 2003). Currently, on Maui there are 6 occurrences totaling 97 to 100 individuals. On west Maui, 14 to 17 individuals of *H. mannii* occur in the West Maui NAR, in the montane mesic ecosystem. This species also occurred historically in the lowland wet and montane wet ecosystems (HBMP 2010). On east Maui, 2 individuals are reported north of Waikamoi Preserve in the montane wet ecosystem; 10 individuals occur at Kipahulu in the lowland wet ecosystem; approximately 40 individuals occur at Cable Ridge in the lowland mesic ecosystem; approximately 30 individuals occur at Kaapahu in the lowland mesic ecosystem; and 1 individual was observed at Manawainui (Kipahulu FR) in the montane mesic ecosystem (HNP 2004, pp. 5–7; HNP 2006, p. 3; TNC 2007; Welton and Haus 2008, pp. 12–13; Perlman 2009i, in litt., 2009j, in litt.; Wood 2009k, in litt.; HBMP 2010; Welton 2010a, in litt.). Sixty-seven plants have been outplanted at eight locations within Haleakala National Park (NPS 2012, in litt.).

Ischaemum byrone (Hilo ischaemum) is a short-lived stoloniferous (creeping along the ground with rooting from nodes) perennial in the grass family (Poaceae) known from Kauai, Oahu (historical), Molokai, east Maui, and Hawaii island (O'Connor 1999, pp. 1,556–1,557). At the time we designated critical habitat in 2003 and 2012, *I. byrone* was known from two occurrences on Kauai (2 individuals, last observed in 1993); two occurrences on Molokai (100 to 1,000 individuals, last observed in 1994), six occurrences on Maui (fewer than 2,000 individuals), and six occurrences on Hawaii Island (unknown numbers, last observed in 1997) (68 FR 9116, February 27, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003; Pratt 2009, in litt.; Wood 2009, in litt.). In 2004, *I. byrone* was re-observed on Hawaii Island (unknown number of individuals) (HBMP 2010). Currently, *I. byrone* is known from six occurrences on Molokai and Maui, possibly totaling several thousand individuals (HBMP 2010). On Molokai, *I. byrone* is found in the coastal ecosystem from Wailau to Waiehu (approximately 200 individuals) (TNC 2007; Oppenheimer 2009e, in litt,; HBMP 2010). On east Maui, there are an unknown number of individuals at Pauwalu Point; 20 individuals in scattered patches at Mokuhuki islet; many individuals at Keawaiki Bay; and an unknown number of individuals at Kalahu Point, and at Waiohonu Stream and Muolea Point, all in the coastal ecosystem. These occurrences may total several thousands of individuals, depending on rainfall (TNC 2007; HBMP 2010; Oppenheimer 2010b, in litt.); however, exact numbers of individuals are difficult to determine because of its growth habit. Overall, the numbers of individuals have decreased from the more than 5,000 reported in 2010 to possibly several thousand individuals in 2015, with the highest numbers occurring along the northeast coast of Maui (Service 2010, in litt.). Current threats to this species are significant and include grazing by feral ungulates and deer, competition with nonnative plants, drought, hurricanes, and human use of coastal areas. Potential effects of climate change include sea level rise. In addition, the recently established nonnative plant, *Polypogon interruptus* (ditch polypogon), occupies the same coastal habitat as *I. byrone* on Molokai and Maui and is observed to displace *I. byrone* (Warshauer *et al.* 2009, in litt.). Fortini *et al.* (2013, p. 78) conducted a landscape-based assessment of climate change vulnerability for *I. byrone* and concluded that this species is highly vulnerable to the impacts of climate change. Furthermore, this study identified this species as one that will have no overlapping area between its current and future climate envelope (areas that contain the full range of climate conditions under which the species is known to occur) by 2100. To be considered for delisting, threats to this species must be managed or controlled (*e.g.,* by fencing) and the species must be represented in an *ex situ* (at other than the plant's natural location, such as a nursery or arboretum) collection. In addition, a minimum of 8 to 10 self-sustaining populations (over a period of at least 5 years), consisting of all size classes, should be documented on the islands of Maui, Molokai, and if possible, at least one other island where it now occurs or occurred historically. The delisting goals for this species have not been met, and no separate occurrences total more than 300 mature individuals. In addition, all threats are not being sufficiently managed throughout all of the occurrences. Therefore, designation of unoccupied habitat (in addition to occupied habitat) is essential to the conservation of *I. byrone* as it remains in danger of extinction throughout its range, and the species will require the expansion or reestablishment of populations in areas presently unoccupied by the species to withstand ongoing and future threats and to meet recovery goals.

Isodendrion pyrifolium (wahine noho kula), a short-lived perennial shrub in the violet family (Violaceae), is known from Niihau, Oahu, Molokai, Lanai, Maui, and Hawaii (Wagner *et al.* 1999aa, p. 1,331). At the time we designated critical habitat on Molokai, and Maui in 2003, and on Oahu in 2012, *I. pyrifolium* was known from a single occurrence on the island of Hawaii (68 FR 12982, March 18, 2003; 68 FR 39624, July 2, 2003; 77 FR 57648, September 18, 2012). Currently, there are no extant occurrences on Lanai, Molokai, or Maui. Historically, *I. pyrifolium* was found on Molokai in the lowland mesic ecosystem, and on west Maui in the lowland wet, dry cliff, and wet cliff ecosystems. We have no habitat information for the historical occurrences on Lanai (TNC 2007; PEPP 2008, p. 103; HBMP 2010).

Kadua cordata ssp. *remyi* (formerly *Hedyotis schlechtendahliana* var. *remyi*) (kopa), is a short-lived perennial subshrub in the coffee family (Rubiaceae), and is known from Lanai (Wagner *et al.* 1999a, pp. 1,150–1,152). In 2003, this subspecies was known from eight individuals; however, no critical habitat was designated for this subspecies on Lanai (68 FR 1220, January 9, 2003). Currently, two wild and three out-planted individuals are reported from Kaiholena–Hulopoe ridge, in the lowland wet ecosystem. Historically, this species also occurred in the lowland mesic ecosystem (TNC 2007; PEPP 2009, pp. 5, 82; HBMP 2010; Oppenheimer 2010cc, in litt.).

Kadua coriacea (kioele) is a short-lived perennial shrub in the coffee family (Rubiaceae), and is known from Oahu, Maui, and the island of Hawaii (Wagner *et al.* 1999a, p. 1,141). At the time we designated critical habitat on Maui in 2003 and on Oahu in 2012, this species was known from one individual in the lowland dry ecosystem at Lihau, on west Maui, and four occurrences on the island of Hawaii (68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). However, no critical habitat was designated for this species on Hawaii in 2003 (68 FR 39264, July 2, 2003). In 2008, the only known individual on Maui was burned during a wildfire and died (PEPP 2008, p. 67).

Kadua laxiflora (formerly *Hedyotis mannii*) (pilo) is a short-lived perennial subshrub in the coffee family

(Rubiaceae), and is known from Molokai, Lanai, and west Maui (Wagner *et al.* 1999a, p. 1,148). At the time we designated critical habitat on Maui in 2003, this species was known from a total of five occurrences on Lanai (two occurrences), Molokai (one occurrence), and west Maui (two occurrences) (68 FR 1220, January 9, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003). However, no critical habitat was designated for this species on Lanai or Molokai in 2003 (68 FR 1220, January 9, 2003; 68 FR 12982, March 18, 2003). Currently, on Lanai, there are two individuals at Hauola Gulch in the montane wet ecosystem. There are historical reports from the lowland mesic, lowland wet, and wet cliff ecosystems on this island. On west Maui, there are four individuals at Kauaula Valley, in the wet cliff ecosystem. Historically, this species was also reported from the lowland wet and dry cliff ecosystems (TNC 2007; Perlman 2008g, in litt.; Oppenheimer 2009f, in litt.; PEPP 2009, pp. 3, 14, 24, 82–83; HBMP 2010). There are no extant individuals on Molokai, although there are historical reports from the lowland mesic and montane mesic ecosystems (TNC 2007; HBMP 2010).

Kanaloa kahoolawensis (kohe malama malama o kanaloa), a short-lived perennial shrub in the pea family (Fabaceae), occurs only on Kahoolawe (Lorence and Wood 1994, p. 137). Soil cores suggest *K. kahoolawensis* was quite widespread in lowland dry areas throughout the main Hawaiian Islands during the early Pleistocene (Burney *et al.* 2001, p. 632; Athens 2002 *et al.,* p. 74). At the time we designated critical habitat in 2003, *K. kahoolawensis* was known from two individuals on the Aleale sea stack on the south central coast of Kahoolawe (68 FR 25934, May 14, 2003). Currently, *K. kahoolawensis* is known from the same location with one surviving individual, in the coastal ecosystem (TNC 2007; NTBG 2008; HBMP 2010).

Kokia cookei (Cooke's kokio), a short-lived perennial small tree in the mallow family (Malvaceae), is known from Molokai, historically in the lowland dry ecosystem (Bates 1999, p. 890; TNC 2007; HBMP 2010). At the time *K. cookei* was listed in 1979, there were no individuals remaining in the wild, and one individual in an arboretum on Oahu; no critical habitat was designated for this species on Molokai (44 FR 62470, October 30, 1979; 68 FR 12982, March 18, 2003). Currently, one individual is in cultivation at Waimea Arboretum, and there are propagules at the Volcano Rare Plant Facility, Lyon Arboretum, Amy Greenwell Ethnobotanical Garden, Leeward Community College, Hoolawa Farms, and Maui Nui Botanical Garden (Orr 2007, in litt.; Seidman 2007, in litt.).

Labordia tinifolia var. *lanaiensis* (kamakahala), a short-lived perennial shrub or small tree in the logania family (Loganiaceae), is known from Lanai (Wagner *et al.* 1999z, pp. 861–862). In 2003, this variety was known from one occurrence totaling three to eight individuals along the summit of Lanaihale; however, no critical habitat was designated for this species on Lanai (68 FR 1220, January 9, 2003). Currently, *L. tinifolia* var. *lanaiensis* is found in one occurrence of at least five individuals in Awehi Gulch in the wet cliff ecosystem. This variety was historically also found in the lowland mesic, lowland wet, and montane wet ecosystems (TNC 2007; HBMP 2010; Oppenheimer 2010t, in litt.; Oppenheimer 2010d, in litt.).

Labordia triflora (kamakahala), a short-lived perennial shrub or small tree in the logania family (Loganiaceae), is known from east Molokai (Wagner *et al.* 1999z, p. 423). At the time we designated critical habitat in 2003, this species was known from 10 individuals (68 FR 12982, March 18, 2003). Currently, 4 occurrences totaling 20 individuals are reported from Kua, Wawaia, Kumueli, and Manawai Gulch, in the lowland mesic ecosystem (TNC 2007; PEPP 2007, p. 48; PEPP 2008, p. 85; HBMP 2010).

Lysimachia lydgatei (NCN), a short-lived perennial shrub in the primrose family (Primulaceae), is known from west Maui (Wagner *et al.* 1999bb, p. 1,082). At the time we designated critical habitat in 2003, there were four occurrences (68 FR 25934, May 14, 2003). Currently, there are 2 occurrences totaling approximately 30 individuals. Both occurrences are found at Puehuehunui, in the montane mesic and wet cliff ecosystems (Perlman 1997, in litt.; TNC 2007; Wood 2009l, in litt.; HBMP 2010; Oppenheimer 2010dd, in litt.). This species is also historically known from the lowland dry ecosystem on west Maui (TNC 2007; HBMP 2010).

Lysimachia maxima (NCN), a short-lived perennial shrub in the primrose family (Primulaceae), is known from Molokai (Wagner *et al.* 1999bb, p. 1,083). At the time we designated critical habitat in 2003, this species was known from one occurrence (68 FR 12982, March 18, 2003). Currently, *L. maxima* is known from 2 occurrences totaling 28 individuals on east Molokai. There are 20 individuals near Ohialele, and 8 individuals in 2 distinct patches in east Kawela Gulch, in the lowland wet and montane wet ecosystems (PEPP 2007, p. 48; TNC 2007; PEPP 2008, p. 85; HBMP 2010).

Marsilea villosa (ihi ihi), a short-lived perennial fern in the marsilea family (Marsileaceae), is known from Niihau, Oahu, and Molokai (Palmer 2003, pp. 180–182). At the time we designated critical habitat on Molokai in 2003 and on Oahu in 2012, this species was found in four occurrences on Molokai, and in five to six occurrences on Oahu (68 FR 12982, March 18, 2003; 77 FR 57648, September 18, 2012). No critical habitat was designated for this species on Molokai in 2003 (68 FR 12982, March 18, 2003). Currently, *M. villosa* is known from eight occurrences on Molokai, totaling possibly thousands of individuals in areas that flood periodically, such as small depressions and flood plains with clay soils. There is one small occurrence at Kamakaipo, and seven occurrences between Kaa and Ilio Point, covering areas from 20 square (sq) ft (6 sq m) to over 2 ac (0.8 ha), all in the coastal ecosystem (Perlman 2006b, in litt.; TNC 2007; Bakutis 2009b, in litt.; Wood 2009m, in litt.; Chau 2010, in litt.; Garnett 2010b in litt.; HBMP 2010; Oppenheimer 2010u, in litt.).

Melanthera kamolensis (formerly *Lipochaeta kamolensis*) (nehe) is a short-lived perennial herb in the sunflower family (Asteraceae), and is known from east Maui (Wagner *et al.* 1990a, p. 337). At the time we designated critical habitat in 2003, this species was known from one occurrence (68 FR 25934, May 14, 2003). Currently, a single occurrence of *M. kamolensis* is found in Kamole Gulch, totaling between 30 and 40 individuals, in the lowland dry ecosystem. A second occurrence just west of Kamole appears to be a hybrid swarm (hybrids between parent species, and subsequently formed progeny from crosses among hybrids and crosses of hybrids to parental species) of *M. kamolensis* and *M. rockii,* with approximately 100 individuals (TNC 2007; HBMP 2010; Medeiros 2010, in litt.).

Melicope adscendens (alani), a short-lived perennial sprawling shrub in the rue family (Rutaceae), is known from Maui (Stone *et al.* 1999, p. 1,183). At the time we designated critical habitat in 2003, there were 16 occurrences (68 FR 25934, May 14, 2003). Currently, *M. adscendens* is known from 2 occurrences totaling 33 individuals at Auwahi, in the lowland dry and montane mesic ecosystems on east Maui (TNC 2007; PEPP 2009, p. 85; Buckman 2010, in litt.; HBMP 2010). Historically, this species has not been observed below 3,200 ft (975 m) (Wagner *et al.* 1999, p. 1,183).

Melicope balloui (alani), a short-lived perennial tree or shrub in the rue family (Rutaceae), is known from east Maui (Stone *et al.* 1999, pp. 1,183–1,184). At the time we designated critical habitat in 2003, there were 3 occurrences totaling 50 individuals (68 FR 25934, May 14, 2003). Currently, there are approximately 50 individuals near Palikea Stream, in the lowland wet ecosystem, and a few individuals at Puuokakae in the montane wet ecosystem (TNC 2007; Wood 2009n, in litt.; HBMP 2010). The status and taxonomic certainty of the occurrence within Haleakala National Park is in question (NPS 2012, in litt.).

Melicope knudsenii (alani), a long-lived perennial tree in the rue family (Rutaceae), is known from Kauai and Maui (Stone *et al.* 1999, pp. 1,192–1,193). At the time we designated critical habitat in 2003, there were 10 occurrences on Kauai and 4 occurrences on Maui (68 FR 9116, February 27, 2003; 68 FR 25934, May 14, 2003). Currently, on east Maui, there are two individuals at Auwahi, in the montane dry ecosystem (TNC 20007; HBMP 2010; Oppenheimer 2010b, in litt.).

Melicope mucronulata (alani), a long-lived perennial tree in the rue family (Rutaceae), is known from Molokai and east Maui (Stone *et al.* 1999, p. 1,196). At the time we designated critical habitat on Molokai and Maui in 2003, there were two occurrences on Molokai and two occurrences on east Maui (68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003). Currently, there are two occurrences on Molokai, one individual at Kupaia Gulch, and three individuals at Onini Gulch, in the lowland mesic ecosystem (TNC 2007; PEPP 2008, p. 69; PEPP 2009, p. 86; HBMP 2010;). This species was historically also found in the montane mesic ecosystem on Molokai (TNC 2007; HBMP 2010). The occurrence status of *M. mucronulata* in the lowland dry and montane dry ecosystems on east Maui is unknown.

Melicope munroi (alani), a short-lived perennial shrub in the rue family (Rutaceae), is known from Lanai and Molokai (Stone *et al.* 1999, p. 1,196). In 2003, there were two occurrences on Lanai; however, no critical habitat was designated for this species on Lanai or Molokai (68 FR 1220, January 9, 2003; 68 FR 12982, March 18, 2003). Currently, on Lanai, *M. munroi* is known from at least 2 occurrences of fewer than 40 individuals on the Lanaihale summit and the ridge of Waialala Gulch, in the montane wet and wet cliff ecosystems (TNC 2007; HBMP 2010; Oppenheimer 2010t, in litt.). This species has not been seen on Molokai since 1910, where it was last observed in the lowland mesic ecosystem (68 FR 12982, March 18, 2003).

Melicope ovalis (alani), a long-lived perennial tree in the rue family (Rutaceae), is known from east Maui (Stone *et al.* 1999, p. 1,198). At the time we designated critical habitat in 2003, there were two occurrences (68 FR 25934, May 14, 2003). Currently, there are approximately 50 individuals in 4 occurrences in the lowland wet ecosystem in Keanae Valley, and in the montane wet and wet cliff ecosystems at Kipahulu Valley and Palikea Stream (TNC 2007; Bily *et al.* 2008 p. 45; Wood 2009o, in litt.; HBMP 2010; Oppenheimer 2010b, in litt.; Welton 2010a, in litt.). Forty-five individuals were outplanted in nine locations within Haleakala National Park (NPS 2012, in litt.).

Melicope reflexa (alani), a short-lived perennial sprawling shrub in the rue family (Rutaceae), is endemic to east Molokai (Stone *et al.* 1999, p. 1,203). At the time we designated critical habitat in 2003, there were three occurrences (68 FR 12982, March 18, 2003). Currently, there are two occurrences totaling at least six individuals. There are at least five individuals at Puuohelo and one individual at Puniuohua in the lowland wet ecosystem (TNC 2007; HBMP 2010; Oppenheimer 2010ee, in litt.). Historically, this species was also found in the lowland mesic and montane wet ecosystems (TNC 2007; HBMP 2010; Oppenheimer 2010u, in litt.; Wood 2010b, in litt.).

Mucuna sloanei var. *persericea* (sea bean), a short-lived perennial vine in the pea family (Fabaceae), is found on Maui (Wilmot-Dear 1990, pp. 27–29; Wagner *et al.* 2005a–*Flora of the Hawaiian Islands database*). In her revision of *Mucuna* in the Pacific Islands, Wilmot-Dear recognized this variety from Maui based on leaf indumentum (covering of fine hairs or bristles) (Wilmot-Dear 1990, p. 29). At the time of Wilmot-Dear's publication, *M. sloanei* var. *persericea* ranged from Makawao to Wailua Iki, on the windward slopes of the east Maui mountains (Wagner *et al.* 2005a–*Flora of the Hawaiian Islands database*). Currently, there are possibly a few hundred individuals in five occurrences: Ulalena Hill, north of Kawaipapa Gulch, lower Nahiku, Koki Beach, and Piinau Road, all in the lowland wet ecosystem on east Maui (Duvall 2010, in litt.; Hobdy 2010, in litt.).

Myrsine vaccinioides (kolea), a short-lived perennial shrub in the myrsine family (Myrsinaceae), is found on Maui (Wagner *et al.* 1999f, p. 946; HBMP 2010). This species was historically known from shrubby bogs near Violet Lake on west Maui (Wagner *et al.* 1999f, p. 946). In 2005, three occurrences of a few hundred individuals were reported at Eke, Puu Kukui and near Violet Lake (Oppenheimer 2006c, in litt.). Currently, there are estimated to be several hundred, but fewer than 1,000, individuals scattered in the summit area of the west Maui mountains at Eke Crater, Puu Kukui, Honokowai-Honolua, and Kahoolewa, in the montane wet ecosystem (Oppenheimer 2010i, in litt.).

Neraudia sericea (NCN), a short-lived perennial shrub in the nettle family (Urticaceae), is known from Molokai, Lanai, Maui, and Kahoolawe (Wagner *et al.* 1999cc, p. 1,304). At the time we designated critical habitat in 2003, *N. sericea* was known from Molokai and Maui (68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003). Currently, this species is found only on east Maui at Kahikinui, where there are fewer than five individuals in the montane mesic ecosystem. This species has not been observed in the lowland dry ecosystem on east Maui since the early 1900s. Historically, *N. sericea* was found in the lowland dry and dry cliff ecosystems on Lanai, the lowland mesic and montane mesic ecosystems on Molokai, the lowland dry and dry cliff ecosystems on west Maui, and the lowland dry ecosystem on Kahoolawe (TNC 2007; HBMP 2010; Medeiros 2010, in litt.).

Nototrichium humile (kului), a short-lived perennial trailing shrub in the amaranth family (Amaranthaceae), is known from Oahu and east Maui (Wagner *et al.* 1999dd, pp. 193–194). At the time we designated critical habitat on Maui in 2003 and Oahu in 2012, *N. humile* was only known from 12 occurrences on Oahu (68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). This species has not been seen on Maui since 1976, when one individual was reported from the lowland dry ecosystem (TNC 2007; HBMP 2010).

Peperomia subpetiolata (alaala wai nui), a short-lived perennial herb in the pepper family (Piperaceae), is found on Maui (Wagner *et al.* 1999g, p. 1035; HBMP 2010). Historically, *P. subpetiolata* was known only from the lower Waikamoi (Kula pipeline) area on the windward side of Haleakala on east Maui (Wagner *et al.* 1999g, p. 1,035; HBMP 2010). In 2001, it was estimated that 40 individuals occurred just west of the Makawao-Koolau FR boundary, in the montane wet ecosystem. *Peperomia cookiana* and *P. hirtipetiola* also occur in this area, and are known to hybridize with *P. subpetiolata* (NTBG 2009g, p. 2; Oppenheimer 2010j, in litt.). In 2007, 20 to 30 hybrid plants were observed at Maile Trail, and at three areas near the

Waikamoi Flume road (NTBG 2009g, p. 2). Based on the 2007 and 2010 surveys, all known plants are now considered to be hybrids mostly between *P. subpetiolata* and *P. cookiana,* with a smaller number of hybrids between *P. subpetiolata* and *P. hirtipetiola* (NTBG 2009g, p. 2; Lau 2011, in litt.). *Peperomia subpetiolata* is recognized as a valid species, and botanists continue to search for plants in its previously known locations as well as in new locations with potentially suitable habitat (NTBG 2009g, p. 2; PEPP 2010, p. 96; Lau 2011, pers. comm.).

Peucedanum sandwicense (makou), a short-lived perennial herb in the parsley family (Apiaceae), is known from Kauai, Oahu, Molokai, Maui, and Keopuka islet off the coast of east Maui (Constance and Affolter 1999, p. 208). At the time we designated critical habitat in 2003, *P. sandwicense* was known from 15 occurrences on Kauai, 5 occurrences on Molokai, 3 occurrences on Maui; and, in 2012 from 2 occurrences on Oahu (68 FR 9116, February 27, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). Currently, *P. sandwicense* is known from 6 occurrences totaling over 45 individuals on Molokai and east Maui. On Molokai, there are 3 occurrences totaling 32 to 37 individuals, at Mokapu islet (25 individuals), Lepau Point (2 individuals), and Kalaupapa Trail (5 to 10 individuals), all in the coastal ecosystem. There is a report of an individual found near the lowland wet ecosystem, but this plant has not been relocated since 1989 (TNC 2007; HBMP 2010; NTBG 2010a, in litt. ; NTBG 2010b, in litt.). On east Maui, *P. sandwicense* occurs on Keopuku islet (15 individuals), Pauwalu Point (an unknown number of individuals), and Honolulu Nui (an unknown number of individuals), in the coastal ecosystem. Historically, this species was found on west Maui in the lowland wet ecosystem (TNC 2007; HBMP 2010; NTBG 2010a, in litt.; NTBG 2010b, in litt.).

Phyllostegia bracteata (NCN), a short-lived perennial herb in the mint family (Lamiaceae), is found on Maui (Wagner *et al.* 1999h, pp. 814–815). Historically, this species was known from the east Maui mountains at Ukulele, Puu Nianiau, Waikamoi Gulch, Koolau Gap, Kipahulu, Nahiku-Kuhiwa trail, Waihoi Valley, and Manawainui; and from the west Maui mountains at Puu Kukui and Hanakaoo (HBMP 2010). This species appears to be short-lived, ephemeral, and disturbance-dependent, in the lowland wet, montane mesic, montane wet, subalpine, and wet cliff ecosystems (NTBG 2009h, p. 1). There have been several reported sightings of *P. bracteata* between 1981 and 2001, at Waihoi Crater Bog, Waikamoi Preserve, Waikamoi flume, and Kipahulu on east Maui, and at Pohakea Gulch on west Maui; however, none of these individuals were extant as of 2009 (PEPP 2009, pp. 89–90). In 2009, one individual was found at Kipahulu, near Delta Camp, on east Maui, but was not relocated on a follow-up survey during that same year (NTBG 2009h, p. 3). Botanists continue to search for *P. bracteata* in previously reported locations, as well as in other areas with potentially suitable habitat (NTBG 2009h, p. 3; PEPP 2009, pp. 89–90).

Phyllostegia haliakalae (NCN), a short-lived perennial vine in the mint family (Lamiaceae), is known from Molokai, Lanai, and east Maui (Wagner 1999, p. 269). The type specimen was collected by Wawra in 1869 or 1870, in a dry ravine at the foot of Haleakala. An individual was found in flower on the eastern slope of Haleakala, in the wet cliff ecosystem, in 2009; however, this plant has died (TNC 2007; Oppenheimer 2010b, in litt.). Collections were made before the plant died, and propagules outplanted in the Puu Mahoe Arboretum (three plants) and Olinda Rare Plant Facility (four plants) (Oppenheimer 2011b, in litt.). In addition, this species has been outplanted in the lowland wet, montane wet, and montane mesic ecosystems of Haleakala National Park (HNP 2012, in litt.). Botanists continue to search in areas with potentially suitable habitat for wild individuals of this plant (Oppenheimer 2010b, in litt.). *Phyllostegia haliakalae* was last reported from the lowland mesic ecosystem on Molokai in 1928, and from the dry cliff and wet cliff ecosystems on Lanai in the early 1900s (TNC 2007; HBMP 2010). Currently no individuals are known in the wild on Maui, Molokai, or Lanai; however, over 100 individuals have been outplanted (HNP 2012, in litt).

Phyllostegia hispida (NCN), a short-lived perennial vine in the mint family (Lamiaceae), is known from Molokai (Wagner *et. al.* 1999h, pp. 817–818). Until an individual was rediscovered in 1996, *P. hispida* was thought to be extinct in the wild. This individual died in 1998, and *P. hispida* was thought to be extirpated, until another plant was found in 2005. Propagules were taken and propagated; however, the wild individual died. This sequence of events occurred again in 2006 and 2007 (74 FR 11319, March 17, 2009). At the time we listed *P. hispida* in 2009, no critical habitat was designated for this species on Molokai (74 FR 11319, March 17, 2009). Currently *P. hispida* is known from 4 occurrences totaling 25 individuals in the montane wet and wet cliff ecosystems on Molokai (TNC 2007; PEPP 2009, pp. 7, 15, 90–93). Historically, this species also occurred in the lowland wet ecosystem (TNC 2007; HBMP 2010).

Phyllostegia mannii (NCN), a short-lived perennial vine in the mint family (Lamiaceae), is known from Molokai and Maui (Wagner *et al.* 1999h, pp. 820–821). At the time we designated critical habitat on Molokai and Maui in 2003, this species was only known from one individual on east Molokai. It had not been observed on Maui for over 70 years (68 FR 25934, May 14, 2003). Currently, on Molokai, there are three individuals in Hanalilolilo, in the montane wet ecosystem. Historically, *P. mannii* occurred in Molokai's lowland mesic and lowland wet ecosystems, and the montane wet and montane mesic ecosystems on east Maui (TNC 2007; Perlman 2009k, in litt.; HBMP 2010; Oppenheimer 2010u, in litt.; Wood 2010c, in litt.).

Phyllostegia pilosa (NCN), a short-lived perennial vine in the mint family (Lamiaceae), is known from east Maui (Wagner 1999, p. 274). There are two occurrences totaling seven individuals west of Puu o Kakae on east Maui, in the montane wet ecosystem (TNC 2007; HBMP 2010). The individuals identified as *P. pilosa* on Molokai, at Kamoku Flats (montane wet ecosystem) and at Mooloa (lowland mesic ecosystem), have not been observed since the early 1900s (TNC 2007; HBMP 2010).

Pittosporum halophilum (hoawa), a short-lived perennial shrub or small tree in the pittosporum family (Pittosporaceae), is found on Molokai (Wood 2005, pp. 2, 41). This species was reported from Huelo islet, Mokapu Island, Okala Island, and Kukaiwaa peninsula. On Huelo islet, there were two individuals in 1994, and in 2001, only one individual remained (Wood *et al.* 2001, p. 12; Wood *et al.* 2002, pp. 18–19). The current status of this species on Huelo islet is unknown. On Mokapu Island, there were 15 individuals in the coastal ecosystem in 2001, and in 2005, 10 individuals remained. On Okala Island, there were two individuals in 2005, and one individual on the sea cliff at Kukaiwaa peninsula (Wainene) (Wood 2005, pp. 2, 41). As of 2010, there were three occurrences totaling five individuals: three individuals on Mokapu Island, one individual on Okala Island, and one individual on Kukaiwaa peninsula (Bakutis 2010, in litt.; Hobdy 2010, in litt.; Perlman 2010, in litt.). At least 17

individuals have been outplanted at 3 sites on the coastline of the nearby Kalaupapa peninsula (Garnett 2010a, in litt.).

Plantago princeps (laukahi kuahiwi), a short-lived perennial shrub or herb in the plantain family (Plantaginaceae), is known from the islands of Kauai, Oahu, Molokai, Maui, and Hawaii (Wagner *et al.* 1999ee, pp. 1,054–1,055). Wagner *et al.* recognize four varieties of *P. princeps: P. princeps* var. *anomala* (Kauai and Oahu), *P. princeps* var. *laxiflora* (Molokai, Maui, and Hawaii), *P. princeps* var. *longibracteata* (Kauai and Oahu), and *P. princeps* var. *princeps* (Oahu) (Wagner *et al.* 1999ee, pp. 1,054–1,055). At the time we designated critical habitat on Kauai, Molokai, and Maui, in 2003, and on Oahu in 2012, there was one known occurrence of *P. princeps* var. *laxiflora* on Molokai and eight occurrences on Maui (68 FR 9116, February 27, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). Currently, *P. princeps* var. *laxiflora* is known from 6 occurrences totaling approximately 70 individuals on Maui (Oppenheimer 2010a, in litt.). On east Maui, there are 3 occurrences totaling 41 to 46 individuals in the dry cliff and wet cliff ecosystems, at Waikau (1 individual), Kaupo Gap (about 30 individuals), and Palikea (10 to 15 individuals). On west Maui, there are 3 occurrences totaling 15 individuals in the wet cliff ecosystem, in Kauaula Valley, Nakalaloa Stream, and in Iao Valley (TNC 2007; Oppenheimer 2009g, in litt.; HBMP 2010). Almost 500 individuals have been outplanted at 43 sites within Haleakala National Park (NPS 2012, in litt.). On Molokai, this species was found in the lowland wet and montane mesic ecosystems as recently as 1987 (TNC 2007; HBMP 2008; Oppenheimer 2010u, in litt.).

Platanthera holochila (NCN), a short-lived perennial herb in the orchid family (Orchidaceae), is known from Kauai, Oahu, Molokai, and Maui (Wagner *et al.* 1999ff, p. 1,474). At the time we designated critical habitat on Kauai, Maui in 2003, and on Oahu in 2012, there were two known occurrences on Kauai, one occurrence on Molokai, and six occurrences on Maui (68 FR 9116, February 27, 2003; 68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). No critical habitat was designated for this species on Molokai in 2003 (68 FR 12982, March 18, 2003). Currently, there are 4 known occurrences totaling 44 individuals on Molokai and west Maui. On Molokai, there is 1 occurrence at Hanalilolilo totaling 24 individuals in the montane wet ecosystem. There are 3 occurrences on west Maui, at Waihee Valley in the wet cliff ecosystem (12 individuals), Waihee Valley in the wet cliff ecosystem (6 individuals), and Pohakea Gulch in the montane wet ecosystem (2 individuals). Historically, this species was also found in the montane wet ecosystem on east Maui (TNC 2007; HBMP 2010; Oppenheimer 2010u, in litt.).

Pleomele fernaldii (hala pepe), a long-lived perennial tree in the asparagus family (Asparagaceae), is found only on the island of Lanai (Wagner *et al.* 1999i, p. 1,352; Wagner and Herbst 2003, p. 67). Historically known throughout Lanai, this species is currently found in the lowland dry, lowland mesic, lowland wet, dry cliff, and wet cliff ecosystems, from Hulopaa and Kanoa gulches southeast to Waiakeakua and Puhielelu (St. John 1947, pp. 39–42 cited in St. John 1985, pp. 171, 177–179; HBMP 2006; PEPP 2008, p. 75; HBMP 2010; Oppenheimer 2010d, in litt.). Currently, there are several hundred to perhaps as many as 1,000 individuals. The number of individuals has decreased by about one-half in the past 10 years (there were more than 2,000 individuals in 1999), with very little recruitment observed recently (Oppenheimer 2008d, in litt.).

Portulaca sclerocarpa (poe), a short-lived perennial herb in the purslane family (Portulacaceae), is known from a single collection from Poopoo islet off the south coast of Lanai, and from the island of Hawaii (Wagner *et al.* 1999gg, p. 1,074). At the time we designated critical habitat in 2003, there was 1 known occurrence on Poopoo islet and 24 occurrences on Hawaii Island (68 FR 1220, January 9, 2003; 68 FR 39624, July 2, 2003). Currently, on Lanai, this species is only known from an unknown number of individuals in the coastal ecosystem on Poopoo islet (TNC 2007; HBMP 2010).

Pteris lidgatei (NCN), a short-lived perennial terrestrial fern in the maidenhair fern family (Adiantaceae), is known from Oahu, Molokai, and Maui (Palmer 2003, p. 229). At the time we designated critical habitat on Molokai and Maui in 2003, and on Oahu in 2012, this species was known from two occurrences on Maui and five occurrences on Oahu (68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). Currently, *P. lidgatei* is known from four occurrences totaling over nine individuals on Molokai and Maui. On Molokai, there are six to eight individuals in Kumueli Gulch in the montane wet ecosystem. Historically, this species was also found in Molokai's wet cliff ecosystem. On west Maui, *P. lidgatei* is known from a single individual at Kauaula Valley in the wet cliff ecosystem, an unknown number of individuals in both the upper Kauaula Valley in the lowland wet ecosystem and upper Kahakuloa Stream in the wet cliff ecosystem (PEPP 2007, pp. 54–55; TNC 2007; PEPP 2009, p. 103; HBMP 2010; Oppenheimer 2010i, in litt.; Oppenheimer 2010u, in litt.).

Remya mauiensis (Maui remya), a short-lived perennial shrub in the sunflower family (Asteraceae), is known from west Maui (Wagner *et al.* 1999m, p. 353). At the time we designated critical habitat in 2003, there were 5 known occurrences totaling 21 individuals (68 FR 25934, May 14, 2003). Currently, *R. mauiensis* is found in 6 occurrences totaling approximately 500 individuals at Kauaula (lowland mesic ecosystem), Puehuehunui (lowland mesic and montane mesic ecosystems), Ukumehame (wet cliff ecosystem), Papalaua (montane mesic ecosystem), Pohakea (lowland dry ecosystem), and Manawainui (lowland dry ecosystem) (TNC 2007; HBMP 2010; Oppenheimer 2010ff, in litt.). Historically, this species also occurred in Maui's lowland wet ecosystem (TNC 2007; HBMP 2010).

Sanicula purpurea (NCN), a short-lived perennial herb in the parsley family (Apiaceae), is known from bogs and surrounding wet forest on Oahu and west Maui (Constance and Affolter 1999, p. 210). At the time we designated critical habitat in 2003 (Maui) and 2012 (Oahu), this species was known from seven occurrences on west Maui and five occurrences on Oahu (68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). Currently, on west Maui, as many as 50 individuals are found in 4 known occurrences in bogs in the montane wet ecosystem (TNC 2007; Perlman 2007d, in litt.; HBMP 2010; Oppenheimer 2010gg, in litt.; Wood 2010d, in litt.).

Santalum haleakalae var. *lanaiense* (iliahi, Lanai sandalwood) is a long-lived perennial tree in the sandalwood family (Santalaceae). Currently, *S. haleakalae* var. *lanaiense* is known from Molokai, Lanai, and Maui, in 26 occurrences totaling fewer than 100 individuals (Wagner *et al.* 1999c, pp. 1,221–1,222; HBMP 2010; Harbaugh *et al.* 2010, pp. 834–835). On Molokai, there are more than 12 individuals in 4 occurrences from Kikiakala to Kamoku Flats and Puu Kokekole, with the largest concentration at Kumueli Gulch, in the montane mesic and lowland mesic ecosystems (Harbaugh *et al.* 2010, pp. 834–835). On Lanai, there are approximately 10 occurrences totaling 30 to 40 individuals: Kanepuu, in the

lowland mesic ecosystem (5 individuals); the headwaters of Waiopae Gulch in the lowland wet ecosystem (3 individuals); the windward side of Hauola on the upper side of Waiopae Gulch in the lowland mesic ecosystem (1 individual); the drainage to the north of Puhielelu Ridge and exclosure, in the headwaters of Lopa Gulch in the lowland mesic ecosystem (3 individuals); 6 occurrences near Lanaihale in the montane wet ecosystem (21 individuals); and the mountains east of Lanai City in the lowland wet ecosystem (a few individuals) (HBMP 2008; Harbaugh *et al.* 2010, pp. 834–835; HBMP 2010; Wood 2010a, in litt.). On west Maui, there are eight single-individual occurrences: Hanaulaiki Gulch in the lowland dry ecosystem; Kauaula and Puehuehunui Gulches in the lowland mesic, montane mesic, and wet cliff ecosystems; Kahanahaiki Gulch and Honokowai Gulch in the lowland wet ecosystem; Wakihuli in the wet cliff ecosystem; and Manawainui Gulch in the montane mesic and lowland dry ecosystems (HBMP 2010; Harbaugh *et al.* 2010, pp. 834–835; Wood 2010a, in litt.). On east Maui, there are 4 occurrences (10 individuals) in Auwahi, in the montane mesic, montane dry, and lowland dry ecosystems (TNC 2007; HBMP 2010; Harbaugh *et al.* 2010, pp. 834–835).

Schenkia sebaeoides (formerly *Centaurium sebaeoides*) (awiwi) is a short-lived annual herb in the gentian family (Gentianaceae) known from the islands of Kauai, Oahu, Molokai, Lanai, and west Maui (Wagner *et al.* 1990b, p. 725; 68 FR 1220, January 9, 2003). At the time we designated critical habitat on Kauai, Molokai, and Maui in 2003, and on Oahu in 2012, the species was reported from one occurrence on Lanai, three occurrences on Kauai, two occurrences on Molokai, three occurrences on Maui, and two occurrences on Oahu (68 FR 1220, January 9, 2003; 68 FR 9116, February 27, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). No critical habitat was designated for this species on Lanai in 2003 (68 FR 1220, January 9, 2003). Currently, on Lanai, Molokai, and Maui, there are at least eight occurrences, with the highest number of individuals on Molokai. The annual number of individuals on each island varies widely depending upon rainfall (;Oppenheimer 2009i, in litt.; HBMP 2010). On Lanai, there is 1 occurrence totaling between 20 and 30 individuals, in the lowland dry ecosystem (TNC 2007; HBMP 2010). On Molokai, there are 2 or more occurrences containing thousands of individuals in the coastal ecosystem (TNC 2007; HBMP 2010). On west Maui, there are 5 occurrences, totaling several thousand individuals, along the north coast from Haewa Point to Puu Kahulanapa, in the coastal ecosystem (Oppenheimer 2010i, in litt.).

Schiedea haleakalensis (NCN), a short-lived perennial shrub in the pink family (Caryophyllaceae), is known from east Maui (Wagner *et al.* 1999j, pp. 512–514). At the time we designated critical habitat in 2003, this species was known from two occurrences in Haleakala National Park (68 FR 25934, May 14, 2003). Currently, *S. haleakalensis* is found in 2 occurrences totaling fewer than 50 individuals, at Leleiwi Pali and Kaupo Gap in the subalpine and dry cliff ecosystems, within Haleakala National Park (Welton 2010a, in litt.). One hundred forty-three individuals have been outplanted at 11 sites within Haleakala National Park (NPS 2012, in litt.).

Schiedea jacobii (NCN), a short-lived perennial herb or subshrub in the pink family (Caryophyllaceae), occurs only on Maui (Wagner *et al.* 1999j, p. 284). Discovered in 1992, the single occurrence consisted of nine individuals along wet cliffs between Hanawi Stream and Kuhiwa drainage (in Hanawi NAR), in the montane wet ecosystem on east Maui (Wagner *et al.* 1999j, p. 286). By 1995, only four plants could be relocated in this location. It appeared that the other five known individuals had been destroyed by a landslide (Wagner *et al.* 1999j, p. 286). In 2004, one seedling was observed in the same location, and in 2010, no individuals were relocated (Perlman 2010, in litt.). The State of Hawaii plans to outplant propagated individuals in a fenced area in Hanawi Natural Area Reserve in 2011 (Oppenheimer 2010a, in litt.; Perlman 2010, in litt.).

Schiedea laui (NCN), a short-lived perennial herb or subshrub in the pink family (Caryophyllaceae), is found only on Molokai (Wagner *et al.* 2005b, pp. 90–92). In 1998, when this species was first observed, there were 19 individuals located in a cave along a narrow stream corridor at the base of a waterfall in the Kamakou Preserve, in the montane wet ecosystem (Wagner *et al.* 2005b, pp. 90–92). By 2000, only 9 individuals with a few immature plants and seedlings were relocated, and in 2006, 13 plants were seen (Wagner *et al.* 2005b, pp. 90–92; PEPP 2007, p. 57). Currently, there are 24 to 34 individuals in the same location in Kamakou Preserve (Bakutis 2010, in litt.).

Schiedea lydgatei (NCN), a short-lived perennial subshrub in the pink family (Caryophyllaceae), is known from east Molokai (Wagner *et al.* 1999j, p. 516). At the time we designated critical habitat in 2003, this species was known from four occurrences totaling more than 1,000 individuals (68 FR 12982, March 18, 2003). Currently, there are over 200 individuals between Kawela and Makolelau gulches, in the lowland mesic ecosystem (TNC 2007; PEPP 2009, p. 109; HBMP 2010; Oppenheimer 2010u, in litt.).

Schiedea salicaria (NCN), a short-lived perennial shrub in the pink family (Caryophyllaceae), occurs on Maui (Wagner *et al.* 1999j, pp. 519–520). It is historically known from a small area on west Maui, from Lahaina to Waikapu. Currently, this species is found in three occurrences: Kaunoahua gulch (500 to 1,000 individuals), Puu Hona (about 50 individuals), and Waikapu Stream (3 to 5 individuals), in the lowland dry ecosystem on west Maui (TNC 2007; Oppenheimer 2010k, in litt.; Oppenheimer 2010l, in litt.). Hybrids and hybrid swarms between *S. salicaria* and *S. menziesii* are known on the western side of west Maui (Wagner *et al.* 2005b, p. 138). However, according to Weller (2012, in litt.) the hybridization process is natural when *S. salicaria* and *S. menziesii* co-occur and because of the dynamics in this hybrid zone, traits of *S. salicaria* prevail and replace those of *S. menziesii.* Weller (2012, in litt.) notes that populations of both species will likely remain distinct because the two species do not overlap throughout much of their range.

Schiedea sarmentosa (NCN), a short-lived perennial herb in the pink family (Caryophyllaceae), is endemic to Molokai (Wagner *et al.* 2005b, pp. 116–119). At the time we designated critical habitat in 2003, this species was known from five occurrences with an estimated total of over 1,000 individuals (68 FR 12982, March 18, 2003). Currently, *S. sarmentosa* is known from three occurrences from Onini Gulch to Makolelau, with as many as several thousand individuals, in the lowland mesic ecosystem (TNC 2007; Perlman 2009l, in litt.; HBMP 2010; Oppenheimer 2010hh, in litt.; Perlman 2010, in litt.; Wood 2010e, in litt.).

Sesbania tomentosa (ohai) is a short-lived perennial shrub or small tree in the pea family (Fabaceae) (Geesink *et al.* 1999, pp. 704–705). At the time we designated critical habitat in 2003, *S. tomentosa* was known from 1 occurrence on Kauai, 9 occurrences on Molokai, 7 occurrences on Maui, several thousand individuals on Nihoa Island, ''in great abundance'' on Necker Island, 31 occurrences on Hawaii Island; and, in 2012, from 3 occurrences on Oahu (68 FR 9116, February 27, 2003; 68 FR

12982, March 18, 2003; 68 FR 25934, May 14, 2003; 68 FR 28054, May 22, 2003; 68 FR 39624, July 2, 2003; 77 FR 57648, September 18, 2012). Historically widespread throughout the Hawaiian Islands and the Northwestern Hawaiian Islands (NWHI), this species now occurs in larger numbers only on Nihoa and Necker (NWHI, approximately 5,500 individuals), with relatively few occurrences persisting on the eight main Hawaiian islands. Currently, on the eight main Hawaiian Islands, *S. tomentosa* is known from Kauai, Molokai, Maui, Kahoolawe, Oahu, and Hawaii (possibly totaling as many as 2,000 individuals). The number of individuals at any one location varies widely, depending on rainfall (TNC 2007; NTBG 2009k). On Molokai, there is one occurrence on the northwest shore from Moomomi to Nenehanaupo (35 individuals), and about 1,000 or more individuals on the south coast scattered from Kamiloloa to the Kawela plain, in the coastal and lowland dry ecosystems. Historically, this species also occurred in Molokai's lowland mesic ecosystem (TNC 2007; Cole 2008, in litt.; NTBG 2009k). On west Maui, there are 3 occurrences totaling 80 individuals from Nakalele Point to Mokolea Point, in the coastal ecosystem. Historically, this species also occurred in the lowland dry ecosystem on west Maui (TNC 2007; NTBG 2009k; Oppenheimer 2009h, in litt.). On east Maui, there is one occurrence of 10 individuals in the lowland dry ecosystem (TNC 2007; Cole 2008, in litt.; Oppenheimer 2009h, in litt.; Oppenheimer 2010i, in litt.). On Kahoolawe, about 300 individuals occur in the coastal ecosystem on Puu Koae islet. *Sesbania tomentosa* has not been seen in the coastal and lowland dry ecosystems on Lanai for over 50 years (TNC 2007; HBMP 2010). Current threats to this species are significant and include herbivory by feral ungulates, deer, nonnative insects (borers and scale), and slugs, seed predation by rats, fire, drought, and low fruit set resulting from lack of pollinators or self-incompatibility, and low seedling recruitment. Herbivory by the nonnative gray bird grasshopper, *Schistocerca nitens,* is a threat to occurrences on Nihoa (Latchininsky 2008, 15 pp.). Fortini *et al.* (2013, p. 89) conducted a landscape-based assessment of climate change vulnerability for *S. tomentosa,* and concluded that this species is moderately vulnerable to the impacts of climate change. To be considered for delisting, threats to *S. tomentosa* must be managed or controlled, and there must be a minimum of 8 to 10 self-sustaining populations consisting of all size classes, over a period of 5 years, that should be documented on 2 to 3 of the eight main Hawaiian islands where it now occurs or occurred historically. These goals have not been met, as currently no population on the main Hawaiian Islands is considered sufficiently large and self-sustaining; in addition, all threats are not being sufficiently managed throughout all of the occurrences, even at the more remote occurrences on the NWHI. Designation of unoccupied habitat (in addition to occupied habitat) is essential to the conservation of *S. tomentosa* as it remains in danger of extinction throughout its range, therefore it requires sufficient habitat to persist in the face of ongoing and future threats, and for the expansion or reestablishment of multiple, self-sustaining populations in areas presently not occupied by the species to meet recovery goals.

Silene alexandri (NCN), a short-lived perennial subshrub in the pink family (Caryophyllaceae), is known from Molokai (Wagner *et al.* 1999j, p. 522). At the time we designated critical habitat in 2003, *S. alexandri* was extirpated in the wild, but individuals remained in cultivation (68 FR 12982, March 18, 2003). Currently, *S. alexandri* is known from 1 occurrence of 25 individuals near Kawela Gulch, in the lowland mesic ecosystem (TNC 2007; HBMP 2008; PEPP 2009, p. 111; HBMP 2010; Oppenheimer 2010u, in litt.).

Silene lanceolata (NCN), a short-lived perennial subshrub in the pink family (Caryophyllaceae), is known from Kauai, Oahu, Molokai, Lanai, and the island of Hawaii (Wagner *et al.* 1999j, p. 523). At the time we designated critical habitat on Molokai in 2003 and on Oahu in 2012, *S. lanceolata* was known from Molokai, Oahu, and the island of Hawaii (68 FR 12982, March 18, 2003; 68 FR 39624, July 2, 2003; 77 FR 57648, September 18, 2012). However, no critical habitat was designated for this species on Lanai, Kauai, or Hawaii in 2003 (68 FR 1220, January 9, 2003; 68 FR 9116, February 27, 2003; 68 FR 39624, July 2, 2003). Currently, on Molokai, there are 2 occurrences totaling approximately 200 individuals at Kapuaokoolau and along cliffs between Kawela and Makolelau, in the lowland mesic ecosystem (TNC 2007; HBMP 2008; Oppenheimer 2010u, in litt.). This species has not been observed in the lowland dry ecosystem on Lanai since the 1930s (TNC 2007; HBMP 2010).

Solanum incompletum (popolo ku mai), a short-lived perennial shrub in the nightshade family (Solanaceae), is reported from Kauai, Molokai, Lanai, Maui, and the island of Hawaii (Symon 1999, pp. 1,270–1,271). At the time we designated critical habitat in 2003, this species was only known from one occurrence on the island of Hawaii (68 FR 39624, July 2, 2003). Currently, there are no known occurrences on Lanai, Molokai, or Maui (HBMP 2008; PEPP 2009, p. 112; HBMP 2010). Historically, this species occurred in the lowland dry, lowland mesic, and dry cliff ecosystems on Lanai, and in the lowland dry and lowland mesic ecosystems on east Maui. It is unclear when and where this plant was collected on Molokai (TNC 2007; HBMP 2010).

Spermolepis hawaiiensis (NCN), an annual herb in the parsley family (Apiaceae), is known from Kauai, Oahu, Molokai, Lanai, and the island of Hawaii (Constance and Affolter 1999, p. 212). At the time we designated critical habitat on Kauai, Molokai, and Maui in 2003, and on Oahu in 2012, *S. hawaiiensis* was known from 3 occurrences on Lanai, 2 occurrences on Kauai, 1 occurrence on Molokai, 5 occurrences on Maui, 30 occurrences on Hawaii Island, and 4 occurrences on Oahu (68 FR 1220, January 9, 2003; 68 FR 9116, February 27, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 77 FR 57648, September 18, 2012). No critical habitat was designated for this species on Hawaii Island in 2003 (68 FR 39624, July 2, 2003). Currently in Maui Nui there are nine occurrences totaling possible a several thousand individuals. On Lanai, there are 3 occurrences at Makiki Ridge, Kahewai Gulch to Puhialelu Ridge, and Kapoho Gulch, totaling between 500 and 600 individuals in the lowland dry and lowland mesic ecosystems. On Molokai, there are thousands of individuals at Makolelau and Kapuaokoolau, in the lowland mesic and montane mesic ecosystems (Perlman 2007e, in litt.; TNC 2007; HBMP 2010; Oppenheimer 2010u, in litt.). On east Maui, there is one occurrence at Kanaio, with possibly 1,000 individuals, in the lowland dry ecosystem. On west Maui, there are at least 3 occurrences that may total over 1,000 individuals at Puu Hipa, Olowalu, and Ukumehame in the lowland dry ecosystem. A recent (2010) fire at Olowalu burned at least 50 individuals (TNC 2007; HBMP 2010; Oppenheimer 2010b, in litt. 2010i, in litt.). Because of this species' annual growth habit (grows, blooms, seeds, and dies within 1 year), larger numbers of individuals (as compared to long-lived perennials) are required to ensure long-term

persistence as reproduction is dependent on the longevity of the seedbank. Overall, the numbers of individuals have declined from the approximately 13,000 wild individuals reported in 2010 to approximately 6,000 wild individuals reported in 2015 (Service 2010, in litt.; Service 2015, in litt.). Current threats to this species are herbivory by feral pigs, goats, sheep, deer, and mouflon; competition with nonnative plants; fire; erosion; landslides; rockslides; and drought (Service 1999, in litt; Service 2015, in litt.). Fortini *et al.* (2013, p. 89) conducted a landscape-based assessment of climate change vulnerability for *S. hawaiiensis* and concluded that this species has moderately low vulnerability to the impacts of climate change. Since *S. hawaiiensis* is an annual plant, to be considered for delisting, a minimum of 5 to 7 naturally reproducing populations of at least 500 individuals each must be stable or increasing in numbers on islands where it now occurs or occurred historically. These goals have not been met and threats are not being sufficiently managed. Designation of unoccupied habitat (in addition to occupied habitat) is essential to the conservation of *S. hawaiiensis* as it remains in danger of extinction throughout its range, therefore sufficient habitat is required to allow the species to persist in the face of ongoing and future threats, and for the expansion or reestablishment of multiple, self-sustaining populations in areas presently not occupied by the species to meet recovery goals.

Stenogyne bifida (NCN), a short-lived climbing perennial herb in the mint family (Lamiaceae), is known from Molokai (Weller and Sakai 1999, p. 835). At the time we designated critical habitat in 2003, there were five known occurrences (68 FR 12982, March 18, 2003). Currently, *S. bifida* is known from one individual in Kawela Gulch, in the montane wet ecosystem (TNC 2007; HBMP 2008; PEPP 2009, p. 113; Tangalin 2009, in litt.; HBMP 2010). The status of the plants in the montane mesic ecosystem, farther west, is unknown (Oppenheimer 2009i, in litt.). Historically, this species was also found in Molokai's lowland mesic, lowland wet, montane mesic, and wet cliff ecosystems (TNC 2007; HBMP 2010).

Stenogyne kauaulaensis (NCN), a short-lived perennial vine in the mint family (Lamiaceae), occurs on Maui. This recently described (2008) plant is found only along the southeastern rim of Kauaula Valley, in the montane mesic ecosystem on west Maui (TNC 2007; Wood and Oppenheimer 2008, pp. 544–545). At the time *S. kauaulaensis* was described, the authors reported a total of 15 individuals in one occurrence. However, one of the authors reports that due to the clonal (genetic duplicate) growth habit of this species, botanists believe it is currently represented by only three genetically distinct individuals (Oppenheimer 2010k, in litt.).

Tetramolopium capillare (pamakani), a short-lived perennial sprawling shrub in the sunflower family (Asteraceae), is known from west Maui (Lowrey 1999, p. 363). At the time we designated critical habitat in 2003, this species was known from five occurrences (68 FR 25934, May 14, 2003). Although *Tetramolopium capillare* was last observed in the wet cliff (Kauaula) and dry cliff (Ukumehame) ecosystems in 2001, and in the lowland dry ecosystem (Ukumehame) in 1995, these plants are no longer extant (TNC 2007; HBMP 2010; Oppenheimer 2010i, in litt.). Currently, there are no known occurrences on west Maui (PEPP 2009, p. 113).

Tetramolopium lepidotum ssp. *lepidotum* (NCN), a short-lived perennial shrub in the sunflower family (Asteraceae), is known from Oahu and Lanai (Lowrey 1999, p. 376). At the time we designated critical habitat in 2012, this subspecies was only known from three occurrences on Oahu (77 FR 57648, September 18, 2012). Currently, *T. lepidotum* ssp. *lepidotum* is only found on Oahu. This subspecies was last observed in the lowland dry ecosystem on Lanai in the early 1900s (TNC 2007; HBMP 2008; PEPP 2009, pp. 113–114; HBMP 2010).

Tetramolopium remyi (NCN), a short-lived perennial shrub in the sunflower family (Asteraceae), is known from Lanai and west Maui (Lowrey 1999, pp. 367–368). At the time we designated critical habitat in 2003, there was one occurrence on Lanai totaling approximately 150 individuals, and there were an unknown number of individuals in the Kuia area on west Maui (68 FR 1220, January 9, 2003; 68 FR 25934, May 14, 2003). Currently, there is one known individual on Lanai at Awehi, in the lowland dry ecosystem (TNC 2007; HBMP 2010; Oppenheimer 2010ii, in litt.; Perlman 2008h, in litt.). There are an unknown number of individuals in the Kuia area on west Maui in the lowland dry ecosystem (TNC 2007; HBMP 2010).

Tetramolopium rockii (NCN), a short-lived perennial shrub in the sunflower family (Asteraceae), is endemic to the island of Molokai (Lowrey 1999, p. 368). There are two varieties: *T. rockii* var. *calcisabulorum* and *T. rockii* var. *rockii* (Lowrey 1999, p. 368). At the time we designated critical habitat in 2003, *T. rockii* was known from four occurrences totaling thousands of individuals (68 FR 12982, March 18, 2003). *Tetramolopium rockii* var. *calcisabulorum* was reported from Kaiehu Point to Kapalauoa, intergrading with var. *rockii.* *Tetramolopium rockii* var. *rockii* occurred from Kalawao to Kahinaakalani, Kaiehu point to Kapalauoa, and Moomomi to Kahinaakalani. Currently, numbers fluctuate considerably from year to year but remain in the thousands, and occurrences are found along the northwest shore of Molokai, from Kaa Gulch to Kahinaakalani, and on Kalaupapa peninsula from Alau to Makalii, in the coastal ecosystem (Canfield 1990, p. 20; Perlman 2006c, in litt.; TNC 2007; HBMP 2008; NTBG 2009l; HBMP 2010; Wood 2010f, in litt.).

Vigna o-wahuensis (NCN), a twining, short-lived perennial herb in the pea family (Fabaceae), is known from all of the main Hawaiian Islands except Kauai (Geesink *et al.* 1999, pp. 720–721). At the time we designated critical habitat on Maui and Hawaii in 2003 and Oahu in 2012, *V. o-wahuensis* was known from 6 occurrences totaling approximately 30 individuals on Lanai, Molokai, Maui, and Kahoolawe, and the island of Hawaii (68 FR 1220, January 9, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003; 77 FR 57648, September 18, 2012). However, no critical habitat was designated for this species on Lanai or Molokai in 2003 (68 FR 1220, January 9, 2003; 68 FR 12982, March 18, 2003). Currently, there are 22 individuals in 3 occurrences on Molokai, Maui, and Kahoolawe. On Molokai, 2 occurrences totaling 12 individuals are known from Makakupaia and Makolelau, in the lowland mesic ecosystem. On east Maui, there are approximately 10 individuals at Kanaio Beach in the coastal ecosystem. On Kahoolawe, there is one individual in the lowland dry ecosystem. Historically, *V. o-wahuensis* was found in the lowland dry and lowland mesic ecosystems on Lanai, and in the coastal ecosystem on Kahoolawe (Perlman 2005, in litt.; TNC 2007; HBMP 2010; Wood 2010g, in litt.).

Viola lanaiensis (NCN), a short-lived perennial subshrub in the violet family (Violaceae), is known from Lanai (Wagner *et al.* 1999aa, pp. 1,334–1,336). In 2003, there were 2 known occurrences totaling fewer than 80 individuals; however, no critical habitat was designated for this species on Lanai (68 FR 1220, January 9, 2003).

Currently, 6 individuals are found in Awehi Gulch, in the wet cliff ecosystem on Lanai. Historically, this species was also reported in the montane wet and dry cliff ecosystems on Lanai (TNC 2007; HBMP 2008; PEPP 2008, p. 84; PEPP 2009, p. 117; HBMP 2010). A new population of over 140 individuals of *V. lanaiensis* was recently discovered on Helu Peak, west Maui, in the montane mesic ecosystem (Havran *et al.* 2012. This information extends the known range for *V. lanaiensis* to the island of Maui. However, we will reevaluate the listing status of this species in a future proposed rulemaking.

Wikstroemia villosa (akia), a short-lived perennial shrub or tree in the akia family (Thymelaeaceae), is found on Maui (Peterson 1999, pp. 1,290–1,291). Historically known from the lowland wet, montane wet, and montane mesic ecosystems on east and west Maui, this species is currently known from a recent discovery (2007) of one individual on the windward side of Haleakala (on east Maui), in the montane wet ecosystem (Peterson 1999, p. 1,291; TNC 2007; HBMP 2010). As of 2010, there was one individual and one seedling at the same location (Oppenheimer 2010m, in litt.). In addition, three individuals have been outplanted in Waikamoi Preserve (Oppenheimer 2010m, in litt.).

Zanthoxylum hawaiiense (ae), a long-lived perennial tree in the rue family (Rutaceae), is known from Kauai, Molokai, Lanai, Maui, and the island of Hawaii (Stone *et al.* 1999, pp. 1,214–1,215). At the time we designated critical habitat on Kauai, Molokai, and Maui in 2003, *Z. hawaiiense* was known from 3 occurrences on Kauai, 5 individuals on Molokai, 9 occurrences on Maui, and 186 occurrences on the island of Hawaii (68 FR 9116, February 27, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003; 68 FR 39624, July 2, 2003). No critical habitat was designated for this species on Hawaii in 2003 (68 FR 39624, July 2, 2003). Currently, on Molokai and Maui, this species is known from 5 or 6 occurrences totaling 14 individuals. On Molokai, there are two mature individuals in the lowland wet ecosystem, one individual above Kamalo in the montane wet ecosystem, and one individual in Makolelau Gulch in the lowland mesic ecosystem. On west Maui, there are seven individuals at Puehuehunui in the montane mesic and lowland mesic ecosystems. On east Maui, at Auwahi, there are three individuals in the montane dry and lowland dry ecosystems. Historically, this species also occurred in Maui's subalpine and montane mesic ecosystems (Perlman 2001, in litt.; Evans *et al.* 2003, pp. 41, 47; NTBG 2005; TNC 2007; Wood 2007, in litt.; HBMP 2008; PEPP 2009, pp. 22, 27, 119; HBMP 2010). *Zanthoxylum hawaiiense* was last seen on Lanai in the lowland wet ecosystem in 1947 (TNC 2007; HBMP 2010).

Animals

Birds

Kiwikiu

The Maui parrotbill, or kiwikiu (*Pseudonestor xanthophrys*), is a small Hawaiian honeycreeper found only on the island of Maui, currently in the mid- to upper-elevation montane mesic and montane wet ecosystems (USFWS 2006, p. 2–79; TNC 2007). The Hawaiian honeycreepers are in the subfamily Drepanidinae of the finch family, Fringillidae (AOU 1998, p. 673). The kiwikiu is most common in wet forests dominated by *Metrosideros polymorpha* trees and a few mesic areas dominated by *M. polymorpha* and *Acacia koa* trees with an intact, dense, diverse native understory and subcanopy of ferns, sedges, epiphytes, shrubs and small to medium trees (USFWS 2006, p. 2–79). In 1980, the number of kiwikiu was estimated by the Hawaii Forest Bird Survey (HFBS) at 500 ±230 (95 percent confidence interval) birds with an average density of 10 birds per 0.39 sq mi (1 sq km) (Scott *et al.* 1986, p. 115). Currently, the kiwikiu is found only on Haleakala on east Maui, in an area of 12,355 ac (50 sq km) at elevations between 4,500 and 6,500 ft (1,360 to 1,970 m) (NPS 2012, in litt.). The kiwikiu is insectivorous and often feeds in a deliberate manner, using its massive hooked bill to dig, tear, crack, crush, and chisel the bark and softer woods on a variety of understory native shrubs and small- to medium-sized subcanopy trees, especially *Rubus hawaiensis* (akala), *Broussaisia arguta* (kanawao), and *M. polymorpha* (USFWS 2006, p. 2–77; NPS 2012, in litt.). Kiwikiu also pluck and bite open fruits, especially *B. arguta* fruits, in search of insects, but do not eat the fruit itself (USFWS 2006, pp. 2–77–2–78). The open cup nest, composed mainly of lichens (*Usnea* sp.) and *Leptecophylla tameiameiae* (pukiawe) twigs, is built by the female an average of 40 ft (12 m) above the ground in a forked branch just under the outer canopy foliage (USFWS 2006, p. 2–78). Based on collections of subfossil bones, the current geographic range is much restricted compared to the known prehistorical range, which included mesic leeward forests and low elevations between 660 and 1,000 ft (200 to 300 m) on east Maui as well as Molokai (James and Olson 1991, p. 80; Olson and James 1991, pp. 14–15; TNC 2007). Surveys from 1995 to 1997 at Hanawi, a study site located in the core of the species' range, showed that the kiwikiu occurred there at approximately the same density (40 birds per 0.39 sq mi (1 sq km)) as in 1980 (Simon *et al.* 2002, p. 477). However, subsequent surveys across the species' range have not conclusively shown that its densities are stable (Camp *et al.* 2009, p. 39).

Akohekohe

The crested honeycreeper, or akohekohe (*Palmeria dolei*), is a small forest bird found only on the island of Maui, currently in the mid- to upper-elevation montane mesic and montane wet ecosystems (USFWS 2006, p. 2–139; TNC 2007). Like the kiwikiu, the akohekohe is also a Hawaiian honeycreeper in the subfamily Drepanidinae of the finch family, Fringillidae (AOU 1998, p. 678). The akohekohe is most common in the wet forest habitat described above for the kiwikiu, except that the lower limit of the akohekohe's elevational range is higher (roughly 5,000 ft (1,525 m)) than the lower limit of the kiwikiu's elevational range (USFWS 2006, p. 2–139; NPS 2012, in litt.). In 1980, the number of akohekohe was estimated by the HFBS at 3,800 ±700 (95 percent confidence interval) individuals (Scott *et al.* 1986, p. 168). Currently the akohekohe is found only on Haleakala, east Maui, in 14,080 ac (58 sq km) at elevations between 5,000 and 6,500 ft (1,500 to 1,970 m) at Manawainui, Kipahulu Valley, and the upper Hana rainforest (USFWS 2006, p. 2–140; NPS 2012, in litt.). The akohekohe is primarily nectarivorous, but also feeds on caterpillars, spiders, and dipterans (flies) (USFWS 2006, p. 2–138). Nectar is primarily sought from flowers of *Metrosideros polymorpha* trees but also from several subcanopy tree and shrub species when *M. polymorpha* trees are not in bloom (USFWS 2006, p. 2–139; NPS 2012, in litt.). The open cup nest is built by the female an average 46 ft (14 m) above the ground in the terminal ends of branches below the canopy foliage of *M. polymorpha* trees (USFWS 2006, p. 2–139). Based on collections of subfossil bones, the current geographic range is much restricted compared to the known prehistorical range, which included dry leeward areas of east and west Maui, and Molokai (Berlin and VanGelder 1999, p. 3). The HFBS and subsequent surveys of the akohekohe range yielded densities of 81 ±10 birds per 0.39 sq mi (1 sq km) in 1980, 98 ±11 birds per 0.39 sq mi (1 sq km) from 1992 to 1996, and 116 ±14 birds per 0.39 sq

mi (1 sq km) between 1997 and 2001 (Camp *et al.* 2009, p. 81; Gorresen *et al.* 2009, pp. 123–124). Densities in the core of the species' range within the Hanawi Natural Area Reserve were 183 ±59 birds per 0.39 sq mi (1 sq km) in 1988, and 290 ±10 birds per 0.39 sq mi (1 sq km) from 1995 to 1997 (Berlin and VanGelder 1999, p. 11). These results indicate that the species' rangewide and core densities have both increased and the current population may be larger than previously estimated (Gorresen *et al.* 2009, p. 124).

Tree Snails

Newcomb's tree snail (*Newcombia cumingi*), a member of the family Achatinellidae and the endemic Hawaiian subfamily Achatinellinae (Newcomb 1853, p. 25), is known only from the island of Maui (Cowie *et al.* 1995, p. 62). The exact life span and fecundity of the Newcomb's tree snail is unknown, but they attain adult size within 4 to 5 years (Thacker and Hadfield 1998, p. 2). Newcomb's tree snail is believed to exhibit the low reproductive rate of other Hawaiian tree snails belonging to the same family (Thacker and Hadfield 1998, p. 2). It feeds on fungi and algae that grow on the leaves and trunks of its native host plant, the tree *Metrosideros polymorpha* (Pilsbry and Cooke 1912–1914, p. 103). Historically, Newcomb's tree snail was distributed from the west Maui mountains (near Lahaina and Wailuku) to the slopes of Haleakala (Makawao) on east Maui (Pilsbry and Cooke 1912–1914, p. 10). In 1994, a small population of Newcomb's tree snail was found on a single ridge on the northeastern slope of the west Maui mountains, in the lowland wet ecosystem (Thacker and Hadfield 1998, p. 3; TNC 2007). Eighty-six snails were documented in the same location in 1998; in 2006, only nine individuals were located; and, in 2012, only one individual was located (Thacker and Hadfield 1998, p. 2; Hadfield 2007, p. 8; Higashino 2013, in litt.).

Partulina semicarinata (Lanai tree snail, pupu kani oe), a member of the family Achatinellidae and the endemic Hawaiian subfamily Achatinellinae, is known only from the island of Lanai (Pilsbry and Cooke 1912–1914, p. 86). Adults may attain an age exceeding 15 to 20 years, and reproductive output is low, with an adult snail giving birth to 4 to 6 live young per year (Hadfield and Miller 1989, pp. 10–12). *Partulina semicarinata* is arboreal and nocturnal, and grazes on fungi and algae growing on leaf surfaces (Pilsbry and Cooke 1912–1914, p. 103). This snail species is found on the following native host plants: *Metrosideros polymorpha, Broussaisia arguta* (kanawao), *Psychotria* spp. (kopiko), *Coprosma* spp. (pilo), *Melicope* spp. (alani), and dead *Cibotium glaucum* (tree fern, hapuu). Occasionally the snail is found on nonnative plants such as *Psidium guajava* (guava), *Cordyline australis* (New Zealand tea tree), and *Phormium tenax* (New Zealand flax) (Hadfield 1994, p. 2). Historically, *P. semicarinata* was found in wet and mesic *M. polymorpha* forests on Lanai. There are no historical population estimates for this snail, but qualitative accounts of Hawaiian tree snails indicates they were once widespread and abundant, possibly numbering in the tens of thousands between the 1800s and early 1900s (Hadfield 1986, p. 69). In 1993, 105 individuals of *P. semicarinata* were found during surveys conducted in its historical range. Subsequent surveys in 1994, 2000, 2001, and 2005 documented 55, 12, 4, and 29 individuals, respectively, in the lowland wet, montane wet, and wet cliff ecosystems in central Lanai (Hadfield 2005, pp. 3–5; TNC 2007).

Partulina variabilis (Lanai tree snail, pupu kani oe), a member of the family Achatinellidae and the endemic Hawaiian subfamily Achatinellinae, is known only from the island of Lanai (Pilsbry and Cooke 1912–1914, p. 86). Adults may attain an age exceeding 15 to 20 years, and reproductive output is low, with an adult snail giving birth to 4 to 6 live young per year (Hadfield and Miller 1989, pp. 10–12). *Partulina variabilis* is arboreal and nocturnal, and grazes on fungi and algae growing on leaf surfaces (Pilsbry and Cooke 1912–1914, p. 103). This snail is found on the following native host plants: *Metrosideros polymorpha, Broussaisia arguta, Psychotria* spp., *Coprosma* spp., *Melicope* spp., and dead *Cibotium glaucum.* Occasionally *Partulina variabilis* is found on nonnative plants such as *Psidium guajava* and *Cordyline australis* (Hadfield 1994, p. 2). Historically, *Partulina variabilis* was found in wet and mesic *M. polymorpha* forests on Lanai. There are no historical population estimates for this snail, but qualitative accounts of Hawaiian tree snails indicate they were widespread and abundant, possibly numbering in the tens of thousands between the 1800s and early 1900s (Hadfield 1986, p. 69). In 1993, 111 individuals of *P. variabilis* were found during surveys conducted in its historical range. Subsequent surveys in 1994, 2000, 2001, and 2005 documented 175, 14, 6, and 90 individuals, respectively, in the lowland wet, montane wet, and wet cliff ecosystems in central Lanai (Hadfield 2005, pp. 3–5; TNC 2007).

An Ecosystem-Based Approach To Determining Primary Constituent Elements of Critical Habitat

Under section 4(a)(3)(A) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), we are required to designate critical habitat to the maximum extent prudent and determinable concurrently with the publication of a final determination that a species is endangered or threatened. In this final rule, we are designating critical habitat for 125 endangered or threatened species (122 plants, 1 tree snail, and 2 forest birds) on the islands of Molokai, Maui, and Kahoolawe. As described in our June 11, 2012, proposed rule (77 FR 34464), we proposed critical habitat for the first time for 50 plant and animal species (37 newly listed and 2 species for which we reaffirmed listed status, as well as 11 previously listed plant and animal species that did not have designated critical habitat (May 28, 2013; 78 FR 32014)), and proposed to revise critical habitat for 85 listed plant species, for a total of 135 species. As noted above, as a result of exclusions under section 4(b)(2) of the Act, no critical habitat is designated for 10 of those species, therefore we are finalizing critical habitat for 125 of those 135 species.

In this final rule, we are designating critical habitat for 125 species in 165 unique critical habitat units. Although critical habitat is identified for each species individually, we have found that the conservation of each depends, at least in part, on the successful functioning of the physical or biological features of their commonly shared ecosystem. Each critical habitat unit identified in this final rule contains the physical or biological features essential to the conservation of those individual species that occupy that particular unit, or areas essential for the conservation of those species identified that do not presently occupy that particular unit. Where the unit is not occupied by a particular species, we conclude it is still essential for the conservation of that species because the designation allows for the expansion of its range and reintroduction of individuals into areas where it occurred historically, and provides area for recovery in the case of stochastic events that otherwise hold the potential to eliminate the species from the one or more locations where it may presently be found. Under current conditions, many of these species are so rare in the wild that they are at high risk of extirpation or even extinction from various stochastic events, such as

hurricanes or landslides. Therefore, building up resilience and redundancy in these species through the establishment of multiple, robust populations is a key component of recovery.

Each of the areas designated represents critical habitat for multiple species, based upon their shared habitat requirements (*i.e.,* physical or biological features) essential for their conservation. This designation of critical habitat also takes into account any species-specific conservation needs. For example, the presence of a seasonally wet area within the coastal ecosystem is essential for the conservation of the plant *Marsilea villosa,* but is not a requirement shared by all of the other species within that same ecosystem; this is an example of a species-specific requirement. However, a broader, functioning ecosystem is also essential to *M. villosa* because it provides the ''ecosystem-level'' physical or biological features required to support its specific life-history requirements.

In the interest of reducing the length of this document, we have provided detailed background information regarding the islands of Maui Nui, as well as descriptions of the relevant Maui Nui ecosystems that provide habitat for these species, in our supporting document ''Supplemental Information for the Designation and Nondesignation of Critical Habitat on Molokai, Lanai, Maui, and Kahoolawe for 135 Species,'' available at *http://www.regulations.gov* (see **ADDRESSES**).

IV. Summary of Comments and Recommendations

On June 11, 2012, we published a proposed rule to list 38 Maui Nui species (35 plants and 3 tree snails) as endangered and reevaluate the listing of 2 Maui Nui plant species as endangered throughout their ranges, and to designate critical habitat for 135 species (77 FR 34464). The proposed rule opened a 60-day comment period. On August 9, 2012 (77 FR 47587), we extended the comment period for the proposed rule for an additional 30 days, ending on September 10, 2012. We requested that all interested parties submit comments or information concerning the proposed listing and designation of critical habitat for 135 species. We contacted all appropriate State and Federal agencies, county governments, elected officials, scientific organizations, and other interested parties and invited them to comment. In addition, we published a public notice of the proposed rule on June 20, 2012, in the local Honolulu Star Advertiser, Maui Times, and Molokai Dispatch newspapers, at the beginning of the comment period. We received three requests for public hearings. On January 31, 2013, we published a document (78 FR 6785) reopening the comment period on the June 11, 2012, proposed rule (77 FR 34464), announcing the availability of our draft economic analysis (DEA) on the proposed critical habitat, and requesting comments on both the proposed rule and the DEA. This comment period closed on March 4, 2013. In addition, in that same document (January 31, 2013; 78 FR 6785) we announced a public information meeting and hearing, which we held in Kihei, Maui, on February 21, 2013. On June 10, 2015, we again reopened the comment period on the proposed critical habitat for an additional 15 days (80 FR 32922); this comment period closed on June 25, 2015.

In addition, on February 25, 2013, during a meeting of the Maui County Council's Policy and Intergovernmental Affairs (PIA) Committee in Wailuku, Maui, the council received public testimony on the Service's June 11, 2012 (77 FR 34464), proposed rule. Fourteen individuals present at the meeting provided oral testimony, and 4 individuals provided only written testimony, on the proposed designation of critical habitat for 135 species.

During the comment periods, we received a total of 150 unique comment letters on the proposed listing of 38 species, reevaluation of listing for 2 species, and proposed designation of critical habitat. In addition, we received 5,107 copies of an electronic form letter in support of critical habitat designation from a Web site available to a worldwide audience. No additional scientific information was provided in these form letters. We also received a petition entitled ''Maui Hunters Oppose Maui Nui Critical Habitat Designation,'' signed by 93 individuals. Of the 150 commenters, 11 were State of Hawaii or Maui County elected officials, three were Federal agencies (Pacific West Region of the National Park Service, Haleakala National Park, and Kalaupapa National Historical Park), four were State of Hawaii agencies (Hawaii Department of Health (although they did not provide any comments specific to critical habitat), Hawaii Department of Agriculture, Hawaii Division of Forestry and Wildlife, Hawaii Department of Hawaiian Homelands), three were affiliated with Maui County (Maui County Police Department, Maui County Planning Department, and Maui County Council Committee on Policy and Intergovernmental Affairs), and 129 were nongovernmental organizations or individuals; and, counted separately, the 5,107 electronic form letters (as described above). During the February 21, 2013, public hearing, 25 individuals or organizations made comments on the proposed designation of critical habitat for 135 species and the DEA. Due to the nature of the proposed rule, we received combined comments from the public and peer reviewers on both the listing action and the critical habitat designation. Comments relevant to the proposed listing of the 38 species and reevaluation of 2 species were addressed in the final listing rule published May 28, 2013 (78 FR 32014). In this final rule, we address only those comments relevant to the designation of critical habitat.

All substantive information provided during the comment periods related to the critical habitat designation has either been incorporated directly into this final rule as appropriate or is addressed below. Comments we received are grouped into comments specifically relating to the proposed critical habitat designation, the Lanai Memorandum of Understanding (MOU), or the DEA. For readers' convenience, we have combined similar comments into single comments and responses.

Peer Review

In accordance with our peer review policy published in the **Federal Register** on July 1, 1994 (59 FR 34270), we solicited expert opinions from 10 knowledgeable individuals with scientific expertise on the Maui Nui plants, snails, and forest birds and their habitats, including familiarity with the species, the geographic region in which these species occur, and conservation biology principles. We received responses from four of these individuals. Of these four peer reviewers, three provided comments on the proposed critical habitat designation (the other reviewer commented only on the proposed listings). These peer reviewers generally supported our methodology and conclusions. We reviewed all comments we received from the peer reviewers for substantive issues and new information regarding the proposed designation of critical habitat for 135 species. Peer reviewer comments are addressed in the following summary and incorporated into the final rule as appropriate.

General Peer Review Comments

(1) *Comment:* One peer reviewer noted the absence of a literature cited section for the proposed rule.

Our Response: Although not included with the proposed rule itself, information on how to obtain a list of

our supporting documentation used was provided in the proposed rule under the sections Public Comments and References Cited (77 FR 34464; June 11, 2012). In addition, the lists of references cited in the proposed rule (77 FR 34464; June 11, 2012) and in this final rule are available on the Internet at *http://www.regulations.gov* at Docket Nos. FWS–R1–ES–2011–0098 and FWS–R1–ES–2015–0071, respectively, in the ''Supporting Documents'' section, and upon request from the Pacific Islands Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

(2) *Comment:* One peer reviewer provided additional information regarding the biogeographical differences between east and west Maui.

Our Response: We have included this information in this final rule and corrected statements about the range of annual rainfall on east Maui (Giambelluca *et al.* 2011—online Rainfall Atlas of Hawaii), the diversity of vegetation in the mesic and wet ecosystems of east Maui relative to west Maui (Price 2004, p. 493), and the geologic age of the youngest lava flows found within the Cape Kinau region of east Maui (Sherrod *et al.* 2006, p. 40) (see *The Islands of Maui Nui* in our supporting document ''Supplemental Information for the Designation and Nondesignation of Critical Habitat on Molokai, Lanai, Maui, and Kahoolawe for 135 Species,'' available at *http://www.regulations.gov* (see **ADDRESSES**)).

Peer Reviewer Comments on Critical Habitat for Plants

(3) *Comment:* One peer reviewer pointed out that, based on personal observations and information from Wagner *et al.* (2005, pp. 3 and 135), *Schiedea lydgatei,* a listed endangered plant for which we proposed revised critical habitat in the lowland mesic ecosystem on Molokai, occurs in lowland dry shrublands. In addition, this same reviewer noted that the endangered *Schiedea sarmentosa,* for which we proposed revised critical habitat in lowland mesic ecosystem on Molokai, occurs in lowland dry forest and shrubland on steep slopes and cliffs.

Our Response: We believe that both *Schiedea lydgatei* and *S. sarmentosa* are appropriately characterized as occupants of the lowland mesic ecosystem. According to the Hawaii State geodatabase dataset for annual rainfall in Hawaii (Giambelluca *et al.* 1986, digitized in ArcMap), *Schiedea lydgatei* and *S. sarmentosa* occur within the area defined as mesic, with rainfall between 50 to 75 inches (in) (127 to 190 centimeters (cm)) per year. In addition, this area is within mesic habitat defined by The Nature Conservancy's GIS database for ''An Ecoregional Assessment of Biodiversity Conservation for the Hawaiian High Islands'' (*http://www.hawaiiecoregionplan.info/*). Portions of this area are affected by erosion resulting from browsing and trampling by feral ungulates and may be locally drier from lack of ground cover and exposure to wind, making it appear that this area should be characterized as ''lowland dry.'' However, for the reasons cited above, we believe it is characterized correctly within the mesic ecosystem.

(4) *Comment:* One peer reviewer suggested that it may be appropriate to exclude certain State lands pursuant to the criteria under section 4(b)(2) of the Act from designated critical habitat for plants. These State lands include State Natural Area Reserves (NARs) that are fenced, ungulate-free, and staffed, and that are Priority I watershed areas according to the State's 'Rain Follows the Forest' plan (Hawaii Department of Land and Natural Resources (HDLNR) 2011, entire), or State lands covered by the HDLNR and Watershed Partnerships' Watershed Protection and Restoration Plan and that have permanent management teams of watershed partnership staff. The reviewer identified the following specific areas to consider excluding from critical habitat: Fenced, ungulate-free NARs of the west Maui mountains, ungulate-free portions of Hanawi NAR, and Puu Alii and Olokui NARs on Molokai.

Our Response: We commend the State of Hawaii for its dedication of staff and resources toward protection and management of species and their habitats through the 'Rain Follows the Forest' plan, management plans for individual State NARs, and watershed partnerships programs throughout the State. These initiatives, plans, and programs serve to focus conservation efforts and educate the public on the importance of these areas. The DLNR–DOFAW expressed support for the management goals of the critical habitat designation for west Maui, but were concerned that designation of critical habitat on lands actively managed for watershed and species protection on west Maui could have undesirable impacts on those private landowners who are conservation partners and members of the West Maui Mountains Watershed Partnership. We have taken those conservation efforts by these partners under consideration, and as a result of this evaluation, we have excluded all such private landowners from the designation of critical habitat in this final rule, based on the demonstrated beneficial conservation efforts of those landowners (see *Exclusions Based on Other Relevant Factors*).

We support and value the conservation efforts by the State and recognize the necessity of actions taken on State lands for conservation of species and their habitats. We also agree that, if fenced, and maintained as ungulate-free, these areas on State lands would provide benefits to the species and their habitats. However, we note that the West Maui NAR-Kahakuloa section is within a public hunting area (pigs, goats, and birds) with daily bag limits, Hanawi NAR is within a public hunting area (goats and pigs) with daily bag limits, and Puu Alii NAR and Olokui NAR on Molokai are also within public hunting areas (goats and pigs) with daily bag limits, implying these areas are not yet entirely ungulate-free. Therefore, any beneficial management actions to address the threats from nonnative species in the NARs (*e.g.,* fencing, weed control) may be negated by the presence of ungulates. In addition, we considered the State's comments that ''the Department [of Land and Natural Resources] does not have concerns or objections to the designation of CH [critical habitat] as proposed for Department lands within the West Maui mountains,'' nor did the State express concerns or object to critical habitat designation with regard to any of the NARs suggested by the peer reviewer. Although the State did not specifically request exclusion of any State lands under section 4(b)(2) of the Act, they did request that some areas be removed from the designation based on a conflict between the State's intended use of those areas (*e.g.,* recreational hunting) and critical habitat, or suggested that some of these areas were not necessary for the recovery of the species, and that recovery could be achieved elsewhere. We concluded that the suggested areas meet the definition of critical habitat. Further, the State offered no explanation as to why the benefit of exclusion of any State lands may outweigh the benefit of inclusion in critical habitat. Consequently, the Secretary has chosen not to exercise her discretionary authority to exclude any State lands from this final designation of critical habitat for the Maui Nui species.

Peer Reviewer Comments on Critical Habitat for Akohekohe and Kiwikiu

(5) *Comment:* Two peer reviewers stated that we did not adequately discuss the basis for proposing extensive areas of unoccupied habitat

for the two honeycreepers on west Maui and on Molokai. It was suggested that we include additional discussion on the significance of risk to isolated populations and their susceptibility to stochastic events. Additionally it was recommended that we elaborate upon the need for establishing secondary populations of the honeycreepers and to explain the feasibility of captive breeding to support these planned introduced populations.

Our Response: We appreciate the peer reviewers' comments. In this final rule we have included additional information to explain the need to designate unoccupied habitat for the two honeycreepers on west Maui and on Molokai (see ''Recovery Strategy for Two Forest Birds,'' below). These forest birds now occur in low numbers and have experienced significant range restrictions. They face threats from natural processes such as inbreeding depression and natural and manmade stochastic events such as hurricanes, wildfires, and changes in habitat vegetation such as periodic dieback events (Revised Recovery Plan for Hawaiian Forest Birds (Recovery Plan), Service 2006, pp. ix–x). For both of these birds, long-term recovery cannot be achieved based solely upon the protection of existing populations. Population growth and expansion is essential to the conservation of these species, which will require sufficient areas of suitable unoccupied habitat within their historical range. In proposing areas of unoccupied habitat, we used the recovery areas identified for the akohekohe and kiwikiu in the Recovery Plan, the known locations of the species, The Nature Conservancy's Ecoregional Assessment of the Hawaiian High Islands (2006) and ecosystem maps (TNC 2007), published and unpublished reports, and GIS layers (see Methods, below). According to the Recovery Plan, the recovery areas are areas that will allow for the long-term survival and recovery of these two Hawaiian forest birds.

In this final rule we have also outlined the recovery criteria, as identified in the Recovery Plan, to ensure the conservation of the akohekohe and kiwikiu within their existing occupied habitat and those unoccupied habitats identified as essential for their conservation (see ''Recovery Strategy for Two Forest Birds,'' below).

(6) *Comment:* One peer reviewer prioritized proposed critical habitat in order of importance to the akohekohe and kiwikiu. The reviewer suggested the following: First priority critical habitat units should include units with populations of one or both of the honeycreepers and units adjacent to these areas within the same ecosystem designations; second priority critical habitat units should include adjacent habitat areas with the potential of linking isolated populations and/or providing contiguous habitat around Haleakala; third priority critical habitat units should include mesic *Acacia koa* (koa) woodlands above the current distribution of the two birds. Regarding these third priority areas, the reviewer emphasized that they are essential habitat because koa woodlands may represent a more optimal foraging habitat for the honeycreepers, and higher elevation habitat may provide a cooler refuge from encroaching disease (avian malaria, transmitted by mosquitoes) as local mean temperatures continue to rise. The reviewer went on to suggest that even heavily grazed and logged areas in the mesic koa woodlands should not be exempt from critical habitat, as areas with active or planned koa reforestation projects may have the greatest potential for sustaining higher densities of honeycreepers through their capacity to support the birds' arthropod prey.

Our Response: We appreciate the thorough consideration given by this peer reviewer to our proposed critical habitat for the akohekohe and kiwikiu. However, under the Act and our regulations at 50 CFR 424.12, critical habitat areas are not prioritized or ranked in any way at the time they are designated. However, the information provided by the peer reviewer may be germane to the prioritization of recovery actions for the akohekohe and kiwikiu, therefore we have provided it to the Hawaiian Forest Bird Recovery Team so that it may be incorporated into future planning efforts, as appropriate, possibly including revision of the 2006 Recovery Plan. As explained above, we used the recovery areas identified for the akohekohe and kiwikiu in the Recovery Plan, and other information (see also Methods, below) to identify critical habitat boundaries. According to the Recovery Plan, the recovery areas are areas that will provide for the long-term survival and recovery of these two Hawaiian forest birds. Recovery areas encompass existing endangered forest bird populations, as well as habitat areas from which these species have disappeared in the recent past, but which still provide or could provide the conditions and resources essential to support populations of endangered forest bird species. The recovery plan recognizes that to ensure the potential for population increase, additional unoccupied but potentially suitable habitat will require restoration. These areas include koa forest and grazed areas that have potential for reforestation upslope from current populations, as suggested by the peer reviewer (see, for example, Service 2006, pp. 2–84—2–85, regarding habitat restoration needs for the kiwikiu, with particular attention to koa forests). In addition, the recovery area identified includes high-elevation forest habitat (up to the maximum elevation available on west Maui, excluding only the highest slopes of Haleakala on east Maui above treeline), thereby capturing as much potentially disease- and vector-free habitat as possible. We incorporated these areas as they are described in the Revised Recovery Plan for Hawaiian Forest Birds (Service 2006, pp. 2–80) into the forest bird critical habitat designation; we believe the areas we have designated are in agreement with the conservation principles suggested for the akohekohe and kiwikiu by the peer reviewer.

(7) *Comment:* One peer reviewer stated that actively managing for annual disease mortality may be essential for population expansion of the honeycreepers within the mesic and wet lowland areas proposed for critical habitat in order to ultimately restore the birds to their original altitudinal distribution.

Our Response: We agree that active management for disease mortality is likely essential for expansion of the honeycreeper into lowland mesic and wet areas where they no longer occur. In this final rule, we have provided additional background information on disease management within the lowland units proposed as critical habitat for the two honeycreepers (see ''Disease and Disease Vectors'' in the section *Special Management Considerations or Protections,* below). In addition, the importance of mosquito control due to the threat to Hawaiian forest birds, including the akohekohe and kiwikiu, from mosquito-borne diseases at lower elevations is discussed in the Recovery Plan (Service 2006, pp. 2–85, 2–143, and pp. 4–62—4–82), Ahumada *et al.* in Pratt *et al.* (2010, pp. 331–355), and LaPointe *et al.* in Pratt *et al.* (2010, pp. 405–424).

(8) *Comment:* One peer reviewer noted that our proposed designation of critical habitat for the honeycreepers within unoccupied lowland to montane mesic forest habitat on west Maui and Molokai would help to restore these species to their historic and prehistoric ranges and, more importantly, would provide habitat for secondary populations to insure against the

impacts resulting from disease or stochastic events including hurricanes or fires. However, the reviewer suggested that despite the benefit of being more distant from the current honeycreeper populations on east Maui, proposed units on Molokai were more likely to require management for avian malaria due to the lower elevation compared to proposed units on west Maui. The reviewer suggested that proposed higher elevation units on west Maui would be more suitable for translocations of the honeycreepers.

Our Response: In the proposed rule, we proposed critical habitat in unoccupied areas on east and west Maui and Molokai to support the recovery strategy of expanding the range of the two species of honeycreepers beyond the currently limited habitat surrounding the summit of east Maui (Service 2006, pp. 2–83, 2–143). According to the Recovery Plan, reestablishment of the akohekohe and kiwikiu on west Maui or Molokai is an important component of the recovery strategies for these two species in order to reduce the threat from catastrophic events such as hurricanes and epizootics of disease (in this case, epizootics refers to contributing factors of a disease that is temporarily prevalent in an animal population). We agree that critical habitat units on Molokai are more likely to require management for avian malaria due to their lower elevation compared to critical habitat units on west Maui. Selection of sites for translocation of these species will be determined by the Hawaiian Forest Bird Recovery Team.

(9) *Comment:* One peer reviewer emphasized that the successful conservation of the two honeycreepers within designated lands will require control of feral pigs in order to provide the healthy and diverse understory necessary as foraging substrate and alternative nectar and arthropod food resources for the two birds. Additionally, the reviewer stated that feral pig control will also reduce the available larval mosquito habitat and, dependent on the surface hydrology, may go a long way toward eliminating disease transmission in the designated units. Lastly, the reviewer asserted that both cattle ranching and the management of feral pigs as game animals within State and privately owned designated lands would continue to increase the detrimental impacts to the honeycreepers' habitat.

Our Response: We agree that a healthy and diverse understory is necessary for the successful conservation of native forest birds on the Maui Nui islands. The Recovery Plan provides details regarding the recovery strategies for the akohekohe and kiwikiu. These strategies include the protection, restoration, and management of native high-elevation forests on east Maui, research to understand threats from disease and predation, and captive propagation to produce birds and translocation of birds for reestablishment of wild populations on west Maui or Molokai (Service 2006, p. 2–83 and p. 2–143). Habitat management and restoration will include fencing and removal of feral ungulates (in particular feral pigs) that degrade and destroy native forest bird habitat. In addition, fencing and removal of feral ungulates may contribute to the control of avian disease in these two birds by reducing or eliminating larval mosquito habitat in wet forests created by the feeding and wallowing habits of feral pigs (LaPointe *et al.* in Pratt *et al.* 2010, pp. 405–424).

Game mammal hunting is a recreational and cultural activity in Hawaii that is regulated by the HDLNR on State and private lands (HDLNR 2002, entire). Critical habitat does not give the Federal government authority to control or otherwise manage feral animals on non-Federal land. These land management options continue to be landowner decisions and, absent Federal involvement, are not affected by the designation of critical habitat. It is well-known that game mammals affect listed plant and animal species in Hawaii. We believe it is important to develop and implement management programs that provide for the recovery of listed species, but also acknowledge the importance of continued ungulate hunting in game management areas. We welcome opportunities to work closely with the State and other partners to ensure that game management programs are implemented in a manner consistent with both of these needs.

(10) *Comment:* One peer reviewer suggested the final rule be shortened and made more accessible to the general public by including a more simple listing or graphic depiction of the relevant facts including both former and current species' ranges, current population sizes, current densities, territory sizes, minimal viable population sizes, and ranges of limiting factors.

Our Response: We appreciate the suggestions offered by this peer reviewer and agree that the status information on the akohekohe and kiwikiu (77 FR 34464, June 11, 2012, pp. 34525–34526) in the proposed rule may not be as accessible to the public as desired, although it is provided in the same format as the status information on the other listed species. The akohekohe and kiwikiu were listed as endangered species in 1967 (32 FR 4001; March 11, 1967) and at that time critical habitat was not designated for these two species because it was not provided for by the statute at that time. Since 1967, detailed information on ranges, densities, territory sizes, and recovery actions needed for native Hawaiian forest birds, including the akohekohe and kiwikiu, can be found in several published and unpublished documents (*e.g.,* Service 2006 and Pratt *et al.* 2010, entire) and is not repeated in this final rule. The Revised Recovery Plan for Hawaiian Forest Birds, for example, contains an excellent short description of each species and their status (Service 2006; kiwikiu, pp. 2–77—2–85, akohekohe, pp. 2–138—2–143). In this final rule we are not reevaluating the listing as endangered of these two forest birds, we are only designating critical habitat for them.

(11) *Comment:* One peer reviewer suggested that recovery areas identified in the 2006 Recovery Plan be renamed and addressed in our rule as ''Maui Nui critical habitat areas and needed recovery actions for critical habitat parcels.'' Additionally, the reviewer recommended that the recovery actions listed in the Recovery Plan are appropriate actions to promote, fund, and implement in designated critical habitat for the Hawaiian honeycreepers.

Our Response: In our description of the information we used to identify the areas that contain the physical or biological features essential for the conservation of the akohekohe and kiwikiu, we state that we developed this information by considering the ''recovery area as determined in the revised Recovery Plan'' (see Methods), in addition to other published and unpublished data sources. The areas designated as critical habitat in this final rule are not equivalent to, or the same as, the recovery areas in the Recovery Plan. The Recovery Plan is a planning document, to aid in the conservation and recovery of the species, and has no regulatory authority. Critical habitat, on the other hand, is a term defined and used in the Act, and imposes regulatory authority over Federal activities. Critical habitat is a specific geographic area(s) that contains features essential for the conservation of an endangered or threatened species and that may require special management and protection, and areas outside the geographical area occupied by the species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species. Under the Act, Federal agencies are required to

consult with the Fish and Wildlife Service on actions they carry out, fund, or authorize to ensure that their actions will not destroy or adversely modify critical habitat. In this way, a critical habitat designation protects areas that are necessary for the conservation of the species. We agree with the reviewer that the recovery actions listed in the Recovery Plan are appropriate actions to promote, fund, and implement, as appropriate, in designated critical habitat areas.

Peer Reviewer Comments on Critical Habitat for Lanai Tree Snails

(12) *Comment:* One peer reviewer provided us with maps created in the early 1900s by renowned ornithologist and botanist, George Munro, showing the distribution of the Lanai tree snails within the Lanaihale Mountains. The peer reviewer recommended that the boundaries of the final critical habitat designation for these species be adjusted accordingly, in conjunction with careful review of the remaining available habitat in the Lanaihale Mountains.

Our Response: The Service appreciates this additional information concerning the historical range of the snails. We have examined the maps provided and analyzed the best available information regarding the snails' habitat requirements based upon the physical and biological features essential to their conservation and which may require special management considerations or protection, unoccupied habitat essential to the conservation of the snails, and the current status of habitat within the Lanaihale mountains. For the reasons described below (see *Exclusions Based on Other Relevant Factors*), critical habitat is not designated on the island of Lanai in this final rule, as a consequence of exclusions under section 4(b)(2) of the Act. However, it is important to understand that any exclusion does not reflect a determination that the area in question does not meet the definition of critical habitat or is not important for the conservation of the species; an exclusion only reflects the Secretary's determination that the benefits of excluding that area from critical habitat outweigh the benefits of including it in the designation.

Comments From Federal Agencies

We received comments from the National Park Service (Pacific West Region), Haleakala National Park (on Maui), and Kalaupapa National Historical Park (on Molokai). Haleakala National Park provided information on one or more of the plant and forest bird species addressed in this final rule that occur in the Park, and this information was incorporated, as appropriate, into the final rule listing 38 species on Molokai, Lanai, and Maui as endangered, which published on May 28, 2013 (78 FR 32014), or into this final rule and its supporting documentation.

(13) *Comment:* The National Park Service (NPS) supported the intent concerning exclusions of ''developed areas such as buildings, paved areas, and other structures that lack the physical or biological features essential for the conservation of the species.'' However, the NPS suggested that all such areas within Haleakala National Park be excluded from critical habitat designation and that the exclusion include a buffer area.

Our Response: In our proposed rule published on June 11, 2012 (77 FR 34464), and in this final rule, we state that existing manmade features and structures such as buildings, and developed or paved areas, including trails, are not designated as critical habitat. Federal actions involving these areas would not trigger section 7 consultation unless the specific action would also affect adjacent critical habitat or its primary constituent elements. This would include existing manmade features and structures in Haleakala National Park. There are, however, no predefined ''buffer areas'' that are included in the textual exclusion of existing manmade features and structures. Mapping every structure, building, developed area, paved area, or trail, and the surrounding physical or biological features, may prove confusing and indecipherable to the general public, and in any case, is not a realistic possibility at the scale of mapping provided in the Code of Federal Regulations. Therefore, in this final rule, as with all critical habitat rules, we made every effort to avoid including manmade features and structures that may be contained within critical habitat, but the scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed areas. Any such structures and the lands under them that are inside critical habitat boundaries shown on the maps in this final rule are excluded by text in this final rule and are not designated as critical habitat (see below, *Criteria Used to Identify Critical Habitat*).

(14) *Comment:* The NPS urged us to only designate occupied critical habitat for the two forest birds (akohekohe and kiwikiu) and not currently unoccupied areas. According to their letter, including areas for critical habitat designation where akohekohe and kiwikiu do not currently exist is based on assumptions that: (1) Unoccupied areas will produce all the elements necessary for the survival of the species; (2) unoccupied areas will not contain elements that are detrimental to the species (*e.g.,* invasive, nonnative species and mosquitoes); and (3) reintroduction of the species into unoccupied areas will be successful (*e.g.,* the species will persist in the area). Data from Haleakala National Park show that some invasive plants are difficult, if not impossible, to control after feral ungulates are removed. In addition, there is no effective way to remove mosquitoes from an area.

Our Response: We appreciate the NPS' comments but disagree with its rationale for removing all unoccupied areas from critical habitat; we consider all unoccupied areas designated as critical habitat for the two forest birds to be essential to the conservation of the species, because the areas presently occupied by these forest birds are not adequate to ensure their conservation, for the reasons detailed here. Each of these bird species has been reduced to a single population, resulting in significant vulnerability of each species to extinction. The conservation of these species will require a significant increase in numbers of individuals and populations; in addition, there is evidence that these species are presently restricted to suboptimal habitats. The akohekohe is currently found in one population on east Maui within approximately 14,080 ac (58 sq km) at elevations between 5,000 and 6,900 ft (1,500 to 2,100 m). This species has been reduced to an estimated 5 percent of its former historical range on Maui, and has been extirpated from the island of Molokai. The kiwikiu is now found in only one population on Haleakala Volcano on Maui, and is restricted to an area of 12,400 ac (50 sq km) of wet montane forests at high elevation (4,000 to 7,700 ft (1,200 to 2,350 m). This species formerly occupied dry leeward forests and low elevation areas on east Maui as well, and has also been extirpated from Molokai.

The Revised Recovery Plan for Hawaiian Forest Birds recognizes that the long-term recovery strategy for the akohekohe and kiwikiu are similar because they inhabit similar geographic areas and face similar threats (Service 2006, p. 2–141). Historically, kiwikiu favored koa forests for foraging, but such forests have been largely lost to past logging and ranching, such that kiwikiu are now restricted to wet montane forests with low numbers of koa that are likely marginal habitat for the species

(Service 2006, pp. 2–81, 2–84). The specialized foraging behavior of the kiwikiu requires the birds to defend large territories year-round, resulting in relatively low densities of birds (Service 2006, p. 2–78); this additionally translates into relatively large areas of habitat required to support populations of kiwikiu. Likewise the akohekohe was initially observed in koa forests on Maui, but is now absent due to the widespread destruction of these forest types (Service 2006, p. 2–140). Akohekohe also use relatively large areas of habitat, as, being nectarivorous, they migrate altitudinally for foraging in response to the timing of flowering of various trees and shrubs. Akohekohe are now restricted to high elevation forests due to the presence of mosquito-borne diseases at lower elevations, but are additionally restricted at upper elevations in some areas by destruction of forest habitat.

Areas currently unoccupied by the two bird species are essential to their conservation for multiple reasons. Primary amongst these is the high risk of extinction faced by any species that occurs in only a single population; this risk may be from a predictable threat such as disease, or a stochastic threat, such as a hurricane. For both the akohekohe and kiwikiu, the reestablishment of additional populations is needed to reduce this elevated risk of extinction (Service 2006, pp. 2–83, 2–143); this risk could be reduced from the establishment of additional populations on Maui, and possibly by reestablishing the species on Molokai as well. The risk of extinction for these species is such that one of the recovery criteria for listed Hawaiian forest birds is the requirement that the species occurs in two or more viable populations or a viable metapopulation (Service 2006, pp. 2–83—2–84, 2–143, 3–5—3–6). The establishment of additional populations in currently unoccupied areas reduces the likelihood of significant impacts to the species as a whole from risks associated with disease, as well as catastrophes such as hurricanes and fires, and increases the ecological breadth of the species to help buffer against climatic fluctuations. Additional or larger populations will additionally promote natural demographic and evolutionary processes to increase the long-term viability of the species. Unoccupied areas can help facilitate the dispersal of birds, including seasonal movements, which can increase gene flow between isolated populations and increase the viability of established and newer populations. For all of these reasons, we have concluded that a critical habitat designation limited to the areas presently occupied by the akohekohe and kiwikiu is inadequate to ensure the conservation of the species, and we have therefore designated as critical habitat certain areas outside of the present range of the akohekohe and kiwikiu that we have determined are essential to the conservation of these species.

(15) *Comment:* Kalaupapa National Historical Park (KNHP) agreed with our ecosystem-based approach for grouping plants and defining their habitat consistently. According to KNHP, this approach will aid in the management of endangered and threatened plants as part of the collection of native communities across the landscape. According to their letter, much of the proposed critical habitat falls on areas with intact native plant communities or areas already under protection by decree or due to their remote locations, and added that proposing critical habitat in intact native plant communities or protected conservation areas or areas with difficult access will favor public acceptance of the proposed critical habitat.

Our Response: We appreciate KNHP's comments regarding the proposal to designate critical habitat for 135 species on the islands of Maui, Molokai, Lanai, and Kahoolawe. We agree that using an ecosystem-based approach to organize this rule and designate critical habitat will help provide for more focused conservation efforts and concerted management efforts to address the common threats that occur across these ecosystems.

Comments From State of Hawaii Elected Officials

(16) *Comment:* Maui Senator Rosalyn Baker commented that the Service did not discuss the proposal or its potential impacts with most of the owners of the affected lands. Senator Baker also stated that many landowners have not been offered the opportunity to work collaboratively with the Service to determine if their lands are currently occupied by the species or if their lands are essential to the species.

Our Response: We appreciate the Senator's comments and suggestions to work collaboratively with Maui landowners regarding critical habitat. We also appreciate the Senator's suggestions to increase our outreach efforts to the Maui community, particularly to individual landowners, and we plan to adopt these suggestions as we move forward with conservation in Maui Nui. We used the best available scientific information to determine habitat essential to the species (see Methods, below), and incorporated new information received since publication of the proposed rule on June 11, 2012 (77 FR 34464), and release of our draft economic analysis (DEA) on January 31, 2013 (78 FR 6785), to further refine the critical habitat boundaries. Our notification process followed Service policies; our regulations at 50 CFR 424.16(c); and the Act, as amended, at section 4(b)(5) in paragraphs (A), (C), (D), and (E). We contacted all appropriate State and Federal agencies, county governments, elected officials, scientific organizations, and other interested parties and invited them to comment. In addition, we published a public notice of the proposed rule on June 20, 2012, in the local Honolulu Star Advertiser, Molokai Dispatch, and Maui News newspapers, at the beginning of the comment period. The proposed rule also directed reviewers to contact the Service for further clarification on any part of the proposed rule, and provided contact information (77 FR 34464; June 11, 2012). During the initial comment period on our proposed rule we became aware that there were errors in the landownership information in the geospatial data sets associated with parcel data from Maui County (2008), which were used to identify affected landowners. We recognize that some landowners whose properties overlapped with the proposed critical habitat did not receive notification letters due to errors in landownership information we received from the State, or missing landowner information in the State's geospatial data sets. However, we subsequently received updated landownership information for the parcel data for the County of Maui (2010). Shortly after publishing our January 31, 2013 (78 FR 6785), document announcing the DEA, reopening the comment period on the DEA and the proposed rule, and announcing the public information meeting and public hearing, we sent letters to all of the affected landowners that we were able to identify. In that letter we provided information on the proposed rule, the DEA, and the public information meeting and hearing held on February 21, 2013, in Kihei, Maui. In addition, we again contacted all appropriate State and Federal agencies, county governments, elected officials, scientific organizations, and other interested parties and invited them to comment. We met with the State Division of Forestry and Wildlife, Department of Hawaiian Home Lands, Hawaii Cattlemen's Council (including a representative of the Hawaii Farm

Bureau Federation), Maui Land and Pineapple Co., Inc., Ulupalakua Ranch, Haleakala Ranch, Alexander and Baldwin (including East Maui Irrigation Co., Inc.), West Maui Mountains Watershed Partnership, Leeward Haleakala Watershed Restoration Partnership, East Maui Watershed Partnership, and Castle and Cooke Resorts. We also provided maps of parcel-specificity to every landowner who contacted us and requested them following publication of the 2012 proposed rule and the 2013 notice. In order to reach as many interested individuals as possible on Maui Nui we believe we used the best approach afforded by our staff levels and resources and fully complied with our statutory and regulatory requirements for public notice.

(17) *Comment:* Senator Baker commented that proposed critical habitat on State, county, and private lands will have a direct and negative impact on Maui County, and is essentially a ''taking'' without compensation. The Senator added that the designation will also affect property values, trigger rezoning of lands to conservation status, and place the landowner at risk of third-party lawsuits that may prohibit future land use activities.

Our Response: We appreciate the Senator's comments and have addressed the issues she raised below (see our responses to Comments (22), (50), and (59) (regarding rezoning), (55) (regarding ''Federal nexus''), (56) (regarding ''taking''), and (59) (regarding property values)). Our final economic analysis (FEA) dated September 23, 2015, acknowledges the potential for critical habitat designation to increase the possibility of legal challenges that may affect private entities (IEc 2015, pp. 3–3—3–4, 5–17, 5–20). Due to significant uncertainties regarding the extent to which the designation will increase the probability of legal challenges (over and above the presence of the listed species or other designated critical habitat (*e.g.,* Blackburn's sphinx moth (*Manduca blackburni*) critical habitat)), the direct costs of legal fees and time spent on lawsuits, and the potential outcome of lawsuits, the DEA (and subsequent FEA) does not estimate a monetary cost from potential third-party lawsuits. The FEA does, however, recognize the possibility of lawsuits as a consequence of the designation, and presents a qualitative assessment of this and other potential indirect effects that are subject to significant uncertainty in Section 5.3.2 (IEc 2015, pp. 5–16—5–23); our final designation of critical habitat takes all of these potential effects into consideration.

(18) *Comment:* The chair of the Maui County Council (Council), Ms. Gladys Baisa, and the chair of the Council's Policy and Intergovernmental Affairs Committee, Mr. G. Riki Hokama, commented that the Service failed to consult with individuals in the community, native Hawaiian groups, private landowners, ranchers and farmers, and others who, in their view, may suffer devastating economic and cultural impacts from the designation of critical habitat.

Our Response: We thank the chairs for their comments. We discussed with key stakeholders the likelihood of potential indirect impacts of the critical habitat designation, based on the consequences of previous designations on Maui (IEc 2015, p. 5–16). As noted in our response to *Comment* (16), above, there is significant uncertainty surrounding the likelihood, timing, and magnitude of any of these potential indirect impacts, therefore we were unable to monetize such impacts; we do, however, evaluate them qualitatively (IEc 2015, pp. 5–16—5–23), and this final designation of critical habitat reflects our thorough consideration of these indirect impacts. In terms of quantified impacts, our FEA projects a total of approximately $120,000 in incremental impacts over 20 years from critical habitat designation (IEc 2015, p. 1–7).

(19) *Comment:* The Council's chair commented that Maui County farmers and ranchers who fund their operations with Federal funds or may seek Federal funding in the future will be (negatively) affected by the proposed critical habitat.

Our Response: See our response to *Comment* (59), below.

(20) *Comment:* The Council's chair suggested that the designation of critical habitat should include all policy-making entities, including the Hawaii State legislature, State and County departments, and the Maui County Council.

Our Response: We appreciate the suggestions to work collaboratively with Hawaii State and Maui County policy makers. Section 4(a)(3)(A) of the Act provides the Secretary with the authority to designate critical habitat for endangered or threatened species. The Act defines ''Secretary'' as the Secretary of the Interior or the Secretary of Commerce. For the species at issue here, it is the Secretary of the Interior who is vested with this authority. However, the Service and the Secretary are committed to working with our conservation partners in State agencies and County and local jurisdictions, and specifically invite the comments of such agencies on our proposed rulemakings. We give full and careful consideration to such comments in the development of our final rulemakings.

(21) *Comment:* The Council's chair expressed concerns with the economic analysis and suggested that a more detailed approach that recognizes the differences in the opportunity cost of the land is needed. In addition, she stated that potential price increases due to costs associated with critical habitat rules and regulations could jeopardize Hawaii's efforts towards food sustainability.

Our Response: We appreciate the Council chair's comments. See also our response to *Comments* (37) and (60), below.

(22) *Comment:* The Council's chair commented that designation of critical habitat within areas currently zoned for agriculture may cause the State to reclassify them to conservation. Rezoning to conservation will subject the landowner to additional permitting requirements and restrictions on the use of the land.

Our Response: The relevant State endangered and threatened species statute contains no reference to designated critical habitat. Also, unlike the automatic conferral of State law protection for all federally listed species, State law does not require initiation of the amendment process for federally designated critical habitat. (Compare HRS section 195D–5.1 with HRS section 195D–4(a)). Although the State of Hawaii has a relatively long history of critical habitat designation, there is no record of such rezoning ever having occurred in response to critical habitat. See also our response to *Comments* (50) and (55), below.

(23) *Comment:* The Maui County Council's Policy and Intergovernmental Affairs Committee (PIA Committee) commented that native Hawaiian groups had not been consulted regarding proposed critical habitat in Maui County, per section 106 of the National Historic Preservation Act of 1966, which ''requires open, good faith consultation with interested parties.''

Our Response: The intent of the National Historic Preservation Act of 1966 (NHPA; 16 U.S.C. 470 *et seq.*) is to preserve historical and archaeological sites in the United States. Under the NHPA, Federal undertakings with a potential to cause effects to historic properties must complete the process set out in NHPA's section 106 and its implementing regulations. However, the designation of critical habitat does not cause effects to historic properties or direct future agency actions that may

affect historic properties. The designation of critical habitat simply requires a Federal agency proposing an activity to consult with us pursuant to section 7(a)(2) of the Act to ensure that the activity does not destroy or adversely modify critical habitat. If the Federal agency activity itself may result in effects to historic properties, it is the responsibility of the Federal agency proposing the activity to ensure that the activity complies with the NHPA. Therefore, we have determined that the designation of critical habitat has no potential to cause effects to historic properties pursuant to 36 CFR 800.3(a)(1) (Initiation of the section 106 process [NHPA]).

(24) *Comment:* The Maui County Council's PIA Committee commented that it is unacceptable that the Maui Nui proposed rule will be finalized without holding public hearings on the islands of Lanai and Molokai, and that many residents are probably unaware of the proposed rule.

Our Response: Under the Act at section 4(b)(5)(E) and our regulations at 50 CFR 424.16(c)(3), we are directed to hold at least one public hearing on a proposed rule (*i.e.,* proposed listing and/or critical habitat designation), if requested. We received three requests for public hearings, all from Maui residents. We regret that we were not able to hold public hearings on the islands of Lanai and Molokai due to our limited resources, but in accordance with the requirements of the Act, we held a public hearing on the island of Maui, where the County government and most of the County population are located. See our response to *Comment* (16), above, regarding our notification process to all interested parties, including residents of Lanai and Molokai.

(25) *Comment:* The Maui County Council's PIA Committee commented that many parties who provided public testimony during the Committee's meeting on February 25, 2013, already engage in significant voluntary conservation efforts and that finalizing critical habitat as proposed may result in fewer voluntary actions. The Committee suggested that by working collaboratively with affected parties the Service will encourage ongoing conservation efforts.

Our Response: We appreciate the comments and suggestion, and acknowledge and fully support the current and ongoing voluntary conservation actions undertaken by the State watershed partnerships, other State and Federal agencies, nonprofit organizations, and individual landowners. Service staff made themselves available at the February 25, 2013, meeting of the Maui County Council's PIA Committee, to provide information on the proposed critical habitat, and answered numerous questions on the proposed rule for the members of the committee and others present. We appreciate the concerns of potentially affected parties, and we intend to continue working collaboratively with these partnerships, agencies, organizations, and landowners; we will also seek to include others as we conduct conservation in the Hawaiian Islands.

Comments from State of Hawaii Agencies

(26) *Comment:* The Hawaii Department of Land and Natural Resources (DLNR) commented that they support the proposal to designate critical habitat for 135 species on the islands of Maui Nui and that they also support the proposed exclusions. They, and the landowner, asked that the Service reevaluate the exclusion of 8,746 ac of land owned by Haleakala Ranch on east Maui and reflect that amount to be 9,796 ac.

Our Response: The original amount of acreage of proposed critical habitat only overlapped 8,746 ac (3,539 ha) of Haleakala Ranch lands. The statement ''Designation of critical habitat on the 9,796 ac of Haleakala Ranch Company Lands'' was an estimate of the total area under consideration, but not proposed, at the time of the proposed rule. In this rule, we are excluding 8,716 ac (3,527 ha) of proposed critical habitat on Haleakala Ranch lands. The 30-ac difference from the proposed 8,746 ac results from the sale of 30 ac (12 ha) of Haleakala Ranch lands within proposed Maui—Lowland Dry—Unit 2 to another landowner between the time of publication of the proposed and final critical habitat rules.

The Hawaii DLNR's Division of Forestry and Wildlife (DOFAW) provided extensive comments on the proposed rule. Those comments are organized by island and by region, and we address them accordingly, below.

West Maui

(27) *Comment:* DOFAW supported the goals of critical habitat designation proposed for west Maui, and stated that they have no concerns or objections to the designation of CH [critical habitat] as proposed for Department lands within the West Maui mountains. They did express concern, however, that the designation may have undesirable impacts on the activities of some of its conservation partners. DOFAW fears that designation of those lands as critical habitat will not appreciably enhance conservation efforts for listed species but may impose regulatory and administrative burdens on landowners that have, for years, been committed to conservation efforts on their lands. DOFAW urged the Service to evaluate exclusion from critical habitat under section 4(b)(2) of the Act for landowners in this partnership (West Maui Mountains Watershed Partnership), and to meet and discuss the option with interested landowners. DOFAW believes that the benefits of such exclusion outweigh the benefits of specifying the area as critical habitat, but defers to the comments and desires of the private landowners on the matter.

Our Response: We appreciate DOFAW's comments and agree that many landowners in the West Maui Mountains Watershed Partnership (WMMWP) are committed to conservation efforts on their lands and are active participants in the WMMWP, which provides or accepts funds and enters into agreements with State or Federal agencies to implement effective conservation actions that benefit listed species and their habitat. Under section 4(b)(2) of the Act, we consider other relevant impacts, in addition to economic impacts and impacts to national security, in identifying areas to exclude from critical habitat. We received several requests for exclusion from parties to the WMMWP, and in each case we carefully considered whether the benefits of exclusion would outweigh the benefits of including the areas in question in critical habitat. In the majority of cases, this consideration resulted in the exclusion of landowners who are active members of the WMMWP and have demonstrated the positive conservation benefits of their participation, and as a consequence, critical habitat is not designated on any private lands within WMMWP boundaries in this final rule (see *Exclusions Based on Other Relevant Factors,* below).

East Maui

Kipahulu Forest Reserve to Koolau Forest Reserve

(28) *Comment:* DOFAW suggested that the lower boundary of critical habitat in this area follow both current and the State's recently proposed management fenceline boundaries in these forest reserves (FRs). According to DOFAW, listed species at lower elevations can be protected and recovered within the RFF (''Rain Follows the Forest'' plan) priority watershed areas.

Our Response: DOFAW's recommendation would entail removing or excluding lands proposed for designation so that the designation would be co-extensive with RFF priority watershed areas. We agree with and support the goals and intent of the RFF but are concerned about the scope of the RFF goals and the timeline to accomplish these goals. Currently, only 10 percent of the State's priority watershed protection areas are fenced from hooved animals, although we recognize the State's goal is to double the area protected in the next 10 years. The State asserts that the first goals of the RFF are to remove all hooved animals from Priority I and II areas; that fencing 840,000 acres of these areas will be incremental and will depend upon landowner approval; and that ''decades of work will be required.'' Approximately 35 percent of the Priority I areas are on State lands; however, only 4 percent of these lands are currently fenced. In addition, Priority I and II areas do not include lowland dry and mesic ecosystems on Maui, the most critically imperiled ecosystems throughout the State. Under the RFF, beneficial management actions to address the threats from nonnative species to these ecosystems may not be undertaken for decades, and perhaps not at all. In addition, the designation of critical habitat serves to educate the public about the importance of these areas for conservation of the Maui Nui species. For all of these reasons, we consider there to be benefits to the inclusion of these areas in critical habitat for the Maui Nui species, thus we are not aligning the lower boundary of critical habitat with the current and recently proposed management fenceline boundaries proposed by the State. Although there are some potential benefits to exclusion in terms of maintaining our partnership with the State, at the present time, because the effectiveness and timing of the described management actions under the RFF plan are unknown and do not address threats on many of the areas we proposed as critical habitat, and because of the great importance of these lowland dry and mesic habitats to the Maui Nui species, we are unable to conclude that the benefits of excluding these areas outweigh the benefits of including them in the final critical habitat designation.

Makawao and Kula Forest Reserves

(29) *Comment:* DOFAW stated that it is seeking to have much of the lands in the Makawao and Kula FRs available for customary practice and recreation, and that they will conduct management for listed species recovery on other State lands. DOFAW also stated that it will protect any known listed species within the Makawao and Kula FRs by constructing protective fencing around listed species to prevent access by feral ungulates and suggested that these two FRs be removed from critical habitat.

Our Response: We have considered DOFAW's request to remove Makawao and Kula FRs from critical habitat. We understand DOFAW's mandate to provide multipurpose public use on some of their lands, including customary practice and recreation. Within the Kula and Makawao FRs, DOFAW plans to provide public recreational use, which may include public hunting opportunities. We support DOFAW's commitment to provide in-situ protection to listed species that currently occur within Makawao and Kula FRs. Protective fencing around listed plant occurrences will protect them from immediate disturbance and predation by feral ungulates. However, while such localized efforts may contribute to the protection of individuals of the species, they will not provide for the expansion and growth of populations that is essential to the conservation of the species. We further note that while the State proposes to conduct management for listed species recovery on other Department lands, no specific plans or details are provided that would lead us to conclude that the benefits of excluding the Makawao and Kula FRs would outweigh the benefits of including these areas in critical habitat.

Portions of three proposed critical habitat units (plant critical habitat units Maui—Montane Mesic—Unit 1 (1,777 ac, 719 ha), Maui—Subalpine—Unit 1 (3,060 ac, 1,238 ha), and Maui—Alpine—Unit 1 (13 ac, 5 ha); and the corresponding forest bird critical habitat units Unit 18—Montane Mesic and Unit 24—Subalpine) overlapped a total of 4,899 ac (1,984 ha) in Kula FR. In this final rule, we are designating the same areas within Kula FR as critical habitat for 29 species (27 plants and 2 forest birds) in these units. Each of these five critical habitat units provides the physical or biological features essential to the conservation of the species and requires special management considerations or protections (*e.g.,* feral ungulate control) (occupied habitat) or habitat that is essential to the conservation and recovery of the species (unoccupied habitat). For example, the Kula FR contains the only known occurrences of the endangered plant *Geranium arboreum* (totaling fewer than 40 individuals). Fencing these individuals will provide immediate direct protection from feral ungulates; however, fencing these individuals will not provide for recovery of the species. Due to the small numbers of individuals and low population size of this species, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery. The recovery guidelines (*i.e.,* the steps needed to reach recovery and delist a species) for a long-lived perennial plant species such as *G. arboreum* call for 8 to 10 populations of 100 individuals per population, sustained over a minimum of 5 years (Service 1997, pp. 91–93). Therefore, in addition to the habitat containing the currently known individuals, areas of suitable habitat within the historical range of *G. arboreum* (northern and southern Haleakala, and slopes of western Haleakala) are needed for recovery of this species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for the recovery of all of these 29 plant and 2 bird species.

In Makawao FR, portions of three proposed critical habitat units (plant critical habitat units Maui—Lowland Wet—Unit 1, Maui—Montane Wet—Unit 1, and Maui—Montane Mesic—Unit 1; and the corresponding forest bird critical habitat Unit 2—Lowland Wet, Unit 10—Montane Wet, and Unit 18—Montane Mesic) overlapped a total of 1,912 ac (774 ha) in Makawao FR. These units are critical habitat for 45 species (43 plants and 2 forest birds). Each of these six critical habitat units provides the physical or biological features essential to the conservation of the 45 species, is within the historical range of these plant and bird species, and requires special management (occupied habitat) or these units provide the primary constituent elements (PCEs) necessary for the reestablishment of wild populations within their historical range and are essential to the conservation of the species (unoccupied habitat). Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for the recovery of the 45 plant and bird species. We revised the unit boundaries for Maui—Lowland Wet—Unit 1 and Maui—Montane Mesic—Unit 1 that overlapped with Makawao FR, which resulted in acreage reductions in these units as follows: Maui—Lowland Wet—Unit 1: reduced by 138 ac (56 ha) and Maui—Montane Mesic—Unit 1: reduced by 470 ac (191 ha), with 282 ac (114 ha) redefined as part of Maui—Montane

Wet—Unit 1. These revisions were based on comments from DOFAW, as well as other interested parties indicating that: (a) Changes in land use had occurred within the proposed critical habitat units that would preclude certain areas from supporting the physical and biological features; or (b) the areas in question were not essential to the conservation of the species.

Although DOFAW requested that we remove all portions of Kula FR and Makawao FR from critical habitat, we did not entirely remove these forest reserves from critical habitat designation in this final rule. The portions of the five plant critical habitat units (Maui—Lowland Wet—Unit 1, Maui—Montane Wet—Unit 1, Maui—Montane Mesic—Unit 1, Maui—Subalpine—Unit 1, and Maui—Alpine—Unit 1) and the corresponding forest bird critical habitat units (Unit 2—Lowland Wet, Unit 10—Montane Wet, Unit 18—Montane Mesic, and Unit 24—Subalpine) that overlap with the Kula and Makawao FRs are located on the west side of Haleakala, and none of this area is within the State's Priority I watershed protection area (RFF). Therefore, beneficial management actions to address the threats from nonnative species to these ecosystems may not be undertaken for decades, and perhaps not at all. As described above, in response to information received from DOFAW and other parties, we removed an area of approximately 608 ac (247 ha) that overlapped with the Makawao FR upon a determination that this area does not meet the definition of critical habitat. All remaining areas, however, do meet the definition of critical habitat for the reasons described in detail above. DOFAW has proposed some management actions in these areas, but it is unclear whether these actions will be implemented, and in any case, the actions proposed are not likely to make a meaningful contribution to the conservation of the species (*e.g.,* fencing off individuals plants to protect them from ungulates, while a potentially useful defensive mechanism, does not actively promote the recovery of the species). Based on these considerations, we could not conclude that the benefit of excluding these areas outweigh the benefit of including them in the final designation.

Kaupo to Kahikinui and Na Kula Natural Area Reserve

(30) *Comment:* According to its letter, DOFAW is working with the Leeward Haleakala Watershed Restoration Partnership (LHWRP) to restore and protect mauka (mountain) lands from Kaupo to the western boundary of the Department of Hawaiian Home Lands (DHHL) lands of Kahikinui moku (section of land), and recognizes the need to protect coastal lands from Nuu Makai to Keonioio. DOFAW suggested that the critical habitat boundary from Kaupo to Kahikinui follow the LHWRP fenceline. DOFAW stated that the areas proposed at mid-elevation are larger than needed for recovery of certain species. In addition, DOFAW is concerned that the designation may have undesirable impacts on the activities of some of its conservation partners and will not appreciably enhance conservation efforts for listed species but may impose regulatory and administrative burdens on landowners. DOFAW urged the Service to evaluate a section 4(b)(2) exclusion from critical habitat for the private landowners in the LHWRP, and believes that the benefits of exclusion outweigh the benefits of specifying the area as critical habitat, but defers to the comments and desires of the private landowners.

Our Response: We appreciate DOFAW's comments and support the goals and intent of the LHWRP and believe that management actions such as those conducted by LHWRP provide some conservation benefits to listed species and their habitat. We did not realign the critical habitat boundary to follow the LHWRP fenceline as the fence traverses two different habitat types for multiple species, and removing areas in elevations above the fenceline would fragment adjoining habitat in subalpine and dry cliff habitats. In addition, for the reasons described in this document, we have determined that all areas identified here as critical habitat are essential for the conservation of the species. However, for the reasons described below (see *Exclusions Based on Other Relevant Factors,* below), critical habitat is not designated on private lands in the LHWRP in this final rule, where landowners provided us with information demonstrating their participation in conservation efforts that benefit the species. Approximately 7 mi (11 km) of fenceline from Kaupo to Kahikinui is above 7,000 ft (2,134 m) elevation, and is on private lands or is within Haleakala National Park boundaries. The forest bird recovery area (Service 2006, map data) and critical habitat for the two forest birds is below this elevation in the fenceline area for about half of the fence distance. See also our responses to *Comments* (66) and (67), below.

In addition, we revised the unit boundary we proposed for Maui—Lowland Dry—Unit 1, and this revision resulted in a reduction in Maui—Lowland Dry—Unit 1 by 1,607 ac (650 ha). This revision was based on comments from DOFAW, as well as other interested parties and recent site visits indicating that: (1) Changes in land use had occurred within the proposed critical habitat unit that would preclude certain areas from supporting the physical and biological features; or (2) the area in question was not essential to the conservation of the species. Based upon this information we concluded that the areas in question do not meet the definition of critical habitat, therefore they were removed from the final designation.

Honuaula and Kanaio

(31) *Comment:* DOFAW did not object to the designation of critical habitat for most of the areas proposed within the moku (section of land) of Honuaula and the ahupuaa (tract of land from summit to ocean) of Kanaio. However, included in the proposed critical habitat within Kanaio is an area that is proposed for use for recreational hunting. DOFAW asked that this area be removed from critical habitat, and suggested that the species can be recovered in protected areas nearby, such as the Kanaio NAR and private lands held by partners committed to protection of those resources.

Our Response: We appreciate DOFAW's comments regarding Honuaula and Kanaio. We understand DOFAW's mandate to provide multipurpose public use on some of their lands, including public recreational use such as public hunting opportunities within the ahupuaa of Kanaio. However, at this time we have not removed Kanaio NAR or the area west of the NAR from critical habitat unit Maui—Lowland Dry—Unit 1; this area is essential for 19 endangered plant species due to the small numbers and low population sizes of these 19 species, as the area provides suitable habitat and space for expansion or reintroduction, which are essential to achieving population levels necessary for recovery of these species. As we have determined that this area is essential for the conservation of these species, and the area in question is planned for recreational hunting (therefore ungulates would be present), we could find no benefit to exclusion of this area that would outweigh the benefit of including it in critical habitat, therefore it was not excluded from the final designation. We did, however, re-evaluate and remove an area from critical habitat designation on State lands surrounding Puu Pimoe (146 ac (59 ha)) after site visits determined that

changes in land use had occurred within the area that would preclude it from supporting the physical and biological features (see *Comment* (30), above). As the area in question therefore does not meet the definition of critical habitat, it was removed from the final designation.

In addition, although DOFAW suggests that these species can be recovered in nearby protected areas such as Kanaio NAR and private lands, the southern portion of the NAR and private lands are not yet protected from feral ungulates, a major threat to listed species in this area. Kanaio NAR extends from 1,000 to 3,000 ft (305 to 900 m) elevation, an area that is not suitable for recovery of coastal or lowland dry species, or species that occur at higher elevations. Conservation management actions such as ungulate eradication from these areas have not yet been funded or implemented. Based on our consideration of all of these factors, we could not conclude that the benefits of excluding this area outweigh the benefits of including it in the final designation of critical habitat.

Lanai

(32) *Comment:* DOFAW did not object to the designation of critical habitat for most of the areas proposed for Lanai but was concerned that the proposed critical habitat would establish boundaries on the landscape that would be difficult to identify in the field. In particular, DOFAW was concerned that unfenced critical habitat may be inadvertently accessed from the public hunting areas, and requested that we remove two areas from proposed critical habitat: (1) The area near Honopu Road, because it believes no listed species occur there and other areas can provide recovery habitat; and (2) the apparent ''buffer'' that extends around the lands of Kanepuu Preserve.

Our Response: We appreciate DOFAW's request. For the reasons described below (see *Exclusions Based on Other Relevant Factors,* below), critical habitat is not designated on the island of Lanai in this final rule, as a consequence of exclusions under section 4(b)(2) of the Act.

Molokai

(33) *Comment:* DOFAW suggested that certain lands be removed from the western section of proposed critical habitat as they are not needed for recovery and the affected species can be better managed and recovered elsewhere on Molokai, including Kahanui, Kapuna, and Pukaawa sections of the Molokai FR. DOFAW clarified that the western section of proposed critical habitat referred to the western portion of critical habitat Molokai—Lowland Mesic—Unit 1, during a meeting with Service staff on August 14, 2012.

Our Response: We have considered DOFAW's request to remove the western section of Molokai—Lowland Mesic—Unit 1 from critical habitat. Maps provided by DOFAW for their ''Priority Watershed Areas'' of Molokai indicate the westernmost section of Molokai—Lowland Mesic—Unit 1 is within the State's ''Priority II'' area, and, therefore, is of lower priority to DOFAW in terms of future on-the-ground management and protection, although these conservation management actions have not yet been funded or implemented. Our analysis indicates that DOFAW is requesting we remove approximately 3,224 ac (1,305 ha) or approximately one-third of critical habitat in the lowland mesic ecosystem on Molokai. This unit is critical habitat for 37 plant species and the two forest birds; 17 of the plant species currently occur in this unit (see below, *Descriptions of Critical Habitat Units*). This unit provides the physical or biological features essential to the conservation of the species and requires special management considerations or protections (*e.g.,* nonnative species control) (occupied habitat) or habitat that is essential to the conservation and recovery of the species (unoccupied habitat). For example, the only known occurrence, totaling 10 individuals, of the endangered plant *Cyanea dunbariae* (a Molokai endemic) and 5 of the 11 occurrences, totaling approximately 150 of the 200 known individuals, of the endangered *C. mannii* (a Molokai endemic), are on State lands within Molokai—Lowland Mesic—Unit 1. Due to the small numbers of individuals and low population sizes of these species, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery. The recovery guidelines for short-lived perennial plant species such as *Cyanea dunbariae* and *C. mannii* are 8 to 10 populations of 300 individuals per population, sustained over a minimum of 5 years (Service 1996, p. iv). Therefore, areas of suitable habitat within the historical ranges of *C. dunbariae* and *C. mannii* (including lowland wet, montane mesic, and montane wet ecosystems), in addition to the lowland mesic ecosystem containing the currently known individuals, are needed for recovery of these two species. For *C. dunbariae,* this area is only found in the lowland mesic ecosystem (Molokai—Lowland Mesic—Unit 1), the only known location of this species, and the lowland wet and montane mesic ecosystems, within its historical range but where the species no longer occurs. For *C. mannii,* areas of suitable habitat within its historical range are only found in the lowland mesic ecosystem (Molokai—Lowland Mesic—Unit 1), and montane wet and montane mesic ecosystems, where only 11 occurrences and 200 total individuals of this species are found. Molokai—Lowland Mesic—Unit 1 is the only unit within its lowland habitat determined to be essential for its recovery and in need of special management or protections. Therefore, we disagree with DOFAW's statement that the western section of Molokai—Lowland Mesic—Unit 1 is not needed for recovery. Molokai—Lowland Mesic—Unit 1 is essential for the conservation of *C. dunbariae* and *C. mannii* and the other 35 endangered plant species and the two endangered forest birds due to the small numbers and low population sizes of these 39 species because this unit provides suitable habitat and space for expansion or reintroduction, which are essential to achieving population levels necessary for recovery of these species. Therefore, the western section of Molokai—Lowland Mesic—Unit 1 is included in this final critical habitat designation.

(34) *Comment:* The Department of Hawaiian Home Lands (DHHL) requested that all of its lands within proposed critical habitat be excluded from final designation. The DHHL supported the Service's new approach of multi- versus single-species protection, and sees economic benefits to taking a comprehensive planning and management approach. However, the DHHL feels that its current land use and management practices are sufficient to protect the species and their habitat. The DHHL also recommended that the Service consult with the Hawaiian Homes Commission, the Department of Hawaiian Home Lands, the Office of Native Hawaiian Relations, and their beneficiaries to include native intelligence and knowledge of species, habitat, and place-based management and protection prior to designation of critical habitat. The DHHL stated that they rely on Federal funding, and section 7 consultations could lead to direct negative economic impacts to them.

Our Response: We support the DHHL's ongoing management on Maui at Auwahi for seabird protection, Kahikihnui for koa (*Acacia koa*) forest ecosystem protection, Puu o Kali for wiliwili (*Erythrina sandwicensis*) dryland forest protection, and, on Molokai at Moomomi Park for shoreline

and associated resource protection and Kapaakea Mauka for community pasture lands and stewardship, including the development of fire breaks.

Prior to publishing our proposed rule (77 FR 34464; June 11, 2012), we met with representatives of the DHHL on July 22, 2011, and August 30, 2011. At those meetings we provided information regarding our compilation of available information on species and habitat areas on Maui, and requested updated information from the DHHL. The DHHL provided information on its currently developed lands and their lands slated for future homesteads and other development. The DHHL did not express concern regarding critical habitat on lands on which they are conducting conservation actions, such as at Puu o Kali, on Maui. At the time we published our proposed rule (77 FR 34464; June 11, 2012), we notified elected officials, the Maui County Planning Department, and several Hawaiian organizations including Kamehameha Schools, the Office of Hawaiian Affairs (offices for Honolulu, Maui, Molokai, and Lanai), the DHHL, the State Historic Preservation Division, the Kahoolawe Island Reserve Commission, and Kahea-The Hawaiian-Environmental Alliance. Following publication of our proposed rule, we again met with DHHL representatives (October 11, 2012). At that meeting, DHHL staff stated that they need to be able to use their lands to ''their fullest ability'' and that they may develop wind and geothermal energy projects on the islands of Maui and Molokai in the future. The DHHL provided information on future development and current grazing leases on its lands in proposed critical habitat. In addition, the DHHL expressed interest in developing conservation partnership projects with the Service in the future.

Based on information provided by the DHHL in its March 1, 2013, and June 23, 2015, letters, and at the October 11, 2012, meeting, we reviewed and incorporated new information, and made changes to 4 of the 9 critical habitat units on Maui and all 4 critical habitat units on Molokai that overlapped DHHL's lands. These revisions were based on comments indicating that: (a) Changes in land use had occurred within the proposed critical habitat units that would preclude certain unoccupied areas from supporting the primary constituent elements; and (b) the areas in question were not essential to the conservation of the species. Following our review of the information provided, we removed those unoccupied areas that we determined did not meet the definition of critical habitat. For the remaining areas, while we appreciate any management efforts implemented by DHHL, the fact that management is already taking place does not mean that the area in question does not meet the definition of critical habitat. The Courts have been clear that the statutory standard does not specify that ''additional'' special management considerations or protections may be required, and the very fact that areas are being actively managed or protected serves as evidence that special management considerations or protections may be required, in accordance with the statutory definition of critical habitat.

Although the DHHL stated that section 7 consultation (due to a nexus created by Federal funding provided to the DHHL) on designated critical habitat on its lands could lead to direct negative economic impacts, they did not indicate how, specifically, they foresee a consultation resulting in such impacts. Our FEA specifically considered the potential effects of critical habitat designation on DHHL lands (IEC 2015, p. 3–6). In communications with DHHL, it was established that most lands proposed as critical habitat are within DHHL's own conservation land use district, so existing management is consistent with the needs of critical habitat. For the proposed critical habitat that overlaps with DHHL's special use district, which may potentially be subject to future energy development, there were no specific plans for any projects, and DHHL stated that they are trying to avoid any development in critical habitat (IEC 2015, p. 3–6). We therefore do not have information to suggest any likely direct negative economic impacts of the designation on DHHL.

(35) *Comment:* The DHHL requested that the Secretaries (of the Department of Interior and the Department of Commerce) consider the effects of designation of critical habitat on Hawaiian Home Lands in a manner similar to the effects it has on tribal lands, including the impact on tribal sovereignty. DHHL states that the United States maintained authority over consents to the Hawaiian Homes Commission Act (HHCA) amendments and exchanges involving Hawaiian home lands. It further states that the United States has the responsibility to ensure that the State of Hawaii is carrying out its trust duties under the HHCA and may sue for breach of trust.

Our Response: 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 (Consultation and Coordination With Indian Tribal Governments), 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. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to incorporate native intelligence and knowledge of species, habitat, and place-based management and protection, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. In addition, a 2004 consolidated appropriations bill (Pub. L. 118 Statute 444, Section 148) established the Office of Native Hawaiian Relations within the Secretary's Office and its duties include effectuating and implementing the special legal relationship between the Native Hawaiian people and the United States; and fully integrating the principle and practice of meaningful, regular, and appropriate consultation with the Native Hawaiian people by assuring timely notification of and prior consultation with the Native Hawaiian people before any Federal agency takes any actions that may have the potential to significantly affect Native Hawaiian resources, rights, or lands. A 2011 Memorandum of Understanding (MOU) signed by the Department of the Interior states that ''Federal agencies are required to consult with Native Hawaiian organizations before taking any action that may have the potential to significantly affect Native Hawaiian resources, rights, or lands.'' Although native Hawaiians are not technically a ''recognized Federal tribe'' as referenced in the above Executive and Secretarial Orders, we endeavor to fully engage and work directly with native Hawaiians as much as possible. At the time we published our proposed rule (77 FR 34464; June 11, 2012), we notified several Hawaiian organizations including the DHHL, Kamehameha Schools, the Office of Hawaiian Affairs (offices for Honolulu, Maui, Molokai, and Lanai), the State Historic Preservation Division, the Kahoolawe Island Reserve Commission (KIRC), and Kahea-The Hawaiian-Environmental Alliance. We attended meetings with

staff from DHHL (July and August, 2011, and October, 2012), Kamehameha Schools (July 2011), and KIRC (July 2012), to discuss the proposal and address any concerns regarding the proposed listings and proposed critical habitat, and have considered all comments provided by these organizations in this final rule.

(36) *Comment:* The University of Hawaii, Institute for Astronomy (IfA) was concerned regarding proposed critical habitat on Map 23, Maui—Alpine—Unit 1 and Maui—Subalpine—Unit 1, as it appears to include buildings, roads, and other paved areas, owned and managed by the University of Hawaii, as part of the Haleakala High Altitude Observatory Site (HO). In 1961, State of Hawaii Executive Order No. 1987 set aside approximately 18 ac (7.3 ha) of land for the HO to be used for observatory site purposes only. The IfA requested that the HO be excluded from critical habitat designation.

Our Response: We carefully reviewed the areas proposed as critical habitat that overlap lands owned by the State and the University of Hawaii. Maui—Alpine—Unit 1, at the summit of Haleakala, encompasses a total of 2,107 ac (853 ha). The parcel referred to above, Tax Map Key (TMK) (2) 2–2–007:008 (18 ac; 7 ha) represents a small portion of the unit. The other larger parcels (TMK (2) 2–0–007:006 (138 ac; 56 ha) and TMK (2) 2–2–007:005 (161 ac; 65 ha) overlap both Maui—Alpine—Unit 1 and Maui—Subalpine—Unit 1. As a result of this examination, we have determined that these unoccupied parcels, and other small areas within these parcels that include astronomical facilities, are too degraded or modified by buildings and roads to support the species, that changes in land use have occurred within the proposed critical habitat units that would preclude certain areas from supporting the species, and therefore these areas are not essential for the conservation of the species for which they were proposed as critical habitat. We have therefore removed 295 acres (120 ha) of Maui—Alpine—Unit 1 and 44 acres (18 ha) of Maui—Subalpine—Unit 1, areas surrounding the HO, from designation as critical habitat (see below, Summary of Changes from Proposed Rule).

(37) *Comment:* The Hawaii State Department of Agriculture (HDOA) stated that exclusion of agricultural lands from critical habitat designation is important for Hawaii's food sustainability. The HDOA indicated that compensation will help landowners to efficiently increase food production or purchase additional lands for agricultural production should critical habitat be designated on agricultural lands.

Our Response: Following publication of our proposed rule we received additional information from the public and concerned landowners regarding lands within proposed critical habitat that are in active crop production or actively managed for cattle ranching. We appreciate this new information, and, based on the information we received, we have removed areas from the final designation that are too degraded or modified to support the species (*i.e.,* where the essential physical or biological features are lacking in occupied habitat), where changes in land use have occurred within the proposed critical habitat units that would preclude certain areas from supporting the primary constituent elements, and, in the case of unoccupied areas, upon a determination that these areas are not essential for the conservation of the species for which they were proposed as critical habitat. In addition, we have excluded approximately 62,490 ac (25,289 ha) of privately owned lands under agricultural production for cattle ranching from critical habitat under section 4(b)(2) of the Act (see *Exclusions Based on Other Relevant Factors,* below) See our response to *Comment* (58, 59, and 60) regarding economically viable use of property and the effects of critical habitat designation. We have no information to suggest that critical habitat will have any impact on food sustainability in the State of Hawaii.

(38) *Comment:* The HDOA stated that the section 7 consultation process is slow and cumbersome, and lacks a clear administrative appeal process. Formal consultations can take up to 90 days plus an additional 45 days to prepare a biological opinion. The consultation process can result in modifications to the project, up to and including stopping the project from proceeding altogether. The HDOA believes the timeframe for formal consultations should be limited to 60 days in order to reduce uncertainty and risk for agricultural landowners. According to HDOA, if it is determined that a project will jeopardize a listed species or adversely modify designated critical habitat, a private landowner should have the ability to appeal the consultation finding without expending significant amounts of resources.

Our Response: We appreciate the HDOA's concerns. Both the Act and the Code of Federal Regulations (CFR) direct the process and timing of how the Service conducts consultation (see sections 7(a)(4), 7(b)(1)(A), and 7(b)(1)(B) of the Act, and 50 CFR 402.14(e), (f), and (g)). Included is the process whereby a private landowner requiring a permit or license from a Federal agency may become an applicant to the process. Applicant status includes specific privileges with regard to timing and application for exemption from section 7(a)(2) of the Act.

Comments From Maui County

(39) *Comment:* The Maui County Police Department requested that their communications facilities be excluded from critical habitat for public safety reasons. Their specific concerns are Lanai—Montane Wet—Unit 3 and Lanai—Wet Cliff—Unit 5, and Maui—Montane Mesic—Unit 1 and Maui—Subalpine—Units 1 and 2.

Our Response: As developed areas or manmade structures such as the communications facilities referenced here (towers, roads, etc.) do not provide the physical or biological features essential for the conservation of the Maui Nui species, they are not considered critical habitat; any such areas are not included in this designation. We make every effort to avoid including developed areas such as buildings, pavement, and other structures within the boundaries of critical habitat; however, the scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands that have been inadvertently left inside critical habitat boundaries shown on the maps of this final rule, including the communications facilities in the five critical habitat units referenced by the Maui County Police Department, have been excluded by text in the rule and are not designated as critical habitat. Therefore, a Federal action involving these lands will not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the action may affect the adjacent critical habitat. Maintenance of communications towers that result in minimal ground disturbance are unlikely to pose a threat to Maui Nui critical habitat. In most cases, the Service's concern with respect to these projects relates to the potential for effects to bird species resulting from collisions.

(40) *Comment:* The Maui County Planning Department requested that we remove county lands from critical habitat within Lanai—Lowland Mesic—Unit 1, Maui—Lowland Dry—Unit 3, and Maui—Montane Mesic—Unit 1. All of the county lands described in their

letter contain buildings, structures (*e.g.,* water tanks, reservoirs), or roads.

Our Response: We appreciate the information provided by the county and carefully reviewed these county lands in proposed critical habitat. As explained in our response to *Comment* (39), above, developed areas or manmade structures lacking the physical or biological features essential to the conservation of the Maui Nui species are excluded by text in the rule and are not designated as critical habitat. Such is the case here for the county lands in Lanai—Lowland Mesic—Unit 1, which appeared to be within the boundaries of the proposed critical habitat due only to the scale of mapping; these developed areas are not included in the final designation. In addition, we removed county lands proposed for critical habitat in Maui—Montane Mesic—Unit 1 because these lands are too degraded or modified to support the species or because changes in land use had occurred within the proposed critical habitat units that would preclude certain areas from supporting the primary constituent elements (occupied areas), or because these areas are not essential for the conservation and recovery of the species for which they were proposed as critical habitat (unoccupied areas). These areas therefore do not meet the definition of critical habitat. The county facility within proposed Maui—Lowland Dry—Unit 3 is not included within the unit; however, this may not have been apparent due to the resolution of the map printed in the June 11, 2012, proposed rule (77 FR 34464).

(41) *Comment:* The Maui County Planning Department requested that we provide a mechanism in our proposed rule to exclude lands in the future from critical habitat based on the development of management plans that meet the criteria described in *Exclusions Based on Other Relevant Factors* (see 77 FR 34464; June 11, 2012).

Our Response: In considering whether to exclude a particular area from the designation, we must identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, determine whether the benefits of exclusion outweigh the benefits of inclusion, and conclude that the exclusion under consideration will not result in the extinction of the species. A revision to the critical habitat regulation requires a new rulemaking published in the **Federal Register** (see section 4(a)(3) of the Act and 50 CFR 424.12), with notification of all interested parties. In our June 11, 2012, proposed rule and in this final rule we state that we consider a number of factors in evaluating an exclusion under the ''other relevant factors'' provision of the statute, including whether the landowners have developed any conservation plans or other management plans for areas determined to be essential to the species, or whether there are conservation partnerships that would be encouraged by designation of, or exclusion from, critical habitat. Currently, the County of Maui is a participating member in the Hawaii Association of Watershed Partnerships and provides funding for various fencing, survey, and invasive species projects on Maui, Lanai, and Molokai. Participating in a watershed partnership is only one aspect of the many landowner conservation activities we examine when determining whether exclusion from critical habitat outweighs the benefits of inclusion in critical habitat. We also consider the additional regulatory benefits that area would receive from the protection from adverse modification or destruction as a result of actions with a Federal nexus, the educational benefits of mapping habitat essential for recovery of the listed species, and any benefits that may result from a designation due to State or Federal laws that may apply to critical habitat. In evaluating a conservation plan, we consider a variety of factors including, but not limited to, whether the plan is finalized; how it provides for the conservation of the essential physical or biological features; whether there is a reasonable expectation that the conservation management strategies and actions contained in the plan are likely to be implemented into the future; whether the plan's strategies are likely to be effective; and whether the plan contains a monitoring program or adaptive management to ensure that the conservation measures are effective and can be adapted in the future in response to new information.

We must base our consideration of potential exclusions on the evidence available to us at the time of rulemaking; there is no mechanism for forecasting exclusions into the future based on conservation plans that have yet to be developed. However, after going through a new rulemaking process, we can revise a critical habitat designation in the future if appropriate.

(42) *Comment:* The Maui County Planning Department requested that we consider excluding the Kanepuu Preserve and the Lanaihale Forest Conservation area, both on Lanai.

Our Response: The areas referenced by the Maui County Planning Department are covered by the Lanai Memorandum of Understanding (see below) and are excluded from the final designation, as critical habitat is not designated on the island of Lanai as a consequence of exclusions under section 4(b)(2) of the Act, for the reasons described below (see *Exclusions Based on Other Relevant Factors*).

(43) *Comment:* The Maui County Planning Department commented on an extensive trail system on the island of Lanai, and stated that use of these trails for hunting, recreation, and cultural activities is part of Lanai's economy. The Planning Department requested clarification for how these uses could be compatible with critical habitat designation.

Our Response: We have no information to suggest that critical habitat designation impacts trail usage. Regardless, for the reasons described below (see *Exclusions Based on Other Relevant Factors*), critical habitat is not designated on the island of Lanai in this final rule, as a consequence of exclusions under section 4(b)(2) of the Act.

Public Comments

(44) *Comment:* Several commenters noted that on Maui all individuals of the endangered plant *Canavalia pubescens* are found on recent lava flows, and suggested that these flows be considered critical habitat for this plant. In addition, many lowland dry species flourish on recent lava flows (less than 10,000 years old) as these areas exhibit healthy recruitment of native plant species such as *C. pubescens,* and appear to offer protection from wildfires and other threats. Another commenter noted that the aa (basaltic lava having a rough surface) substrate supports the greatest remaining native lowland dry forest biodiversity. One commenter suggested three factors that may contribute to the survival of native species on this substrate: (a) The sparseness of vegetation on aa prevents the percolation of wildfires; (b) the ruggedness of the terrain and its sparse vegetation discourages ungulate browsers; and (c) the sparseness of soil prevents ecosystem domination by alien grasses. The same commenter also raised the possibility that the harshness of the habitats with aa substrate and shallow soils currently function as ecological sinks (*i.e.,* areas where populations of species may be extirpated without input from population sources outside the area) for endangered species in the lowland dry ecosystem, as evidenced by the lack of recruitment of certain native tree species in these areas. The commenter hypothesized that areas currently devoid of native species and characterized by older (over 500,000

years old), deeper soils previously supported the highest densities of these species and served as the source populations for their colonization of aa flows. Therefore, the commenter supported designation of areas with older, deeper soils in the lowland dry ecosystem.

Our Response: We appreciate the comments provided and agree that recent lava flows provide important habitat for the endangered plant *Canavalia pubescens.* Recent lava flows may be characterized by little-weathered lava substrate that is one of the physical and biological features of the lowland dry ecosystem in which *C. pubescens* is known to occur. The occurrence of *C. pubescens* and other native plant species on recent lava flows indicates the importance of these areas to their conservation. The ruggedness of recent lava flow substrates may function as a deterrent to ingress of ungulates thereby preventing herbivory of native plant species. The limited accumulation of soil due to the lack of weathering on recent lava flow substrates may also prevent ingress of nonnative grasses, which typically prefer areas with greater soil formation, thereby allowing native vegetation that is adapted to these conditions to flourish. In addition, information in our files indicates that *C. pubescens* occurs on substrates ranging in age from 3,000 to 5,000 years old to 140,000 to 780,000 years old (Sherrod *et al.* 2006, p. 2; HBMP 2010). In this final rule, we designate four units on east Maui (Maui—Lowland Dry—Unit 1 through Maui—Lowland Dry—Unit 4) totaling 16,841 ac (6,816 ha) for *C. pubescens,* as well as 18 other plant species in the lowland dry ecosystem. The recovery guidelines for a short-lived perennial plant species such as *C. pubescens* are 8 to 10 populations of 300 individuals per population, sustained over a minimum of 5 years (Service 1999, p. iv). In addition, these four critical habitat units provide varied substrate types, including those mentioned by the commenter (over 500,000 years old) in the lowland dry ecosystem.

(45) *Comment:* Two commenters faulted the Service for not providing adequate notification of the proposed rule to potentially impacted Maui residents. In addition, one commenter stated that the letters the Service sent out were vague and not specific to the lands that may be affected.

Our Response: We appreciate the comments and regret that some landowners did not receive our notification letters. Unfortunately, we are not able to send personalized letters and maps to all affected and interested parties. We did, however, provide maps of parcel-specificity to every landowner who contacted us and requested them following publication of the June 11, 2012, proposed rule and the January 31, 2013, document reopening the comment period on the proposed rule. Please see our response to *Comment* (16), above, for a detailed explanation of the notification process we used to reach as many potentially interested parties as possible regarding this rulemaking.

(46) *Comment:* One commenter stated that ''the proposed rule expressly fails to provide any detailed narrative description of appropriate specificity to allow fair comment'' and cited 77 FR 34688 at (x)(B) ''[Reserved for textual description of Unit 3]''. The commenter also stated that the proposed rule contains only generalized ''maps,'' such as Map 10 on 77 FR 34689, to indicate the areas proposed for designation. Another commenter added that more detailed mapping is required for landowners to accurately assess the impact of the proposed designation and assist the Service in determining the appropriateness of the designation.

Our Response: The commenter misunderstands the bracketed information cited above. The bracketed information cited above does not infer a ''word'' description of the unit. A word description of each critical habitat unit is found in *Descriptions of Proposed Critical Habitat Units* in the June 11, 2012 (77 FR 34464), proposed rule. The description for Maui—Lowland Dry—Unit 3 is found at 77 FR 34551 (77 FR 34464; June 11, 2012). The ''textual description'' of Unit 3 (Maui—Lowland Dry—Unit 3) refers to the UTMs (mapping vertices) for unit delineation using GIS, which, until recently, were identified and published in the **Federal Register** in final rulemakings. However, on May 1, 2012 (77 FR 25611), the Service published a final rule revising the regulations for requirements to publish textual descriptions of final critical habitat boundaries in the **Federal Register**. As a result, as of May 31, 2012 (the effective date of the May 1, 2012, rule), the Service no longer publishes the UTM coordinates for critical habitat boundaries in the **Federal Register**. Because the publication process for our proposed rule had already begun on May 31, 2012, the text reading ''reserved for textual description'' (which applied to the old method of providing UTMs) had not been removed before publication of the proposed rule for the Maui Nui species on June 11, 2012. Currently, the coordinates on which each map is based are available to the public at the Federal eRulemaking portal (*http://www.regulations.gov*) using the docket number for the rulemaking (in this case, FWS–R1–ES–2015–0071), and at the Web site of the field office responsible for the critical habitat (*http://www.fws.gov/pacificislands*) for the final critical habitat for 125 Maui Nui species. The proposed rule included maps to identify the areas proposed for critical habitat designation. The proposed rule also directed reviewers to contact the Service for further clarification on any part of the proposed rule, and provided contact information. Although we did not include parcel-specific maps in the proposed rule, we did provide maps of this specificity to every landowner who contacted us and requested them following publication of the proposed rule and the January 31, 2013, document reopening the comment period on the proposed rule.

(47) *Comment:* One commenter questioned the Service's determination of the status of a species within a given critical habitat unit as both ''Species occupied'' and ''Species unoccupied'' at the same time, and cited 77 FR 34710 at (xxix) ''Table of Protected Species Within Each Critical Habitat Unit.''

Our Response: We appreciate the comment and in this final rule have modified the ''Table of Protected Species Within Each Critical Habitat Unit,'' first, by changing the title to ''Occupancy of Species by Designated Critical Habitat Units for [Island],'' and secondly, to accurately reflect whether a unit was either occupied or unoccupied by a species at the time of listing. In addition, each unit description provides a clear description of whether a unit is occupied or unoccupied by each species for which the unit is being designated (see *Descriptions of Critical Habitat Units*).

(48) *Comment:* One commenter stated that it is naïve to assume historical distribution patterns can be a guide to suitable locations for recovery efforts of rare species.

Our Response: In this final rule, we use information on the present and historical distribution of each species, based on the best available scientific data, to determine the locations of past and current occurrences and to determine the physical or biological features essential to support the species in those locations. It is Service policy that listed species will not be relocated or transplanted by the Service outside their historical range without specific case-by-case approval from the Director (65 FR 56916; September 20, 2000), therefore we look first to areas within the historical range to guide recovery efforts for listed species. Furthermore, our implementing regulations at 50 CFR

424.12(b) state that, in determining what areas are critical habitat, the Secretary shall consider ''habitats . . . representative of the historic geographical and ecological distributions of a species.'' We recognize that not all areas within the historical distribution of a species will necessarily retain the physical or biological features essential to support the species under contemporary conditions; in many cases, the formerly occupied habitat has either been eliminated or has become severely degraded. In identifying areas for designation as critical habitat, we used information regarding the past and current locations of species, the past and current status of the habitat, and whether or not the habitat, including that in need of management, could provide the essential physical and biological features for the species for which it is designated. We note that in several cases, in response to public comment, we have removed areas from this final designation of critical habitat upon the receipt of information indicating that the areas in question are no longer capable of supporting the species.

(49) *Comment:* One commenter stated that reliance on unpublished, non-public data that is not readily available to the public is contrary to legal requirements. Withholding this information deprives the public of a full and fair opportunity to comment on the rule. The rule should therefore be withdrawn.

Our Response: Under section 4(b)(2), we are required to designate, and make revisions to, critical habitat based on the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impact. In the June 11, 2012, proposed rule and in this final rule, we used the best scientific information available, including but not limited to, the State's Hawaii Biodiversity and Mapping Program databases, the National Tropical Botanical Garden's plant databases, TNC's High Island Ecoregion Plan (along with the accompanying GIS ecosystem data), and our own rare plant species database. These databases include information from numerous sources including, but not limited to, expert field observations, museum collections, and published and unpublished literature, and are, in our opinion, sources of the best scientific data available. These data sources are often the best available information for the species. See also, Methods, below.

As stated in the proposed rule, the supporting documentation we used in developing the proposed critical habitat was available to the public through a combination of online access through *http://www.regulations.gov,* or by appointment at the Pacific Islands Fish and Wildlife Office. We provided direction as to how to obtain a list of the supporting documentation used under both the Public Comments and References Cited sections of the proposed rule. In addition, a list of references cited in the proposed rule and in this final rule is available on the Internet at *http://www.regulations.gov,* and upon request from the Pacific Islands Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

(50) *Comment:* Several commenters expressed concern about the potential negative effects of critical habitat designation on their lands because of the interplay of Federal and Hawaii State law. For example, they were concerned that designation of critical habitat could lead to reclassification of land by the State into the conservation district pursuant to Hawaii Revised Statutes (HRS) 195D–5.1 and HRS 205–1(3). In addition, they stated that although there are no prohibitions for adverse modification of habitat on private lands under the Endangered Species Act, such prohibitions exist under Hawaii endangered species law (HRS Chapter 195–D) and environmental impact statement law (HRS Chapter 343), and these State prohibitions may negatively impact landowners with critical habitat designation.

Our Response: These concerns are addressed below, separated by topic.

Reclassification of Land Due to Critical Habitat Designation—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 DLNR has no history of proposing amendments to include designated critical habitat in the conservation district.

As described in section 3.1 of the FEA, the analysis integrates the best available information regarding the potential effects of critical habitat on State and county land management based on interviews with staff from the Department of Land and Natural Resources (DLNR)'s Office of Conservation and Coastal Lands (OCCL) and the State Office of Planning, as well as the County of Maui's Department of Planning. According to the State Office of Planning, critical habitat is taken into consideration during the redistricting process, but does not itself generate a redistricting of lands to the Conservation District. According to the County Department of Planning, the presence of critical habitat is one of many factors under consideration during the rezoning process. Representatives from OCCL, the State, and the county were unable to identify an instance in which the presence of critical habitat specifically drove decisions related to redistricting or rezoning. As such, it has not been the State's practice thus far to redistrict critical habitat areas as conservation district lands. The FEA does, however, describe uncertainty with regard to future State and county management of these lands in section 3.4. In addition, section 5.3.2 of the FEA describes the potential indirect effects of critical habitat designation, including concern that the designation may result in costly lawsuits. Uncertainty exists regarding the potential for, as well as the number, timing, and outcome of, such lawsuits, thus associated impacts are not monetized in the economic analysis.

Prohibitions Under Hawaii Endangered Species Law and Environmental Impact Statement Law With Critical Habitat Designation—HRS 195D covers conservation of aquatic life, wildlife, and land plants in the State of Hawaii. Only two sections of HRS 195D are relevant to this discussion, HRS section 195D–4 and 195D–5.1. HRS section 195D–4 recognizes the Federal status (endangered or threatened) of flora and fauna in Hawaii as determined by the Department of the Interior. This section also outlines State regulations for possession, trade, or other uses of these species. HRS section 195D–5.1 ''Protection of Hawaii's unique flora and fauna'' states that the 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 for rare native species of flora and fauna within the conservation district. Neither of these sections of HRS 195D includes

automatic prohibitions against adversely modifying habitat on private lands.

HRS 343 provides a comprehensive review of the environmental impact statement (EIS) process, and describes the applicability and requirements for environmental assessments (EA), regardless of the underlying land classification. It states that an environmental impact statement is required for any proposed land reclassifications under 343–5(2) and 343–5(7) and ''any use within any land classified as a conservation district by the State land use commission under Chapter 205.'' HRS 343, therefore, provides guidelines for the EIS process and EA process regarding: (a) Land reclassification, and (b) proposed actions or proposed land use changes on lands that are classified as conservation. HRS 343 does not trigger land reclassification as a result of critical habitat designation nor does it prohibit any actions or proposed land use changes in areas designated as critical habitat, whether or not these areas are in the conservation district.

(51) *Comment:* One commenter stated that an area that is not inhabited by the species is not essential to the conservation of the species. However, another commenter supported the inclusion of areas no longer occupied by the endangered species, but which are critical for their recovery.

Our Response: By definition in section 3(5)(A) of the Act, critical habitat for an endangered or threatened species includes: (i) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

In this final rule, the critical habitat designation is a combination of areas occupied by the species, as well as areas that are unoccupied (see below, ''Recovery Strategy for Hawaiian Plants,'' ''Recovery Strategy for Two Forest Birds,'' and ''Recovery Strategy for Three Tree Snails''). For areas considered occupied, the best available scientific information suggests that these species occupied these areas at the time of listing. However, due to the small population sizes, few numbers of individuals, and reduced geographic range of each of the 125 species for which we are designating critical habitat in this rule, we have determined that a designation limited to the known present range of each species would be inadequate to achieve the conservation of those species. The areas that may have been unoccupied at the time of listing have been determined to be essential for the conservation and recovery of the species because they provide the physical or biological features necessary for the expansion of existing wild populations and reestablishment of wild populations within the historical range of the species.

(52) *Comment:* Two commenters disputed the use of an ecosystem-based approach in our determination of primary constituent elements (PCEs) for each species and cited the regulations for determining critical habitat at 50 CFR 424.12 (b). In addition, one commenter cited *Middle Rio Grande Conservancy District* v. *Babbitt,* 206 F.Supp.2d 1156 (D. N.M. 2000) and argued that the proposed ecosystem critical habitat designations are overly generalized and, therefore, lack the necessary analysis and explanation required by the Act for each species.

Our Response: Under the Act and its implementing regulations, we are required to identify the physical and biological features essential to the conservation of the 135 species for which we proposed critical habitat. We identified the physical and biological features that support the successful functioning of the ecosystem(s) upon which each species individually depends, and that may require special management considerations or protection. Table 5 (see below) identifies the physical or biological features of a functioning ecosystem for each of the ecosystem types identified as essential to the conservation of the 125 species for which we are designating critical habitat in this final rule (critical habitat is not designated for 10 species due to exclusions). These features provide the environmental conditions essential to meeting the fundamental requirements of each species. In many cases, due to our limited knowledge of specific life-history requirements for the species that are little-studied and occur in remote and inaccessible areas, the more general description of the physical and biological features that provide for the successful functioning of the ecosystem represents the best (and, in many cases, the only) scientific information available. Accordingly, the physical and biological features of a properly functioning ecosystem are, at least in part, the physical and biological features essential to the conservation of the 125 species. In this final rule the PCEs for each species are defined based on those physical or biological features essential to support the life-history processes for each species within the ecosystems in which they occur, and reflects a distribution that we conclude is essential to the species' conservation needs within those ecosystems. The ecosystems' features include the appropriate microclimatic conditions for germination and growth of the plants (*e.g.,* light availability, soil nutrients, hydrologic regime, and temperature) and space within the appropriate habitats for population growth and expansion, as well as to maintain the historical geographical and ecological distribution of each species. The features are defined by elevation, annual levels of precipitation, substrate type and slope, and the potential to maintain characteristic native plant genera in the canopy, subcanopy, and understory levels of the vegetative community. Where further information was available indicating additional, specific, life-history requirements for some species, the PCEs relating to these requirements are described separately; for example, we have identified bogs as a unique PCE for several species. The physical and biological features essential to the conservation of these species are described in Table 5 of this final rule.

(53) *Comment:* One commenter stated that proposed critical habitat designations based on the presence of one or few individuals of the native canopy, subcanopy, or understory species listed as physical or biological features for each ecosystem (associated native plant genera as identified in Table 5) do not achieve the ecosystem approach or satisfy the requirement of having the physical and biological features of that ecosystem.

Our Response: See our response to *Comment* (52), above, regarding the methods for identification of physical and biological features for each of the species for which occupied final critical habitat is designated. For the species that are the subject of this rule, the essential physical and biological features are described as the elevation, precipitation, and substrate required by the species, in combination with presence of one or more of the associated native plants that occur within that elevation, precipitation, and substrate range. We consider the presence of one or more of the identified native canopy, subcanopy, or understory species as indicative of the capability of that area to likewise support the threatened or endangered Maui Nui species that also depend on that habitat type.

(54) *Comment:* One commenter stated that the primary constituent elements (PCEs) for a given species are non-determinable in areas that are unoccupied by the species.

Our Response: Although the presence of the PCEs may make an area presently unoccupied by the species particularly desirable as a site for potential recovery, the Act does not require that areas outside the geographical area occupied by the species at the time it is listed contain the PCEs; instead, unoccupied areas must be essential for the conservation of the species. The recovery guidelines published in our recovery plans for the Maui Nui species spell out the criteria (*e.g.,* number of populations and number of individuals) necessary to recover or remove the species from protection under the Act. Due to the small numbers of individuals and low population sizes of the 125 Maui Nui species for which we are designating critical habitat in this final rule, suitable habitat and space for expansion of existing populations or reintroduction are essential to achieving population levels necessary for the conservation of these species. As explained in detail in the Methods section of this document (see ''Unoccupied Areas''), these areas are essential to achieving these goals. We carefully considered the historical distribution of each species, its specific habitat requirements, and its current population status relative to the goals set for recovery to determine those unoccupied areas that are essential to achieve the abundance and distribution of self-sustaining populations needed to attain the conservation of each species.

(55) *Comment:* One commenter stated that the Regulatory Flexibility Act (RFA, 5 U.S.C. 601 *et seq.*) analysis in the proposed rule failed to take into account the activities associated with the Honuaula Partners, LLC (HP), development, and disagreed with the initial finding that the proposed designation of critical habitat for the 135 species will not have a significant effect on a substantial number of entities. The commenter further stated that the construction and development activities envisioned by HP will likely require the services of numerous small businesses ranging from contractors and subcontractors to landscapers and suppliers of materials, engineers, architects, planners, and others. In addition, the commenter stated that the analysis is inaccurate because it relied upon earlier economic analyses in 2003 and 2008, which did not take into account the HP project.

Our Response: Under the RFA, we are required to evaluate the potential impacts of critical habitat on small businesses, but this evaluation may be limited to impacts to directly regulated entities. The designation of critical habitat only has direct regulatory impact through section 7 of the Act, in which a Federal action agency is required to consult with us on any project that is implemented, funded, permitted, or otherwise authorized by that agency (that is, a ''Federal nexus'' exists) and that may affect designated critical habitat. Critical habitat has no regulatory effect under the Act on actions that do not have a Federal nexus. Since Federal action agencies are the only directly regulated entities as a result of the designation of critical habitat, the designation will not have a significant impact on a substantial number of small business entities. For a further discussion of this issue, please see below (Required Determinations) and our final economic analysis (IEc 2015, Appendix A).

(56) *Comment:* Several commenters stated that the designation of critical habitat is a taking of property without just compensation.

Our Response: The designation of critical habitat does not deny anyone economically viable use of their property. There are no automatic restrictions or prohibitions on uses of areas designated as critical habitat under the Act. The regulatory effect of the Act is the requirement under section 7(a)(2) that Federal agency actions avoid the destruction or adverse modification of designated critical habitat. Furthermore, if in the course of a consultation with a Federal agency, the resulting biological opinion concludes that a proposed action is likely to result in destruction or adverse modification of critical habitat, we are required to suggest reasonable and prudent alternatives that can be implemented in a manner consistent with the intended purpose of the action, that can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction, and that are economically and technologically feasible.

(57) *Comment:* Two commenters stated that the takings analysis is inadequate and violates the letter and intent of Executive Order 12630 (''Governmental Actions and Interference with Constitutionally Protected Property Rights''). Because a taking implications assessment (TIA) has not been published with the proposed rule, landowners are deprived of the ability to rationally or reasonably comment on the conclusion of the Service that the ''designation of critical habitat for each of these species does not pose significant takings implications within or affected by the proposed designation'' at 77 FR 34464 (June 11, 2012).

Our Response: Executive Order 12630 only requires that a taking implications assessment (TIA) be discussed in proposed and final rulemakings and be made available to the public if there are significant takings implications. If there are not significant takings implications, there is no requirement that this issue be addressed in a rulemaking. In our proposed rule (77 FR 34464; June 11, 2012), we stated that we analyzed the potential takings implications of critical habitat designation for 135 species and found that this designation of critical habitat does not pose significant takings implications for lands within or affected by the proposed designation. We have prepared a TIA for this final rulemaking and found that the designation of critical habitat for the Maui Nui species does not pose significant takings implications for lands within or affected by the designation.

(58) *Comment:* One commenter stated that the proposed rule does not take into account the additional costs that will be imposed on State and county governments by the proposed critical habitat designation. The commenter suggested that the proposed designation of critical habitat on the Makena Property will delay the widening and extension of Piilani Highway. The ATC Makena Holdings (ATC), along with three other private landowners, plans to fund and construct the widening of Piilani Highway. The ATC is also considering plans to extend Piilani Highway onto the Makena property in order to provide an alternative access route to serve the Makena Resort. The proposed rule does not address the significant economic impacts that could be faced by the Hawaii Department of Transportation or the County of Maui if the planned roadway improvements are not constructed by private developers. The commenter suggested that in the absence of private funding, Federal, State, or county funds will be required.

Our Response: The final economic analysis (FEA) incorporates additional discussion regarding the potential expansion of the Piilani Highway within Maui—Lowland Dry—Unit 3. Although the timing, nature, and location of the project is currently uncertain, we forecast costs associated with a formal section 7 consultation on the project in 2015. The Service has determined that the potential project area for the highway expansion overlaps with the probable range of the Blackburn's sphinx moth. Consultation on this project would be required due to the

presence of the Blackburn's sphinx moth regardless of whether critical habitat is designated for the Maui Nui species. As discussed in section 2.3 of the DEA, critical habitat designation for the Maui Nui species is not likely to generate additional conservation recommendations beyond what would be recommended due to the presence of the moth. Accordingly, it is unlikely that critical habitat for the Maui Nui species will generate substantial additional costs with respect to this highway project. However, we note in section 3.3 of the FEA that should the Service recommend that the project incorporate additional conservation efforts specifically in order to avoid adverse modification of critical habitat, these would be considered incremental impacts of the designation.

(59) *Comment:* One commenter stated that most of Hawaii's farmers and ranchers are small entities and would be unfairly disadvantaged by this proposal. Critical habitat designation may adversely impact farmers and ranchers by placing potentially inappropriate restrictions on future use, adversely impacting the value and mortgageability of the land, and encouraging other land use regulators to further restrict these lands in the future.

Our Response: We appreciate the commenter's concerns. We address these concerns below.

Direct impacts to farmers and ranchers—According to the FEA, the direct impacts of critical habitat designation on grazing and farming (*i.e.,* impacts generated by section 7 consultation and associated conservation recommendations) are expected to be minor (Section 5.3). The only section 7 consultations that occur on farming and grazing activities are associated with Federal assistance programs, such as the Natural Resources Conservation Service's (NRCS) EQIP (Environmental Quality Incentives Program) and WHIP (Wildlife Habitat Incentive Program) programs, which generally support ecologically beneficial projects. Outside of participation in these programs, we have not consulted on farming and grazing activities in Maui Nui over the last 10 years since critical habitat was first designated for 107 plant and animal species in the Maui Nui islands. All of the consultations with NRCS were informal, were ecologically beneficial to listed species or designated critical habitat, and have not been time-intensive and have not resulted in modifications to projects or activities. According to the FEA, it is unlikely that critical habitat designation will result in modifications to farming and grazing activities through section 7 consultation. Therefore, the direct effects of the designation are most likely to be limited to additional administrative effort (by the Federal agencies involved in the consultation) as part of future section 7 consultations (IEC 2015, Section 5.3.1). We cannot foresee any direct impacts to farmers and ranchers as a consequence of critical habitat designation. We note that the analysis under the Small Business Regulatory Enforcement Act (SBREFA) in Appendix A of the FEA acknowledges the possibility of some indirect impacts on farmers and ranchers, however, such effects are not quantified due to the significant uncertainty surrounding the likelihood and potential magnitude of any such potential effects (IEC 2015, p. A–7).

Impacts on the value and mortgageability of the land—We understand the commenter's concern that critical habitat designation may adversely impact the value and mortgageability of the land, and encourage other land use regulators to further restrict these lands in the future. The FEA (IEC 2015, Section 5.3.2) recognizes that these indirect effects of the critical habitat designation are of concern, but also found significant uncertainty regarding the potential for these economic impacts to occur. According to the FEA, no studies have evaluated the potential perceptional effect of critical habitat on land values in Hawaii (*i.e.,* regardless of actual regulatory effects, potential buyers, lenders, and appraisers may perceive that critical habitat designation restricts land use and thus reduces the value of the land). However, there are studies that show that critical habitat has the potential to change behavior of the public outside of the regulatory changes associated with the designation. A 2009 California study showed that critical habitat designation *within urban growth areas* [emphasis ours] resulted in measurable reductions in land values. The study did not identify statistically significant effects of critical habitat designation on land values *outside of urban growth areas* [emphasis ours]. Approximately 0.10 percent (160 ac (65 ha)) of the total area designated as critical habitat in Maui Nui in this final rule is in the State's urban district. Therefore, while we acknowledge the concern regarding the potential perceptional effect of critical habitat on land values in Hawaii, we are unable to measure the cost of this indirect impact to a landowner, or state with certainty the probability of such an effect being realized.

Future restrictions on these lands—According to the State's Office of Conservation and Coastal Lands and the State Office of Planning, critical habitat designation does not automatically generate a district reclassification, although it is one factor taken into consideration both during the 5-year boundary reviews and review of petitions for boundary amendments (IEC 2015, Section 5.3.2). See also our response to *Comment* (50), above.

(60) *Comment:* One commenter stated a concern regarding the ability of farmers and ranchers to meet the food supply needs of residents and visitors with the proposed designation. The 1.3 million plus residents and over 7 million tourists per year are dependent upon food and energy imports for nearly all their needs.

Our Response: We appreciate the commenter's concern. Section 5.3 of the FEA highlights the concern that critical habitat has the potential to hinder the State's food sustainability goal (IEC 2015, p. 5–16). As described in section 5.3, the designation is not likely to change how NRCS and the Service manage and regulate farming and grazing activities. Section 5.3.2 discusses the potential for critical habitat to result in indirect effects that hinder the State's goal to work toward food sustainability. As described in that section, the extent to which the designation will limit agricultural production occurring within the critical habitat area is uncertain. However, only a small fraction of the total State agricultural production overlaps the proposed critical habitat area.

(61) *Comment:* One commenter stated that some of the proposed critical habitat areas are State-owned parcels that may be leased to farmers and ranchers. The commenter added that some also include irrigation infrastructure and are within irrigation water lease areas, raising serious concerns about diminished irrigation water availability, especially important to farmers and ranchers in this time of severe drought. According to this commenter, these areas should be excluded from designation.

Our Response: When delineating critical habitat units, we made an effort to avoid developed areas such as towns, agricultural lands, and other lands with similar features that do not contain the primary constituent elements. Most of the area within critical habitat designated in this final rule is within the conservation district, with less than 10 percent of the critical habitat within the agricultural district. However, some species, such as *Canavalia pubescens, Melanthera kamolensis,* and *Sesbania tomentosa,* only occur in, and historically occurred in, low-elevation

areas where agriculture is most common. Habitat containing primary constituent elements or otherwise essential to the conservation of these species is not available in areas outside the agricultural district.

We made every attempt to avoid including irrigation systems and their related developed structures to support irrigation within the critical habitat areas, as these systems and structures normally do not contain, and are not likely to develop, primary constituent elements and are not otherwise essential to the conservation of these species. Even if we have not been able to exclude every such development from these mapped units, they are not included in critical habitat pursuant to the text of this final rule because they are manmade features. Thus, unless the operation and maintenance of irrigation systems and related developed structures would indirectly affect critical habitat, these systems and structures should not be affected by section 7 of the Act. As for the areas surrounding these structures, in the absence of a Federal nexus (as described above; see response to *Comment* (55)), critical habitat will have no effect on the delivery of water for agriculture. In addition, none of the 125 species are entirely aquatic, although a few require bogs or seasonally wet habitats; however, we have no information to suggest that conservation activities for these species would cause a reduction in water diversion or irrigation water.

(62) *Comment:* Three commenters provided information on a potential wind energy project that may be sited in or adjacent to proposed Molokai—Coastal—Unit 2. One commenter requested that the area proposed as critical habitat be modified to increase the distance of the critical habitat unit from the potential impact of an industrial-scale wind energy project.

Our Response: We appreciate the information provided by the commenters. Based on the information provided and information in our FEA (IEc 2015, pp. 4–7, 4–9—4–10, and A–6—A–7), Molokai Renewables, LLC, a joint venture between Pattern Energy Group LP and Bio-Logical Capital, LLC, plans to develop a wind energy farm on Molokai Ranch lands, near proposed Molokai—Coastal—Unit 1 and Molokai—Lowland Dry—Unit 1. Energy would be transmitted to Oahu via an undersea transmission cable that may potentially run through proposed Molokai—Coastal—Unit 2. This proposed project is in the initial planning phase and information on the timing, scale, location, and likelihood of construction of an industrial scale wind energy project is not available. Molokai—Coastal—Unit 2 totals 977 ac (396 ha) on State and private land. This unit provides the physical and biological features for 12 endangered plants and for the maintenance and expansion of the existing wild occurrences of one of these species that occupies the unit, and provides the habitat for reestablishment of populations, within their historical range, for the other 11 plant species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery. Lacking information on the location of the proposed wind farm, we are unable to modify Molokai—Coastal—Unit 2 to increase its distance from the proposed wind farm.

(63) *Comment:* One commenter stated that many farmers participate in the U.S. Department of Agriculture (USDA)–NRCS and other Federal programs, and thus formal consultation with the Service will be triggered in order to determine whether the habitat will be adversely impacted (regardless of whether any endangered species are actually present). This consultation can result in costly delays and modifications to the project up to and including stopping the activity from proceeding altogether.

Our Response: We appreciate the commenter's concerns. See our response to *Comment* (59), above.

(64) *Comment:* One commenter stated that the Service should reevaluate the ecosystem-based management units of possible habitat for Maui Nui species by focusing on only those areas that are essential for the conservation of the species and eliminating areas that do not currently contain the PCEs, especially grazing land. Courts have consistently held that such a generalization of critical habitat is unacceptable. See *Home Builders of No. California,* 616 F.3d 983, *Cape Hatteras Access Pres. Alliance,* 344 F. Supp. 2d 108, *Middle Rio Grande Conservancy District* v. *Babbitt,* 206 F. Supp.2d 1156 (D. N.M. 2000).

Our Response: On the islands of Maui Nui (Molokai, Lanai, Maui, and Kahoolawe), native species that occur in the same habitat types (ecosystems) depend on the same biological or physical features because they are dependent on the successful functioning of the ecosystem they have in common to survive. While we have used this methodology because it, along with species-specific habitat requirements, represents the best available scientific information, this approach may also provide efficiencies in identifying conservation actions at the ecosystem scale, to enhance or restore critical ecological processes and provide for long-term viability of those species in their native environment. Upon receipt of public comments from landowners and biologists, we have re-evaluated areas proposed as critical habitat, and have further refined the critical habitat units to remove areas where the land use has changed or the land has been otherwise modified so that it no longer contains the PCEs and therefore does not meet the definition of critical habitat (for areas occupied by the listed species). In all cases, we only designate unoccupied areas as critical habitat upon a determination that such areas are essential for the conservation of the species. In cases where, based upon public comments from landowners and biologists, we found that some unoccupied areas initially proposed as critical habitat are not in fact essential for the conservation of the species, we have removed those areas from this final designation.

(65) *Comment:* According to one commenter, the overly broad critical habitat designation effectively places the cost and burden of disproving the presence of critical habitat on the private landowner. In addition, the proposed rule does not analyze how land uses will or will not affect the protections that critical habitat is supposed to offer.

Our Response: Critical habitat protections are only triggered if there is a Federal nexus (an action authorized, funded, or carried out by a Federal agency). In cases where there is such a Federal nexus, it is not the duty of the private landowner to disprove the presence of critical habitat; rather, it is the duty of the Federal agency to ensure that it complies with section 7 of the Act. If, through the section 7 consultation process, it is determined that a Federal agency action may result in ''destruction or adverse modification of critical habitat'' (as those terms are used in section 7), we suggest those reasonable and prudent alternatives that can be taken by the Federal agency or applicant in implementing the agency action.

(66) *Comment:* Several commenters stated that they, or others, are members of State watershed partnerships and participate in voluntary conservation actions. The designation of critical habitat on their lands will burden landowners and alienate the very group that can help the most with species and habitat conservation.

Our Response: We fully support the voluntary watershed partnerships in the

State of Hawaii, including the four partnerships in Maui Nui (West Maui Mountains Watershed Partnership, East Maui Watershed Partnership, East Molokai Watershed Partnership, and Leeward Haleakala Watershed Restoration Partnership). These partnerships are voluntary alliances of public and private landowners ''committed to the common value of protecting forested watersheds for water recharge, conservation, and other ecosystem services through collaborative management'' (*http://hawp.org/partnerships*). Most of the ongoing conservation management actions undertaken by the watershed partnerships address threats to upland habitat from nonnative species (*e.g.,* feral ungulates, nonnative plants) and may include fencing, ungulate removal, nonnative plant control, and outplanting of native (including rare native) species on lands within the partnership. Funding for the watershed partnerships is provided through a variety of State and Federal sources (including funding provided by the Service), public and private grants, and in-kind services provided by the partners or volunteers. Landowner participation in the voluntary watershed partnerships in the State of Hawaii, resulting in many cases in significant conservation benefits to native and listed species, is an important consideration in our weighing of the benefits of exclusion versus inclusion in critical habitat under section 4(b)(2) of the Act. The Secretary places great value on such partnerships; participation in the watershed partnerships of Maui, Molokai, or Lanai was one of the considerations in each of the exclusions from critical habitat in this final rule. At the same time, however, we are judicious in our exclusions, and we carefully considered whether we had evidence that each landowner is implementing conservation measures as a member of a voluntary watershed partnership that result in significant benefits to the listed species in our weighing of the benefits of exclusion versus inclusion. We did not exclude areas from critical habitat if the landowner is a member of a watershed partnership, but could not demonstrate a history of implementing conservation actions for the benefit of native or listed species.

(67) *Comment:* Several commenters stated that designation of critical habitat would interfere with their ability to obtain Federal funding and cause delays associated with Act consultations over effects on critical habitat and the inflexible requirements that there be no adverse modification of critical habitat.

Our Response: Both the Act and the Code of Federal Regulations (CFR) direct the process and timing of how the Service conducts consultation (see sections 7(b)(1)and 7(2) of the Act, and 50 CFR 402.14(e)). Pursuant to section 7(a)(2) of the Act, Federal agencies must consult with the Service to ensure that any action authorized, funded, or carried out by such agency that may affect critical habitat is not likely to result in the destruction or adverse modification of critical habitat. To avoid destruction or adverse modification of critical habitat, the Federal agency may, during consultation, modify the proposed action to minimize or avoid adverse impacts to 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 the likelihood of the destruction or adverse modification of critical habitat. In our experience, it is unusual for a project to proceed to this point; usually we can agree upon project modifications earlier in the process that address any concerns, thereby allowing the project to proceed. However, in those rare cases in which we do find that destruction or adverse modification of critical habitat is likely, we attempt to provide alternatives to avoid that outcome.

Our FEA considers the direct impacts of critical habitat designation to stem from the consideration of the potential for destruction or adverse modification of critical habitat during section 7 consultations. The administrative costs of conducting section 7 consultation is a direct impact of a designation, as is the implementation of any conservation efforts that might be taken by the action agency in conjunction with section 7 consultation to avoid potential destruction or adverse modification of critical habitat. The total quantified incremental impacts of the critical habitat designation are estimated to be approximately $20,000 on an annualized basis over 10 years (IEc 2015, p. ES–7). The potential for time delays that may be associated with the need to reinitiate section 7 consultation or compliance with other laws triggered by the designation are considered indirect impacts of the designation. Although the FEA highlights which projects or activities may be affected by critical habitat designation, significant uncertainty and data limitations largely preclude the quantification of indirect impacts (IEc 2015, p. ES–7).

(68) *Comment:* Several commenters stated that designation of critical habitat would cause the Federal Government to dramatically reduce or cut off human access to water, or prevent the landowner from developing water resources. Subsequently, the State Water Commission would take steps to reduce off-stream water usage where it competes with water necessary to sustain endangered plants. This could affect ranches and entire communities.

Our Response: None of the Maui Nui species addressed in this rule is entirely aquatic, and although some species do depend on bogs or seasonal wetland type habitats, there is no information to suggest that critical habitat for the Maui Nui species would lead to a reduction in water diversion or prevent the development of water resources. Water infrastructure is considered a manmade feature, and, therefore, these features and structures do not contain, and are not likely to develop, any primary constituent elements. There is no expectation that ranches or communities will in any way be affected by a reduction in water supplies as a consequence of critical habitat.

(69) *Comment:* Several commenters stated that designation of critical habitat would trigger rezoning procedures under State law to more restrictive zoning on private property. In addition, the commenters believe that other provisions of Hawaii State law would then burden the use of their property. For example, commenters believed that new projects on lands designated as critical habitat will require a conservation district use permit, and an environmental impact statement (EIS) instead of a less comprehensive environmental assessment (EA), and that development in, or a change in use of, coastal lands that are designated critical habitat will make it more difficult to obtain a special management permit, pursuant to the Coastal Zone Management Act (16 U.S.C. 1451 *et seq.*).

Our Response: Regarding potential rezoning or restrictions on property use, please see above, our responses to *Comments* (50) and (59). Under the Coastal Zone Management Act (CZMA), an applicant for a required Federal license or permit to conduct an activity

that affects any land or water use or natural resource of the coastal zone must provide a certification that the proposed activity complies with policies of the State's approved coastal zone management program. Therefore, regardless of the designation of critical habitat, an applicant is required to obtain certification from the State that a proposed activity in the coastal zone complies with the State's coastal zone management program. The 1990 implementation plan for the State of Hawaii's coastal zone management program was last updated in 2006, and evaluation findings for 2004–2008 were completed in 2010 (NOAA 2010, 45 pp), and there is no reference in these documents to the treatment of critical habitat for federally listed species (Hawaii Coastal Zone Management Program 1990, entire; Hawaii Ocean Resources Management Plan 2013, entire). The 2013 management plan refers to the presence of, and concern for, endangered species in the marine environment and for endangered waterbirds and states that such species are of Statewide conservation concern (Hawaii Ocean Resources Management Plan 2013, p. 16). The plan also discusses the importance of watershed management as watersheds affect water quantity and quality, ultimately affecting ocean water quality and reef systems (Hawaii Ocean Resources Management Plan 2013, p. 27). In sum, although the 2013 Hawaii Ocean Resources Management Plan states that balancing protection of endangered species with other priorities of ocean resource management is critical, the plan does not mandate or prohibit any actions with specific regard to critical habitat.

(70) *Comment:* Some commenters stated that their lands were not included in studies or site inspections, or were apparently done without the owners' knowledge or consent. The commenters believe that if their lands were inspected, it would be determined that there were no primary constituent elements.

Our Response: As required by section 4(b) of the Act, we used the best scientific data available in determining those areas that contain the physical or biological features essential to the conservation of the Maui Nui species by identifying the occurrence data for each species and determining the characteristics of the habitat types upon which they depend. The information we used is described in detail in our June 11, 2012, proposed rule (77 FR 34464) and in this final rule (see Methods); also see our response to *Comment* (121) for a description of the information we used to derive the primary constituent elements.

Both before and following publication of our June 11, 2012, proposed rule (77 FR 34464), the Service contacted many landowners. Some allowed site visits, and some did not reply to our requests, or did not state that they desired a site visit by Service biologists. Much of our identification of the physical or biological features can be achieved using remote sensing data; in no case did Service staff enter private lands without the express permission of the landowner. Based on comments and information provided during the public comment periods indicating that information in our proposed rule was in error, or there had been changes in land use that would preclude certain areas from supporting the primary constituent elements (occupied areas), or the areas in question were not essential to the conservation of the species (unoccupied areas), we have removed such areas from the final designation because they do not meet the definition of critical habitat. In addition, some areas were excluded from critical habitat under section 4(b)(2) of the Act. All of these changes to areas proposed as critical habitat are described in the Summary of Changes from Proposed Rule, below.

(71) *Comment:* One commenter stated that the regulatory flexibility analysis provided in the proposed rule was inadequate, as commercial activities are not limited to only three proposed critical habitat units. Commercial activities (specifically cattle ranching) also occur in proposed units Maui—Montane Dry—Unit 1, Maui—Lowland Dry—Unit 1, Maui—Lowland Mesic—Unit 1, and Maui—Coastal—Unit 7. The commenter has applied for Federal funding previously, including NRCS funding from the EQIP program, and believes that, if critical habitat is designated, any future use of Federal funding would be subject to consultation under the Act. The commenter expressed concern over the potential negative economic impacts as a consequence of such consultation.

Our Response: This comment was submitted prior to the release of the DEA, which included a complete regulatory flexibility analysis in Appendix A. The regulatory flexibility analysis in the economic analysis draws from the findings of the report with respect to the likelihood of projects or activities with a Federal nexus triggering section 7 consultation. The economic analysis identifies the commercial activities (agriculture and grazing) occurring within the units highlighted by the commenter. Section 5.3.1 of the economic analysis further recognizes that grazing and farming operations that have participated in Federal assistance programs, such as NRCS' EQIP and WHIP, have been subject to section 7 consultation considering potential effects on listed species and critical habitats. The NRCS has stated that, regardless of critical habitat designation, these programs only support projects that are ecologically beneficial. As a result, all previous consultations on NRCS-funded projects have been informal and have resulted in a not likely to adversely affect (NLAA) determination for listed species and critical habitats. The NRCS stated that these consultations have not been time-intensive and have not resulted in modifications to projects or activities. The NRCS and Service do not expect that critical habitat will affect the ability of projects funded through these programs to be implemented, as planned. In any case, for the reasons described below (see *Exclusions Based on Other Relevant Factors*), critical habitat is not designated on the ranch lands that were the focus of concern of this commenter, as a consequence of exclusions under section 4(b)(2) of the Act.

(72) *Comment:* Two commenters stated that the Service must prepare a NEPA analysis on the proposed rule to ensure that we make an informed decision regarding the impact of critical habitat designation on the environment. Unlike the Act, NEPA sets forth procedural requirements for all Federal government agencies. It requires that Federal agencies undertaking Federal actions undertake an extensive examination of all the environmental impacts (including cultural impacts as required under the National Historic Preservation Act) of its actions. Given the magnitude of the Service's critical habitat proposal, the large number of industries that it will likely affect, and its impact to the local and State economy, a thorough examination and disclosure of the proposal is needed with substantial opportunities for public input.

Our Response: It is the Service's position that, outside the jurisdiction of the Circuit Court of the United States for the Tenth Circuit, we do not need to prepare environmental analyses as defined by NEPA (42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

(73) *Comment:* Two commenters expressed their support for our

proposed designation of critical habitat in Maui County. Conservation is needed for Hawaiian endangered plants and animals and has been demonstrably successful in places like Waikamoi Preserve. One commenter was especially appreciative of being able to visit places that are being protected from invasive, nonnative species and evoke Hawaiian ecosystems that her ancestors frequented.

Our Response: We appreciate the comments.

(74) *Comment:* One commenter requested that the Service designate critical habitat in 170 acres of land above the Wailea Emerald Golf Course because of the potential for development in this area. According to this commenter, this is the site of a functioning ecosystem that includes mature wiliwili (*Erythrina sandwicensis*) and the endangered awikiwiki (*Canavalia pubescens*).

Our Response: The area referred to by this commenter was proposed as critical habitat in our June 11, 2012, proposed rule (77 FR 34464). In this final rule, we excluded 901 ac (365 ha) under section 4(b)(2) of the Act (see *Exclusions Based on Other Relevant Factors,* below), and designate 188 ac (76 ha) of Maui—Lowland Dry—Unit 3 as critical habitat. The area referred to by the commenter was excluded as part of the Ulupalakua Ranch property (see *Exclusions Based on Other Relevant Factors*). However, we emphasize that exclusion under section 4(b)(2) of the Act does not signal that an area is not essential for the conservation of the species, only that the Secretary has determined that the benefits of excluding that area outweigh the benefits of including it in critical habitat (and such exclusion will not result in the extinction of the species).

(75) *Comment:* One commenter suggested that the Service work collaboratively with the community, including landowners and homeowners, to provide conservation measures for plants and animals so that critical habitat designation is not necessary. This same commenter stated that protecting habitat for native plants will also protect the coastal reefs and the ocean environment.

Our Response: We appreciate the suggestions and fully support collaborative conservation planning and implementation with landowners and other interested parties. Time and resources permitting, we will continue to seek avenues of collaborative conservation efforts with private landowners in Maui Nui. See also our responses to *Comments* (25) and (66), above.

(76) *Comment:* Several commenters remarked that there is no evidence to show that critical habitat designation will protect endangered species and that a more thorough job should be done with available resources on lands already dedicated to conservation.

Our Response: We appreciate the comments. In this final rule, we are designating critical habitat for 125 listed endangered or threatened species (122 plants, 1 tree snail, and 2 forest birds) on the islands of Molokai, Maui, and Kahoolawe using an ecosystem-based approach in identifying the physical and biological features essential to the conservation of these species, and unoccupied areas essential to their conservation, that we believe will ultimately provide for greater public understanding of the conservation and recovery needs for each of the species addressed in this final rule. The recovery criteria for these species include both conservation of existing populations of these species, as well as reestablishment of populations in suitable habitat within the species' historical range. We further note, as stated earlier, that the designation of critical habitat for listed species is a requirement under section 4(a)(3) of the Act, and is not a discretionary action.

We agree that more could be done to help ameliorate the threats to these 125 species and their habitats. Conservation efforts are challenged by the number of threats, the extent of these threats across the landscape, and the lack of sufficient resources (*e.g.,* funding) to control or eradicate them from all areas where these 125 species occur now or occurred historically. In addition, not all of the habitat essential to the conservation and recovery of these species is contained within areas dedicated to conservation.

(77) *Comment:* One commenter stated that he was denied the opportunity at the public hearing to poll the audience regarding their position on the proposed critical habitat designation.

Our Response: Per our guidelines (USFWS Endangered Species Act Public Hearings Handbook. N.D. 19 pp.), our public hearing officer respectfully informed the individual that he could question the audience when the public hearing was formally concluded but that he would not be recorded unless he was presenting testimony. The commenter then declined to provide testimony.

(78) *Comment:* Several commenters questioned the lack of information regarding trespass and liability on private lands that are designated as critical habitat. They were concerned that no guidelines are provided regarding allowable activities on these lands. They also stated their concern regarding lawsuits by environmental organizations if critical habitat is harmed. There also is no process for third-party appeal.

Our Response: State law provisions regarding trespass on privately owned lands are effective regardless of the designation of critical habitat. The designation of critical habitat does not create a wilderness area, preserve, or wildlife refuge, nor does it open a privately owned area to human access or use. It does not alter State law with regard to trespass on privately owned lands.

In response to the second concern, the designation of critical habitat on private lands would only affect current or ongoing land management practices when there is a Federal nexus. In our June 11, 2012, proposed rule (77 FR 34464) and in this final rule (see *Application of the ''Adverse Modification'' Standard,* below), we state that activities funded, carried out, or authorized (*e.g.,* issue a permit) by a Federal agency that may destroy or adversely modify critical habitat for the Maui Nui species include, but are not limited to:

(1) Federal actions that would appreciably degrade or destroy the physical or biological features for the species including, but not limited to, the following: Overgrazing; maintaining or increasing feral ungulate levels; clearing or cutting native live trees and shrubs (*e.g.,* woodcutting, bulldozing, construction, road building, mining, herbicide application); and taking actions that pose a risk of fire.

(2) Federal actions that would alter watershed characteristics in ways that would appreciably reduce groundwater recharge or alter natural, wetland, aquatic, or vegetative communities. Such actions include new water diversion or impoundment, excess groundwater pumping, and manipulation of vegetation through activities such as the ones mentioned in (1), above.

(3) Recreational activities that may appreciably degrade vegetation.

(4) Mining sand or other minerals.

(5) Introducing or encouraging the spread of nonnative plant species.

(6) Importing nonnative species for research, agriculture, and aquaculture, and releasing biological control agents.

Our FEA acknowledges the potential for critical habitat designation to increase the vulnerability of private landowners to legal challenges regarding their operations (IEc 2015, pp. 5–20). Due to significant uncertainties regarding the extent to which the designation will increase the probability of legal challenges (over and above the

presence of the listed species or other critical habitat designations (*e.g.,* Blackburn's sphinx moth critical habitat)), the direct costs of legal fees and time spent on lawsuits, and the potential outcome of lawsuits, the FEA does not estimate a monetary cost from potential third-party lawsuits.

(79) *Comment:* Several commenters stated the following: (a) The proposed rule does not comply with legal requirements (*i.e.,* it does not use the best scientific information available) because no public input in the collection and analysis of a broad range of information was used; (b) broad brush strokes were used, resulting in a far-reaching designation on State, county, and private lands that will have a direct and negative impact on Maui County and its economic well-being; (c) areas proposed for critical habitat do not have critical habitat; and (d) the Service has not addressed the comments in a manner that reflects or acknowledges their concerns.

Our Response: See our responses to *Comments* (16) and (120). In this final rule, we address all comments we received on the proposed critical habitat designations described in the June 11, 2012, proposed rule (77 FR 34464) and the DEA. We are unable to address statement (c) above in the absence of additional details.

(80) *Comment:* Several commenters expressed concern that the designation of critical habitat will reduce subsistence hunting and gathering.

Our Response: Game mammal hunting is a recreational and cultural activity in Hawaii that is regulated by the Hawaii Department of Land and Natural Resources on State and private lands (Hawaii Department of Land and Natural Resources 2002). Critical habitat does not give the Federal Government authority to control or otherwise manage feral animals on non-Federal land. Absent Federal involvement, these land management decisions are not affected by the designation of critical habitat. It is well-known that game mammals affect listed plant and animal species in Hawaii. We believe it is important to develop and implement management programs that provide for the recovery of listed species and acknowledge the importance of continued ungulate hunting in game management areas when it is compatible with the recovery of endangered species. In general, the establishment of game management areas is not compatible with recovery in areas needed for recovery. We welcome opportunities to work closely with the State and other partners to ensure that game management programs are implemented in a manner consistent with both of these needs.

Critical habitat does not give the Federal Government authority to control or otherwise manage gathering of plants on non-Federal land or in the absence of some other Federal action. However, the State of Hawaii regulates the gathering of plants that are State listed as endangered or threatened on both private and State lands (HRS (section195D–4(e), 4(f), and 4(g)). Gathering of native plants that are not State listed on private lands is not regulated by the State of Hawaii. Gathering of native plants that are not State listed on State lands is regulated by the State (Hawaii Administrative Rules—Title 13).

(81) *Comment:* Several commenters stated that this overly broad proposed rule is inconsistent with the State's New Day Initiative because it has the potential to remove farms and ranches that produce local products, including food, from production while providing no certainty that these critical habitat designations will result in benefit to the species.

Our Response: Governor Abercrombie's 2010 New Day Initiative proposes many important agricultural goals for Hawaii, including, but not limited to, preserving and growing more food on Hawaii's agricultural lands, repairing old irrigation systems, assisting community-based farming entrepreneurial endeavors, raising the demand for local food, and developing educational programs to improve community and cultural understanding of growing food locally. Designation of critical habitat would not affect the ability of private landowners or lessees of publicly owned agricultural lands to conduct any of these or related agricultural activities, absent a Federal nexus. Even in the case of a Federal nexus, critical habitat would not prevent the use of agricultural lands, but could result in the consideration of potential project modifications or alternatives to avoid the destruction or adverse modification of critical habitat in the course of implementing the intended purpose of the action. See also our response to *Comment* (59), above.

(82) *Comment:* One commenter requested that the area proposed as critical habitat for Newcomb's tree snail (*Newcombia cumingi*) on Puu Kukui Watershed Preserve be excluded because the landowner can accomplish the conservation goals for this tree snail without critical habitat designation. The request is based on the existence of a long-term management plan for the preserve; a history of self-funding conservation actions on the preserve; past and current cooperative agreements with the Service, including a current agreement to protect and enhance habitat for this tree snail; and ongoing implementation of actions that benefit the conservation of endangered and threatened species.

Our Response: We proposed critical habitat for Newcomb's tree snail on Puu Kukui Watershed Preserve because these lands support the only known population of this tree snail and contain the physical or biological features of its lowland wet ecosystem habitat and suitable habitat and space for expansion or reintroduction to achieve population levels that could approach recovery. As described by the commenter, recently the Service and the private landowner entered into a cooperative agreement to protect and enhance habitat for this tree snail. For the reasons described below (see "*Exclusions Based on Other Relevant Factors*"), we are excluding 8,931 ac (3,614 ha) of land on Puu Kukui Watershed Preserve from critical habitat, including the portion proposed for Newcomb's tree snail critical habitat.

(83) *Comment:* Several commenters stated that they conduct conservation actions to control erosion and feral ungulates, and that designation of critical habitat may impede conservation actions in the future.

Our Response: We appreciate the commenters' concerns, and recognize that private landowners conduct voluntary conservation efforts, such as efforts to control erosion or soil loss, and fencing to exclude nonnative pigs, axis deer, and goats from private lands. It is unclear to us if the second part of the comment implies that the designation of critical habitat will impede the implementation of conservations actions or that the private landowners may not support voluntary conservation actions on their private lands in the future if those lands are designated critical habitat. The designation of critical habitat will not impede the implementation of conservation actions described by these commenters, and in all likelihood provide additional support for these habitat-enhancing actions that will also benefit listed species. We are concerned and deeply regret that some private landowners may not support voluntary conservation actions on their private lands in the future should critical habitat be designated on their lands. The purpose of designating critical habitat is to contribute to the conservation of endangered and threatened species and the ecosystems upon which they depend. The outcome of the designation, triggering regulatory requirements for actions funded,

authorized, or carried out by Federal agencies under section 7(a)(2) of the Act, can sometimes appear to be a disincentive to conservation on non-Federal lands. Thus, the benefits of excluding areas that are covered by partnerships or voluntary conservation efforts can, in specific circumstances, be high. For the reasons described below (see ''*Exclusions Based on Other Relevant Factors*''), we are excluding 84,891 ac (34,354 ha) of private lands on Maui, Lanai, and Molokai from critical habitat. Again we note that in the absence of a Federal nexus, the designation of critical habitat has no direct regulatory impact on private landowners.

(84) *Comment:* Several commenters stated that public notice of the proposed designation of private land as critical habitat has been inadequate. These commenters suggested conducting information meetings using a ''talk-story'' approach. That is, conduct informal meetings with the public, including landowners with lands within already designated critical habitat who can address questions such as the impact(s) of critical habitat on their land, including the impact on land values, and the benefits, if any, of critical habitat on their land, including getting grants for conservation projects such as fences to exclude nonnative animals.

Our Response: We appreciate the concerns regarding our notification process of the proposed rule. See also our response, above, to *Comment* (16). We also appreciate the suggestions provided by these commenters regarding public information meetings. Although our ability to conduct one-one-one meetings with various interest groups throughout Hawaii (*e.g.,* community associations, nonprofit interest groups, State and Federal agencies, aha mokus) is currently constrained by our resource limitations, we will seriously consider adopting a ''talk-story'' approach as part of our community outreach efforts as our limited staff and resources allow.

(85) *Comment:* Several commenters stated that the designation of critical habitat would be devastating to an already struggling industry (*i.e.,* ranching) due to the effects of the recent drought. In addition, a critical habitat designation will burden a private landowner with additional Federal, State and local regulations. Critical habitat designation could put an end to their livelihood.

Our Response: See our responses to *Comments* (50), (55), (56), and (59), above. Absent a Federal nexus for a proposed action on private property, a critical habitat designation does not prevent or prohibit an activity such as ranching on private or State property. As described earlier, even in the case of a potential Federal nexus, critical habitat does not prevent a private landowner from using their lands for ranching or other activities, but requires the Federal action agency to ensure that their action does not destroy or adversely modify critical habitat, through potential project modifications or other measures to minimize and mitigate the effects of the action.

(86) *Comment:* One commenter was concerned regarding a portion of an irrigation ditch system within Maui—Lowland Wet—Unit 1 and requested that the Service adjust the boundary of the unit above the upper ditch system.

Our Response: We have carefully examined the area of concern and have determined that changes in land use had occurred within the proposed critical habitat unit that would preclude the area identified by the commenter from supporting the primary constituent elements (for those species that occupy this unit) and further, the area in question is not essential to the conservation of any of the species (for those species for which this unit was proposed as unoccupied critical habitat). As a consequence, we have concluded that this area does not meet our definition of critical habitat and we have removed it from the final designation of Maui—Lowland Wet—Unit 1. See also Summary of Changes from Proposed Rule, below.

(87) *Comment:* One commenter stated that the Service must accord native Hawaiians with the same special considerations that are given to native Americans, that native Hawaiians have rights vested by law and are wards of the State, and that it is our fiduciary duty not to impose on those rights.

Our Response: See our response to *Comment* (35), above.

Public Comments on Proposed Maui—Lowland Dry—Unit 3

Several commenters submitted comments regarding the designation of critical habitat in proposed Maui—Lowland Dry—Unit 3, and we grouped similar comments together relating specifically to this unit below.

(88) *Comment:* Four commenters supported designation of the lowland dry ecosystem and described Hawaiian lowland dry forests as the most critically endangered ecosystem in Hawaii, with less than 3 percent remaining Statewide and 5 percent remaining on Maui. Several commenters also strongly supported designation of Maui—Lowland Dry—Unit 3. Another commenter supported the revision (reevaluation) of critical habitat for the currently listed dry forest species using the ecosystem approach.

Our Response: We appreciate these comments. Habitat loss and degradation of the lowland dry ecosystem is demonstrated by the current and ongoing threats of development and urbanization, introduced ungulates, nonnative plants, fire, and hurricanes to species and their habitat in the lowland dry ecosystem (see *The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range* in our final rule to list as endangered 38 species on the islands of Maui, Molokai, and Lanai (78 FR 32014; May 28, 2013)). In this final rule, we are designating critical habitat in six units (Maui—Lowland Dry—Unit 1 through Maui—Lowland Dry—Unit 6) totaling 20,740 ac (8,392 ha) for 30 species in the lowland dry ecosystem on Maui. Twelve of the plant species occur only on east Maui, 11 occur only on west Maui, and 7 occur on both east and west Maui. These lowland dry units provide the areas that contain the physical and biological features essential to the conservation of the 30 species and require special management considerations or protections (*e.g.,* nonnative species control) (occupied habitat) or habitat that is essential to the conservation and recovery of the species (unoccupied habitat). Maui—Lowland Dry—Unit 3 is particularly unique because, even though close to developed or otherwise badly degraded areas, it contains a high concentration of native plant species, many comprising the PCEs for species that occur within the lowland dry forest, including canopy trees such as *Erythrina sandwicensis* (wiliwili) and *Myoporum sandwicense* (naio), and subcanopy and understory plants such as *Capparis sandwichiana* (maiapilo), *Chamaesyce celastroides* (akoko), *Dodonaea viscosa* (aalii), *Ipomoea* sp. (koaliawa and moon flower), *Plumbago zeylanica* (iliee), *Sicyos* sp. (anunu), *Sida fallax* (ilima), and *Waltheria indica* (uhaloa). The very rough lava substrate in the area is apparently not preferred by feral ungulates, resulting in less herbivory of native plant species, thus threats are reduced in this unit and native plant species have a greater chance of survival. Due to the currently limited numbers of individuals and populations, the expansion or reestablishment of listed plant populations in unoccupied areas are essential to the conservation of the species and to meet recovery goals. Because of the uniqueness and rarity of

this area in the lowland dry ecosystem on east Maui, we conclude this unit is essential to the recovery of *Canavalia pubescens* and 16 other lowland dry plant species. See also our response to *Comment* (109), below.

(89) *Comment:* Several commenters noted the threat of deer and goats to *Canavalia pubescens* throughout its range on Maui, with specific impacts to populations on the Palauea lava flow and Ahihi-Kinau. In addition, the large loss of *C. pubescens* individuals at Ahihi-Kinau Natural Area Reserve (NAR) illustrates the need for multiple viable habitats for this species and increases the significance for protection of other areas such as those found within Maui—Lowland Dry—Unit 3. The commenters also recommended that fenced areas and regular monitoring are necessary to protect this species from the threat of ungulates in these areas.

Our Response: We agree that herbivory and habitat modification by deer and goats constitute threats to the lowland dry ecosystem in which *Canavalia pubescens* is known to occur on Maui (see *The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range* and *Disease or Predation* in our final rule to list as endangered 38 species on the islands of Maui, Molokai, and Lanai (78 FR 32014; May 28, 2013)). We also agree that recovery of this species will require multiple viable sites and that conservation efforts, such as fencing and regular monitoring, are necessary to address threats to *C. pubescens* and its habitat from ungulates. In this final rule, for the reasons described above (see our response to *Comment* (44) and (88)), we are designating critical habitat in a total of 16,841 ac (6,816 ha) in critical habitat units Maui—Lowland Dry—Unit 1 through Maui—Lowland Dry—Unit 4 for *C. pubescens* and 18 other lowland dry plant species. These lowland dry units provide the physical or biological features essential to the conservation of the species and require special management considerations or protections (*e.g.,* nonnative species control) (occupied habitat) or habitat that is essential to the conservation and recovery of the species (unoccupied habitat).

(90) *Comment:* Several commenters recommended inclusion of additional areas to Maui—Lowland Dry—Unit 3, such as the 22-ac Palauea Cultural Preserve, and portions of land owned by Makena Holdings (Tax Map Key (2) 2–1–008:90), based on the presence of lava flows of similar geologic age and origin. These commenters noted that the presence of *Canavalia pubescens* in the Palauea Cultural Preserve supports designation of this area as critical habitat. One commenter noted that a native plant restoration plan was created for the Palauea Cultural Preserve and that the preserve is currently being transferred to joint management by the Office of Hawaiian Affairs and the University of Hawaii.

Our Response: We appreciate the information provided regarding the Palauea Cultural Preserve and Tax Map Key (2) 2–1–008:90. We carefully reviewed the areas proposed as critical habitat and the recovery needs (see *Comment* (44), (88), and (89)) of *Canavalia pubescens* on the island of Maui. In this final rule, we are designating critical habitat in four units in the lowland dry ecosystem on east Maui (Maui—Lowland Dry—Unit 1 through Maui—Lowland Dry—Unit 4) totaling 16,841 ac (6,816 ha) for 19 species in the lowland dry ecosystem. A critical habitat designation does not signal that habitat outside the designated area (*e.g.,* the Palauea Cultural Preserve or portions of TMK (2) 2–1–008:90) is unimportant or may not be needed for the recovery of the species. However, we do note that the Palauea Cultural Preserve is a cultivated garden setting, and that individuals of *C. pubescens* have been planted there. Although such an area supports individuals of this endangered species, these individual plants in a garden setting do not contribute to a self-sustaining occurrence in the wild. For recovery to occur, populations must be viable in the wild, where they have the potential to contribute further to population growth and expansion. To achieve population growth and expansion, there must be evidence that the plants are reproducing on their own, meaning that multiple generations are successfully produced. Areas that are important to the conservation of *C. pubescens,* both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act, and (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to insure their actions are not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat. These protections and management actions will continue to contribute to the conservation of this species. 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 (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome. We hope to work collaboratively in the future with the Office of Hawaiian Affairs and the University of Hawaii regarding the Palauea Cultural Preserve native plant restoration plan.

(91) *Comment:* One commenter noted that the accessibility of proposed Maui—Lowland Dry—Unit 3 provides a potential benefit to the species that would allow regular monitoring, as well as easy access for educational tours and community-based restoration efforts. The commenter also noted that the proximity of Maui—Lowland Dry—Unit 3 to schools, churches, and visitor populations is an ideal location to promote ongoing community involvement.

Our Response: We appreciate the comments and agree that accessibility may be an important component of the management required for the recovery of endangered species. In addition, critical habitat designation increases public awareness of the presence of listed species and the importance of habitat protection, and provides educational benefits resulting from identification of the features essential to the conservation of the 17 species for which critical habitat is designated in Maui—Lowland Dry—Unit 3 and the delineation of areas important for their recovery.

(92) *Comment:* One commenter stated that critical habitat designation should benefit property owners who wish to develop ecotourism industries by increasing their ability to draw tourists to natural resource assets on their lands. In addition, the commenter stated that development projects adjacent to areas designated as critical habitat can also increase their property values by marketing pedestrian access to nature preserves. The commenter felt this was particularly applicable for Maui—Lowland Dry—Unit 3.

Our Response: Section 6.3 of the DEA (also Section 6.3 of the FEA) describes the potential incremental benefits of conservation efforts for the Maui Nui species, including the potential for property value benefits that may result from open space or decreased density of development and increased potential for recreation or tourism. We thank the commenter for the statements, as the benefits of critical habitat are frequently not acknowledged. We are aware that not all property owners share the same views regarding beneficial impacts of critical habitat designation on their lands.

(93) *Comment:* One commenter stated that the Service failed to provide documentation for the occurrence of the listed plant, *Hibiscus brackenridgei,* in Maui—Lowland Dry—Unit 3. The commenter provided the results of a botanical survey (Guinther 2012, pp. 7–8), which did not detect the presence of *H. brackenridgei* on the parcel owned by ATC Makena Holdings, LLC (TMK (2) 2–1–008: 108), located within Maui—Lowland Dry—Unit 3.

Our Response: The best available information in our files indicates the occurrence of *Hibiscus brackenridgei* within Maui—Lowland Dry—Unit 3 as recently as 2011 (Oppenheimer 2010bb, in litt.; PEPP 2011, p. 118). Documentation for this record was cited in our June 11, 2012, proposed rule (77 FR 34464) and in the references cited for this final rule and available at *http://www.regulations.gov.* The references cited in our proposed rule and in this final rule are available by contacting the Pacific Islands Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**). Although *H. brackenridgei* was not detected during the survey cited above on the parcel owned by ATC Makena Holdings, LLC, this species is present elsewhere in the proposed unit. In addition, we have determined that Maui—Lowland Dry—Unit 3, including the area in the ATC Makena Holdings, LLC, parcel, is essential for the conservation of *H. brackenridgei* and 16 other species for which it is designated critical habitat in this unit of the lowland dry ecosystem. Maui—Lowland Dry—Unit 3 contains one or more of the physical and biological features of the lowland dry ecosystem (see also responses to *Comment* (88), (89), and (109), as well as Table 5). Maui—Lowland Dry—Unit 3 is essential to the conservation of these species because it is one of the few remaining areas of the lowland dry ecosystem that provides multiple essential physical or biological features in the requisite combination of appropriate substrate, rainfall, and native plant components to potentially successfully support viable populations of these species. Maui—Lowland Dry—Unit 3 additionally has the benefit of being geographically separated from Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, and Maui—Lowland Dry—Unit 4, thus providing potential redundancy so that species that occur in this unit or are reestablished in this unit are more likely to survive and provide for the conservation of species dependent on the lowland dry ecosystem in case of catastrophic events such as drought and fire.

Once known from the islands of Kauai, Oahu, Molokai, Lanai, Maui, Hawaii, and possibly Kahoolawe, *H. brackenridgei* is now known only from Lanai, Maui, and Hawaii. On Lanai, there are only two individuals of the species remaining. On Maui, two occurrences of the species are known, one in east Maui (about 10 individuals) and one in west Maui (a few individuals), both in the lowland dry ecosystem. The recovery guidelines for short-lived perennial plant species such as *H. brackenridgei* are 8 to 10 populations of 300 individuals per population sustained over a minimum of 5 years (Service 1999, pp. iv–v); this translates to a minimum recovery goal of approximately 2,400 to 3,000 individuals in total, in 8 to 10 self-sustaining populations. To meet such a goal, areas of currently unoccupied but suitable habitat within the historical range of *H. brackenridgei* in the lowland dry ecosystem on east Maui are essential for the recovery of this species. With so few individuals left, extensive population growth and reestablishment of additional populations will be required in areas that are not currently occupied by *H. brackenridgei* or other of the Maui Nui species. Maui—Lowland Dry—Unit 3 provides one of the best remaining examples of the lowland dry ecosystem type, with good potential to support the population growth, expansion, and reestablishment essential to achieve the conservation of *H. brackenridgei* and the 16 other species native to the lowland dry ecosystem on Maui for which critical habitat is designated in this unit (see also responses to *Comment* (88), (89), and (109) regarding the characteristics specific to Maui—Lowland Dry—Unit 3 that we conclude are essential to the conservation of the Maui Nui species).

(94) *Comment:* One commenter stated that Maui—Lowland Dry—Unit 3 may not be suitable habitat for *Alectryon macrococcus* (mahoe) because this species is a dryland forest tree found above 1,200 ft elevation. The commenter stated that Wagner *et al.* (1990) attributed the decline of this species to seed predation by boring insects and rats. According to the commenter, neither of these threats could be easily controlled for this species within Maui—Lowland Dry—Unit 3 at Makena, so the proposed critical habitat unit is not suitable. In addition, the commenter implied that the few individuals known from the lowland dry environment likely occur in the exclosures at Auwahi above 3,300 ft, based on the references provided by the Service in the proposed rule.

Our Response: Wagner *et al.* (1999, p. 1,225) describes the elevational range of *Alectryon macrococcus* as occurring between 1,200 ft to 3,500 ft (360 to 1,070 m). Based on this information, and historical and current occurrence data in our files, Maui—Lowland Dry—Unit 3 may not be suitable for this species because the elevation of this unit, 320 to 1,200 ft (100 to 360 m), is below the elevational range described for *A. macrococcus* by Wagner *et al.* (1999, p. 1,225). Despite the lack of more comprehensive survey data and the possibility for the discovery of new and unknown populations of native plant species, the best available scientific data on current and historical occurrences for this species does not support the designation of critical habitat in Maui—Lowland Dry—Unit 3 for *A. macrococcus.* Therefore, we are not designating critical habitat for *A. macrococcus* (var. *auwahiensis*) in critical habitat unit Maui—Lowland Dry—Unit 3 at this time.

(95) *Comment:* One commenter stated that Maui—Lowland Dry—Unit 3 may not be suitable habitat for *Bonamia menziesii* because only a few individuals are known from the lowland dry ecosystem (at Puu o Kali, Kaloi, and Kanaio), and cited the information on page 77 FR 34515 in our proposed rule published on June 11, 2012. The commenter added that this species is possibly not an endemic species (Wagner *et al.* 1990, p. 550).

Our Response: We disagree with the commenter's statement that Maui—Lowland Dry—Unit 3 is not suitable for *Bonamia menziesii* for the following reasons: The occurrence of only a few individuals within a particular area does not necessarily indicate that the area is unsuitable. This species was historically wide-ranging in the lowland dry areas of east Maui, and has since declined in numbers (HBMP 2010). The locations cited by the commenter where *B. menziesii* currently occurs (within Maui—Lowland Dry—Unit 1 and Maui—Lowland Dry—Unit 2) contain one or more of the physical and biological features that are present within Maui—Lowland Dry—Unit 3. Also, since publication of our proposed rule (June 11, 2012; 77 FR 34464) and during the public comment periods, we received information that additional individuals of *B. menziesii* have been found in the lowland dry ecosystem of east Maui (on State lands in Maui—Lowland Dry— Unit 1; Higashino 2013, pers. comm.), adding to the number of individuals of the species known from the lowland dry ecosystem. The recovery guidelines for short-lived perennial plant species such as *B.*

menziesii are 8 to 10 populations of 300 individuals per population, sustained over a minimum of 5 years (Service 1999, pp. iv–v). Therefore, areas of suitable habitat within the historical range of *B. menziesii* in the lowland dry ecosystem on east Maui are essential for the conservation of this species, as significant growth and reestablishment of *B. menziesii* populations in areas not currently occupied by the species will be required to achieve these goals. Maui—Lowland Dry—Unit 3 contains one or more of the physical and biological features of the lowland dry ecosystem (see Table 5), similar to those at the locations cited by the commenter; it also provides a site with particularly good potential for supporting future populations, due to the combination of essential features that occur there (see our responses to *Comment* (88), (89), and (93), above, and (109), below). Maui—Lowland Dry—Unit 3 provides the physical or biological features essential for the reestablishment of wild populations of the species. Due to the currently limited numbers of individuals and populations, the expansion or reestablishment of populations in unoccupied areas are essential to the conservation of the species and to meet recovery goals.

We believe the commenter's second point regarding the endemism of *B. menziesii* incorrectly interprets Austin's discussion in Wagner *et al.* (1999, p. 550). In the *Manual of Flowering Plants of Hawaii,* Austin (1999, p. 550) questioned the origin of the genus, not the species. Austin concluded that ''*Bonamia menziesii* apparently has close affinities with taxa of northwestern South and Central America,'' which we interpret as suggesting a possible origin of the Hawaiian species, and not a suggestion that there is a lack of distinction between the Hawaiian and potential Central and South American members of this genus at the species level.

(96) *Comment:* One commenter stated that *Colubrina oppositifolia* is easy to propagate in lowland dry to mesic areas and easily incorporated into landscaping in these ecosystems, which suggests Maui—Lowland Dry—Unit 3 is not critical to its recovery. The commenter also appeared to question the suitability of Maui—Lowland Dry—Unit 3 due to the recent discovery (1995) of *C. oppositifolia* in the lowland mesic ecosystem on west Maui, and unpublished reports of its historical occurrence in the lowland dry ecosystem on east Maui, citing information at 77 FR 34516 in our June 11, 2012, proposed rule.

Our Response: The historical occurrence of *Colubrina oppositifolia* on east Maui in the lowland dry ecosystem (HBMP 2010) and its ''recent discovery on west Maui in 1995'' in the lowland mesic ecosystem indicates the need for critical habitat on both east and west Maui in those respective ecosystems. In fact, the commenter's statement that *C. oppositifolia* is easy to propagate and easily incorporated into landscaping in the lowland dry and mesic ecosystems also suggests that Maui—Lowland Dry—Unit 3 contains suitable habitat for this species. Remaining areas of suitable habitat in the lowland dry ecosystem are essential to the conservation of the species, as evidenced by the wide gap between the recovery goals for a species such as *C. oppositifolia* and its current status. The recovery guidelines for long-lived perennial plant species such as *C. oppositifolia* are 8 to 10 populations of 100 individuals per population, sustained over a minimum of 5 years (Service 1996, p. iv), or approximately 800 to 1,000 individuals in total in 8 to 10 self-sustaining populations. Currently, in Maui Nui, this species is known only from about five individuals in two locations on west Maui, and from one possible individual on east Maui that has not been relocated in over 20 years. Therefore, areas of suitable habitat within the historical range of *C. oppositifolia* (including lowland dry and lowland mesic ecosystems) on both east and west Maui are essential to achieve the increase in numbers of individuals and occurrences of this species to provide for its conservation and recovery. Maui—Lowland Dry—Unit 3 provides the physical or biological features essential for the reestablishment of wild populations of the species, and is a site with particularly good potential for supporting future populations, due to the combination of essential features that occur there (see also our responses to *Comment* (88), (89), and (93), above, and (109), below).

(97) *Comment:* One commenter questioned the suitability of Maui—Lowland Dry—Unit 3 for *Ctenitis squamigera* based on Palmer's (2003) description of the habitat of this species as the mesic forest floor above 590 ft on all the main Hawaiian Islands except Hawaii Island and possibly Kauai. The commenter also suggested that the occurrence records for this species cited at 77 FR 34516 in our June 11, 2012, proposed rule lack specificity, but tend to support the Palmer description.

Our Response: The information provided by the commenter regarding the geographic range and elevation at which *Ctenitis squamigera* may occur is accurate. Historically, this species was found on Kauai, Oahu, Molokai, Maui, Lanai, and Hawaii. Currently, there are 12 occurrences, totaling approximately 100 individuals, on the islands of Lanai, Molokai, and Maui. Data in our files indicate that *C. squamigera* is known from the lowland dry ecosystem on east Maui (HBMP 2010). Maui—Lowland Dry—Unit 3 is not known to be occupied by *C. squamigera,* but contains one or more of the physical and biological features of the lowland dry ecosystem (see *Comment* (88), (89), (93), (109), and Table 5), including the appropriate native plant species, rainfall, and substrate to support the species, and also includes the elevation cited by the commenter. The recovery guidelines for short-lived perennial plant species such as *C. squamigera* are 8 to 10 populations of 300 individuals per population, sustained over a minimum of 5 years (Service 1998, p. iv), or an objective of a minimum of approximately 2,400 to 3,000 individuals. Areas of suitable habitat in the lowland dry ecosystem are limited within the historical range of this species. Because of the low number of individuals at known locations of this species (100 individuals across 12 scattered occurrences, and recalling that an occurrence is not equivalent to a self-sustaining population), areas of unoccupied suitable habitat including Maui—Lowland Dry—Unit 3 are essential for the reestablishment of populations that will be required to achieve the conservation and recovery of *C. squamigera.* See also our response to *Comment* (109), below.

(98) *Comment:* One commenter stated that Maui—Lowland Dry—Unit 3 may not be suitable habitat for *Flueggea neowawraea.* The commenter acknowledged that individuals of this species are reported at 820 ft elevation and above, in the lowland dry ecosystem at Auwahi. However, according to the commenter, the environment in Maui—Lowland Dry—Unit 3 is far too dry in contrast to the Auwahi exclosures, where this species is currently found, and which are located above 3,100 elevation, receive regular fog drip, and are able to support kikuyu (*Pennisetum clandestinum*), a widespread nonnative pasture grass and dominant ground cover.

Our Response: The information provided by the commenter regarding the elevation and occurrence of *Flueggea neowawraea* in the Auwahi exclosures is accurate. Data in our files indicate that *F. neowawraea* is known from the lowland dry ecosystem on east Maui (HBMP 2010). Maui—Lowland Dry—Unit 3 contains one or more of the

physical and biological features of the lowland dry ecosystem (see Table 5), including the elevational range cited by the commenter. The recovery guidelines for long-lived perennial plant species such as *F. neowawraea* are 8 to 10 populations of 100 individuals per population, sustained over a minimum of 5 years (Service 1999, pp. iv–v), for an objective of roughly 800 to 1,000 individuals total in these multiple populations. Historically, *F. neowawraea* was known from Kauai, Oahu, Molokai, Maui, and Hawaii. Currently, there are 5 occurrences on Kauai (26 individuals), 1 occurrence on Oahu (1 individual), 2 individuals on Maui, 4 occurrences on Hawaii (8 individuals), and no known occurrences on Molokai (PEPP 2009, p. 25; PEPP 2012). Although there are multiple occurrences of *F. neowawraea,* most are of only 1 or a few individuals, for a total of fewer than 40 plants known. The species is far from meeting the recovery objective of 800 to 1,000 individuals in 8 to 10 self-sustaining populations of at least 100 individuals each. Therefore, areas of suitable habitat within the historical range of *F. neowawraea* in the lowland dry ecosystem on east Maui are essential for the recovery of this species. Although areas of suitable habitat in the lowland dry ecosystem are now limited, Maui—Lowland Dry—Unit 3 provides one of the few remaining areas that includes several of the physical or biological features essential to the conservation of the plant species that depend upon this habitat type, including appropriate elevation, substrate, rainfall, and associated native plant species (see *Comment* (88), (89), and (93), above, and (109), below, for additional information on the characteristics specific to this unit that we have determined are essential for the conservation of the Maui Nui species). Maui—Lowland Dry—Unit 3 also provides unoccupied habitat separated from Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, and Maui—Lowland Dry—Unit 4, so that, in case of catastrophic events such as drought and fire, one or more occurrences of this species could persist and provide for its conservation.

(99) *Comment:* One commenter stated that Maui—Lowland Dry—Unit 3 may not be suitable habitat for *Melanthera kamolensis.* The reason provided by the commenter was that this species is ''extremely rare; known only from a small population in Kamole Gulch, southeastern Maui (Wagner *et al.* 1990, p. 337).''

Our Response: The information provided by the commenter regarding the known location of *Melanthera kamolensis* is accurate. However, *M. kamolensis* is known historically from three collections in an area extending approximately 1 mile (1,000 m) on east Maui (Wagner *et al.* 1999, p. 337), and currently known only from a single occurrence with 30 to 40 individuals in the lowland dry ecosystem on east Maui (HBMP 2010, Medeiros 2010, in litt.). Maui—Lowland Dry—Unit 3 contains one or more of the physical and biological features of the lowland dry ecosystem (Table 5), similar to those at the location cited by the commenter. The recovery guidelines for short-lived perennial plant species such as *M. kamolensis* are 8 to 10 populations of 300 individuals per population, sustained over a minimum of 5 years (Service 1997, pp. iv–v), for a total of 2,400 to 3,000 individuals in 8 to 10 self-sustaining populations. With a single known occurrence of only 30 to 40 individuals at present, population growth will be essential to the conservation of the species, as will the reestablishment of multiple new populations in areas of currently unoccupied lowland dry habitat. Therefore, additional areas of suitable habitat within the historical range of *M. kamolensis* in the lowland dry ecosystem on east Maui are essential for the recovery of this species. Although areas of suitable habitat in the lowland dry ecosystem are now limited, Maui—Lowland Dry—Unit 3 provides one of the few remaining areas that includes several of the physical or biological features essential to the conservation of the plant species that depend upon this habitat type, including appropriate elevation, substrate, rainfall, and associated native plant species. Maui—Lowland Dry—Unit 3 provides unoccupied habitat separated from Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, and Maui—Lowland Dry—Unit 4, so that, in case of catastrophic events such as drought and fire, an occurrence of this species could persist. See also responses to *Comment* (88), (89), (93), and (109) for additional details of the characteristics specific to this unit that we have determined are essential to the conservation of the Maui Nui species.

(100) *Comment:* One commenter stated that Maui—Lowland Dry—Unit 3 may not be suitable habitat for *Melicope adscendens.* The primary reason provided by the commenter was that this species is ''known only from mesic forest at Auwahi (Wagner *et al.* 1990, p. 1,183).'' In addition, the commenter argued that the environment in Maui—Lowland Dry—Unit 3 is far too dry in contrast to the Auwahi exclosures, which are situated above 3,100 ft, receive regular fog drip, and are able to support kikuyu, the widespread nonnative pasture grass, as the dominant ground cover.

Our Response: The information provided by the commenter from Wagner *et al.* (1990, p. 1,183) regarding the geographic range of *Melicope adscendens* in mesic forest on east Maui is accurate, although Wagner *et al.* do not give an elevational range for this species. The elevation of the Auwahi exclosures range from 3,200 to 4,400 ft (980 to 1,340 m) in the dry and mesic forest ecosystems on east Maui (TNC 2007; LHWRP 2010, pp. 1–4). We have determined, based on the best available scientific data for this species, that Maui—Lowland Dry—Unit 3 does not provide the physical or biological feature of elevation that is considered essential for the conservation of *M. adscendens,* and that this unoccupied area is not essential to the conservation of the species. Currently, there are areas within the required elevational range of the species within Maui—Lowland Dry—Unit 1 that provide habitat for this species' conservation. Therefore, based on the best scientific data available at this time, Maui—Lowland Dry—Unit 3 is not designated as critical habitat for *M. adscendens* in this final rule as it does not meet the definition of critical habitat for this species (see Summary of Changes from Proposed Rule, below).

(101) *Comment:* One commenter stated that Maui—Lowland Dry—Unit 3 may not be suitable habitat for *Melicope mucronulata.* The primary reason provided by the commenter was a statement cited in Wagner *et al.* (1990, p. 1,196) that this species was ''not seen on Maui in recent time, but previously collected from the south slope of east Maui mountain.'' The commenter also cited our June 11, 2012, proposed rule (77 FR 34464) that this species is ''not known to be an inhabitant of the lowland dry ecosystem.''

Our Response: The tree species *Melicope mucronulata* currently occurs only on the island of Molokai, where a total of four individuals are known to occur, three in one location, and one in another. Its current status on Maui is not known, although on east Maui, *M. mucronulata* is known historically from one occurrence in the lowland dry ecosystem, and from one occurrence in the montane dry ecosystem (TNC 2007; HBMP 2010). The recovery guidelines for long-lived perennial plant species such as *M. mucronulata* are 8 to 10 populations of 100 individuals per population, sustained over a minimum of 5 years and within its historical range (Service 1997, pp. iv–v). This translates

to a total of at least 800 to 1,000 individuals in 8 to 10 populations across its historical range. Significant population growth and the reestablishment of populations in suitable habitat across its historical range will be required to achieve the conservation of this species. Areas of suitable habitat within the historical range of *M. mucronulata* include the lowland dry ecosystem on east Maui (TNC 2007; HBMP 2010). Maui—Lowland Dry—Unit 3 contains one or more of the physical and biological features of the lowland dry ecosystem (see *Comment* (88), (89), (93), (109), and Table 5). This unit is considered particularly important for the recovery and conservation of *M. mucronulata* because the last known location of an individual of this species was located in or near Maui—Lowland Dry—Unit 3. We therefore consider Maui—Lowland Dry—Unit 3 essential to the conservation of this species, as the last known occurrence of the species there indicates this specific area has a high likelihood of either supporting unknown remaining representatives of the species, or at least the potential to support the species in response to recovery efforts. We are unable to find the statement cited by the commenter that *M. mucronulata* is ''not known to be an inhabitant of the lowland dry ecosystem.'' Our June 11, 2012, proposed rule (see 77 FR 34521) states, ''The occurrence status of *M. mucronulata* in the lowland dry and montane dry ecosystems on east Maui is unknown.''

(102) *Comment:* One commenter stated that Maui—Lowland Dry—Unit 3 may not be suitable habitat for *Neraudia sericea.* The primary reason provided by the commenter was that this species is ''found above 2,200 ft in mesic to dry forest (Wagner *et al.* 1990, p. 1,304).'' The commenter also cited information in our proposed rule (June 11, 2012; 77 FR 34464) that ''on east Maui, (this species) is now known only from Kahikinui, and not observed in lowland dry ecosystem since 1900.''

Our Response: On east Maui, *Neraudia sericea* is known historically from the lowland dry and montane dry ecosystem, and currently from multiple occurrences in the montane dry ecosystem (TNC 2007; HBMP 2010). Historical information for *N. sericea* indicates it was once wide-ranging on east Maui and well within the lowland dry ecosystem, and at elevations as low as 900 ft (270 m) (HBMP 2010), and also was known from Molokai, Lanai, and Kahoolawe (Wagner *et al.* 1999cc, p. 1,304). The recovery guidelines for short-lived perennial plant species such as *N. sericea* are 8 to 10 populations of 300 individuals per population, sustained over a minimum of 5 years and within its historical range (Service 1999, pp. iv–v). The conservation of this species will therefore require attaining a total of 2,400 to 3,000 individuals in 8 to 10 self-sustaining populations across its historical range. Currently, this species is known from a total of five individuals at a single location, at Kahikinui on east Maui (HBMP 2010; Medeiros 2010, in litt.). Significant population growth, expansion and reestablishment in suitable habitat across its historical range will be essential to the conservation of this species. Although areas of suitable habitat in the lowland dry ecosystem are now limited, Maui—Lowland Dry—Unit 3 provides one of the few remaining areas that includes several of the physical or biological features essential to the conservation of the plant species that depend upon this habitat type, including appropriate elevation, substrate, rainfall, and associated native plant species (see also *Comment* (88), (89), (93), and (109)). Areas of suitable habitat within the historical range of *N. sericea* include the lowland dry ecosystem on east Maui. Considering all of this information, we have determined that Maui—Lowland Dry—Unit 3 is within the historical range of this species, contains one or more of the physical and biological features of the lowland dry ecosystem (see Table 5), and is essential to its conservation to attain the recovery goals as stated above.

(103) *Comment:* One commenter stated that Maui—Lowland Dry—Unit 3 may not be suitable habitat for *Solanum incompletum.* The primary reason provided by the commenter was that this species is ''found above 2,200 ft in mesic to dry forest (Wagner *et al.* 1990, p. 1,271).'' The commenter also cited information in our June 11, 2012, proposed rule (77 FR 34464) that this species is ''apparently no longer extant on Maui.''

Our Response: According to Symon (in Wagner *et al.* 1999, p. 1,271), *Solanum incompletum* occurs in dry to mesic forest, diverse mesic forest, and subalpine forest, from 2,000 to 6,600 ft (600 to 2,020 m) on Kauai, Molokai, Lanai, Maui, and Hawaii Island. The broad elevational range and distribution among islands suggests that *S. incompletum* may occupy a broad range of ecosystems. Although this species no longer occurs on Maui, historically it was reported from the lowland dry ecosystem in the area of Maui—Lowland Dry—Unit 3 on east Maui (TNC 2007; HBMP 2010). The recovery guidelines for short-lived perennial plant species such as *S. incompletum* are 8 to 10 populations of 300 individuals per population, sustained over a minimum of 5 years and within its historical range (Service 1999, pp. iv–v). The conservation of this species will therefore require a total of approximately 2,400 to 3,000 individuals in 8 to 10 self-sustaining populations across its historical range, which formerly included five islands. Currently, this species is known from 3 occurrences totaling 14 individuals on the single island of Hawaii (PEPP 2009, p. 26). Significant population growth, expansion, and reestablishment in suitable habitat across its historical range will be essential to the conservation of this species. Areas of suitable habitat within the historical range of *S. incompletum* include the lowland dry ecosystem on east Maui. Maui—Lowland Dry—Unit 3 is in the area where *S. incompletum* was once found on east Maui, and is essential to the conservation of the species because it provides one of the few remaining areas that includes several of the physical or biological features essential to the conservation of the plant species that depend upon this habitat type, including appropriate elevation, substrate, rainfall, and associated native plant species (see responses to *Comment* (88), (89), and (93), as well as (109)). We therefore conclude that Maui—Lowland Dry—Unit 3 is essential to the conservation of the species in order to attain the recovery goals for this species.

(104) *Comment:* Several commenters noted the occurrence of the endangered plant *Canavalia pubescens* (awikiwiki) on lands owned by Honuaula Partners and the threat of development posed by the proposed Honuaula (also known as Wailea 670) development within Maui—Lowland Dry—Unit 3. The commenters supported Maui—Lowland Dry—Unit 3 as proposed, and likewise did not support the developer's proposal to set aside an area less than the maximum acreage specified by County zoning conditions. One commenter recommended extending the northern boundary of the unit to include the historic rock wall ''that demarcates the remnant dry forest habitat from the deep soil habitat which is devoid of native plant species.'' The commenters also did not support the conservation measures included in the developer's draft State and Federal habitat conservation plan (HCP).

Our Response: We are aware that *Canavalia pubescens* occurs on lands owned by Honuaula Partners and appreciate the commenters' support for Maui—Lowland Dry—Unit 3. We note

the suggestion to extend the northern boundary of the unit but were provided no supporting information to justify this change in the unit boundary. Honuaula Partners, LLC, has been working with the State Department of Land and Natural Resources (DLNR) and the Service to develop a State and Federal HCP that addresses impacts to the endangered Blackburn's sphinx moth, the endangered plant *C. pubescens,* and other listed plant species and their habitat. A draft of this plan has been released for public comment by the Hawaii Department of Land and Natural Resources. The HCP applicant is revising the draft HCP and we anticipate a request for public comments based on the updated draft. As this HCP is being considered in a separate regulatory process that is not yet completed, it is inappropriate for us to respond to the statements regarding the land acreage set aside and County zoning conditions, and the conservation measures included in the draft HCP in this rule.

(105) *Comment:* One commenter stated that all remaining habitat for *Canavalia pubescens* is essential to its conservation, and exclusion of habitat in the Wailea 670 (Honuaula Partners, LLC) development would very likely contribute to the extinction of the species.

Our Response: We carefully reviewed the areas proposed as critical habitat and the recovery needs of *Canavalia pubescens* in the lowland dry and coastal ecosystems on the islands of Maui and Lanai, respectively (77 FR 34464). In this final rule, for the reasons described above (see our response to *Comment* (44), (74), (88), (89), (93), and (109)), critical habitat is designated for *C. pubescens* and 18 other plants in four lowland dry critical habitat units (Maui—Lowland Dry—Unit 1 through Maui—Lowland Dry—Unit 4). Proposed critical habitat on Lanai is excluded from final designation under section 4(b)(2) of the Act (see *Exclusions Based on Other Relevant Factors,* below).

(106) *Comment:* One commenter requested that the land owned by Honuaula Partners, LLC, in Maui—Lowland Dry—Unit 3 be excluded from critical habitat designation pursuant to the criteria under section 4(b)(2) of the Act and on the basis of the draft habitat conservation plan under development. The commenter also added that Honuaula Partners, LLC, wishes to use its lands in a way that would actively help conserve and assist in the recovery of endangered and threatened species, and added that Honuaula Partners, LLC, looks forward to partnering with the Service and Hawaii DLNR to create mitigation measures that will benefit many other species as well. The commenter stated that designation of critical habitat on land owned by Honuaula Partners, LLC, will constrain their ability to develop their property to generate income to support conservation actions, and be less beneficial to the species.

Our Response: The draft Federal HCP is being developed and is under revision. Therefore, at this time, we are not excluding lands owned by Honuaula Partners, LLC in Maui—Lowland Dry—Unit 3 under section 4(b)(2) of the Act. See also our responses to *Comment* (105) and (107).

(107) *Comment:* One commenter stated that the Honuaula project will provide significant economic benefits to Maui and the Kihei-Makena region over the coming 2 decades.

Our Response: The Service does not anticipate loss of economic benefits of this project to Maui. The Honuaula project, a master planned community with residential, commercial, and recreational uses, has been in development for many years, and the developer, Honuaula Partners, LLC, has been working with the Service to develop an HCP as part of its application for an incidental take permit. The draft HCP considers the impacts of the project on Blackburn's sphinx moth and the nene (Hawaiian goose, *Branta sandvicensis*), as well as the Maui Nui species. The draft HCP includes a variety of conservation measures, including a 40-acre on-site conservation easement and 354 acres of off-site conservation easements. In response to the proposed critical habitat rule for the Maui Nui species, the Service made some additional conservation recommendations to Honuaula Partners. In response to these recommendations, Honuaula Partners elected to provide $125,000 to contribute to a fencing project in lowland dry habitat, perform fence maintenance, and to include an additional nine plant species in their outplanting efforts. Because these measures were not planned prior to the proposed designation of critical habitat for the Maui Nui species, our FEA considers this cost to be an incremental impact of the designation (IEc 2015, p. 3–16–3–17). There may additional administrative costs associated with section 7 consultation as well, estimated at $4,000 (these costs, however, would be borne primarily if not entirely by the Service). Finally, there are unquantified impacts associated with project delays to allow for revision of the draft HCP, and there may be some additional costs associated with any additional measures that may be recommended by the Service to avoid adverse effects to critical habitat. Such costs are, however, only potential and uncertain at this time (IEc 2015, p. 3–17). The roughly $130,000 cost of additional conservation measures and administrative effort is a low end estimate of the incremental impacts of critical habitat designation on this project. However, it is important to note that the purpose of these conservation recommendations is to allow the Honuaula project to move forward; there is no information to suggest that the anticipated economic benefits to this area will not be realized. See also our response to Comment (106).

(108) *Comment:* One commenter stated that the Makena Property in Maui—Lowland Dry—Unit 3 is not occupied by any of the current or proposed endangered species and, unless the Service determines that the area is necessary for the conservation of the species, is not necessary for the conservation of any of the listed species (50 CFR 424.02(d)(2)).

Our Response: See our responses to *Comment* (44), (74), (88), (89), (93), (95) through (99), (101) through (103), and (109). For the reasons described in this rule, we have determined that the area within Maui—Lowland Dry—Unit 3 is occupied by *Canavalia pubescens* and provides the physical or biological features essential to the conservation of this and 16 other species, and these features require special management considerations or protections. We have also determined that the unit is essential for the recovery and conservation of 16 listed lowland dry plant species as unoccupied habitat. Please see the Methods section of this document for a detailed discussion of how we determined that the area currently occupied by each of these species is inadequate to provide for their conservation, and that unoccupied habitat is essential for the conservation of the Maui Nui plant species. In addition, our responses to the comments referenced above underscore the habitat characteristics specific to Maui—Lowland Dry—Unit 3 that makes this particular unit essential to the conservation of all of these 17 plant species.

(109) *Comment:* One commenter stated the Makena Property in Maui—Lowland Dry—Unit 3 is not a suitable environment for many of the listed species, and that the June 11, 2012, proposed rule (77 FR 34464) ignores the impact on this property from drought, invasive plants, deer, stock grazing, insect predators, agriculture, and miscellaneous land disturbances.

Our Response: See our responses to *Comment* (44), (74) (88), (89), (93), (95)

through (99), and (101) through 103). Although Maui—Lowland Dry—Unit 3 is within an area affected by invasive plants and other disturbances, this unit has the capability to be functionally restored to support the physical and biological features and provide essential habitat for the 17 species for which it is designated critical habitat. Due to its relative accessibility, the lowland dry ecosystem is one of the most negatively affected native habitats on the island of Maui, experiencing current and ongoing threats of development and urbanization, introduced ungulates, nonnative plants, fire, and hurricanes. As a result, there are no areas of lowland dry habitat that remain in pristine condition or are unaffected to some degree by these various deleterious agents. For this reason, an area such as Maui—Lowland Dry—Unit 3 that still maintains relatively high potential for restoration is particularly valuable for the recovery of the Maui Nui species that depend on this habitat, and is therefore considered essential to their conservation. See also the Methods section regarding ''Unoccupied Areas'' for additional details on the essential nature of unoccupied areas with the inherent potential for restoration to support reintroduced populations.

(110) *Comment:* One commenter stated that the cost of reintroduction would be tremendous because the Makena Property in Maui—Lowland Dry—Unit 3 is not occupied by any of the current or proposed endangered species.

Our Response: We acknowledge that the Makena Property is not currently known to be occupied by any of the 17 species for which Maui—Lowland Dry—Unit 3 is designated as critical habitat; however, other areas of the unit are occupied by *Canavalia pubescens* with some individuals within 220 ft (68 m) of the Makena Property boundary. In addition, due to the small population sizes, few numbers of individuals, and reduced geographic range of each of the 17 species for which critical habitat is here designated, we have determined that a designation limited to the known present range of each species would be inadequate to achieve the conservation of those species. For the reasons described above, and reiterated in our response to *Comment* (109), all of Maui—Lowland Dry—Unit 3, whether occupied or unoccupied, is considered essential to the conservation of the 17 species for which it is designated. The areas believed to be unoccupied, and that may have been unoccupied at the time of listing, which includes the Makena Property, have been determined to be essential for the conservation of the species because they provide the physical or biological features necessary for the expansion of existing wild populations and reestablishment of wild populations within the historical range of the species (see *Comment* (44), (74) (88), (89), (93), (95) through (99), (101) through 103) and (109)). We recognize that species recovery actions will require substantial resources. However, critical habitat designation does not obligate the land owner to undertake any conservation measures.

(111) *Comment:* One commenter stated that the proposed rule fails to acknowledge that the boundaries of the proposed unit Maui—Lowland Dry—Unit 3 includes their property.

Our Response: Our June 11, 2012, proposed rule does not identify landownership for individual parcels, nor is it possible to do so given the constraints on resolution for maps published in the **Federal Register**. However, we endeavored to reach all landowners whose property was within proposed critical habitat by letter following publication of the June 11, 2012, proposed rule (77 FR 34464) and following publication of our January 31, 2013, document reopening the comment period on the proposed rule (78 FR 6785) (see our response to *Comment* (45), above).

(112) *Comment:* Some commenters questioned the criteria used to determine the proposed unit boundaries for Maui—Lowland Dry—Unit 3. The commenters stated that the ''boundary lines do not correspond to existing property boundaries, geological features, soil types or vegetation,'' and, therefore, the commenters suggested that the ''process was broad brush and driven, at least partly, by considerations other than those mandated by law'' and that the designation is likely to be considered arbitrary and capricious.

Our Response: As required by section 4(b)(2) of the Act, we used the best scientific data available in determining those areas that contain the physical or biological features essential to the conservation of the Maui Nui species, by identifying the occurrence data for each species and determining the primary constituent elements based on the ecosystems upon which they depend, as well as other relevant factors. The information we used is described in our June 11, 2012, proposed rule and in this final rule (see Methods). The criteria used to identify critical habitat boundaries, including the boundaries for Maui—Lowland Dry—Unit 3, are described in our proposed rule (77 FR 34464; June 11, 2012) and in this final rule (see below, *Criteria Used to Identify Critical Habitat*). Boundaries for this unit in particular were determined using current and historical species locations and the presence of the physical and biological features based on rainfall data, soil type data and observations from on-site surveys including locations and distribution of the endangered *Canavalia pubescens,* along with the distribution other native lowland dry plant species. As defined in section (3)(5)(C) of the Act, critical habitat shall not include the entire geographical area which can be occupied by the threatened or endangered species.

(113) *Comment:* One commenter stated that the proposed rule fails to adequately explain the portion of the 6,537 ac (2,645 ha) owned by Ulupalakua Ranch under consideration for exclusion from critical habitat designation in Maui—Lowland Dry—Unit 3.

Our Response: Our June 11, 2012, proposed rule (77 FR 34464) identified some of the specific landowners under consideration for exclusion under section 4(b)(2) of the Act. In that proposed rule, we indicated that we were considering excluding 6,537 ac (2,645 ha) of land owned by Ulupalakua Ranch under section 4(b)(2) of the Act, and we presented a discussion of our rationale in *Conservation Partnerships on Non-Federal Lands.* In addition, Figure 5—Ulupalakua Ranch (see 77 FR 34464; June 11, 2012) presented the specific area owned by Ulupalakua Ranch under consideration for exclusion. In this final rule, we have excluded 6,537 ac (2,645 ha) of land on Ulupalakua Ranch from critical habitat (see below, *Exclusions Based on Other Relevant Factors,* and Figure 5—Ulupalakua Ranch, in the document ''Supplementary Information for the Designation and Nondesignation of Critical Habitat on Molokai, Lanai, Maui, and Kahoolawe for 135 Species,'' available on the Internet at *http://www.regulations.gov* under Docket No. FWS–R1–ES–2015–0071).

Public Comments Specific to the Island of Lanai

(114) *Comment:* One commenter expressed opposition to the designation of critical habitat on private lands on Lanai because the commenter believes the designation will negatively impact the rights of private landowners, will serve as a disincentive for landowners to participate in voluntary conservation efforts, and will have negative consequences for Castle and Cooke Resorts, LLC, who had committed substantial resources and efforts towards implementing a 2002 memorandum of agreement with the

Service. This commenter stated that the designation of additional critical habitat is unnecessary in light of the already ongoing conservation management activities benefiting endangered species on the island and will result in little if any additional benefit to the species, and that any limited regulatory, educational, or recovery benefits that might arise from the designation are greatly outweighed by the benefits of encouraging and acknowledging voluntary conservation efforts by other private landowners.

Our Response: The Service recognizes the importance of landowner cooperation for recovery of listed species. This is especially true for the island of Lanai, which is almost entirely under private ownership by two entities (Castle and Cooke Properties, Inc., and Lanai Resorts, LLC, now known as Pulama Lanai). Conservation of rare species on Lanai requires control of threats from alien plant and animal species, fire, and proactive propagation and translocation of species into their historical range where they no longer occur. Castle and Cooke Properties, Inc., and Pulama Lanai cooperate with the Service, the State of Hawaii, and other organizations to implement voluntary conservation activities on their lands that result in conservation benefits to the species and their habitat. We agree with the commenter that listed species can realize significant benefits as a result of conservation partnerships with private landowners; because the majority of endangered or threatened species are found on private lands, the Secretary places great value on such partnerships. For the reasons described below (see ''*Exclusions Based on Other Relevant Factors*''), the Secretary has determined that the benefit of excluding the areas proposed for critical habitat on Lanai outweighs the benefits of including them in the designation; therefore we have excluded all lands on Lanai from critical habitat in this final rule under section 4(b)(2) of the Act.

(115) *Comment:* One commenter opposed the overlap of proposed critical habitat on Lanai with water utility infrastructure (*i.e.,* pipelines, tanks, reservoirs, etc.), communications infrastructure (*i.e.,* antennae, roadways, etc.), existing electric utility infrastructure owned by Maui Electric Company, Ltd. (MECO), family housing, parks, golf courses, the Lanai Cemetery, and the Lanai Pine Sporting Clays and Archery Range (Sporting Clay Range), located along Keomuku Road. The commenter stated that these areas do not contain the PCEs and should not be included in the critical habitat designation.

Our Response: The commenter is correct that structures and urbanized landscape areas such as those mentioned above are considered manmade features and therefore would not be considered critical habitat pursuant to this final rule, because these features and structures normally do not contain, and are not likely to develop, any primary constituent elements and do not meet the definition of critical habitat. Thus, unless the operation and maintenance of such facilities would indirectly affect critical habitat, the facilities would not be affected by section 7 of the Act. Furthermore, operation and maintenance of existing manmade features and structures adjacent to and within critical habitat are not subject to section 7 consultation, unless they involve Federal funding or permitting and they affect the critical habitat or the species. We removed the area containing the existing water utility infrastructure owned by MECO for the reasons described above (see response to *Comment* (40)), because these lands are modified by the infrastructure and do not contain the physical or biological features required by the species, are not likely to develop the primary constituent elements, and are not otherwise essential to the conservation of these species.

(116) *Comment:* One commenter objected to the overlap of proposed Lanai—Dry Cliff—Unit 1 with the Experience Golf Course at Koele.

Our Response: The commenter is correct that structures and urbanized landscape areas such as golf courses are considered manmade features and therefore are not considered critical habitat pursuant to this final rule, because these features do not meet the definition of critical habitat.

(117) *Comment:* The proposed Lanai—Lowland Mesic—Unit 1 includes a portion of the planned Lanai wind farm to be located on approximately 7,000 acres in the northwest portion of the island of Lanai. Meetings or coordination with several local, State, and Federal agencies have been conducted to identify the potential permits or authorizations that may be required for various parts of the proposed project. These Federal permits and any Federal funds used as part of the Lanai wind project will trigger a burdensome and costly obligation for consultation under section 7 of the Act. The wind project is not presently subject to this consultation obligation, and current project budgets do not anticipate this additional expense, nor should the project have to incur this expense.

Our Response: For the reasons described below (see ''*Exclusions Based on Other Relevant Factors*''), critical habitat is not designated on the island of Lanai in this final rule, as a consequence of exclusions under section 4(b)(2) of the Act. However, we wish to point out that exclusion from critical habitat does not relieve the planned Lanai wind farm from required Federal permits and consultations with the Service, due to the impacts of the construction, running, and maintenance of the wind farm on Federal and State listed species present in the project area (for example, there are listed seabirds present, in addition to the relevant Maui Nui species addressed in this final rule). The protections of section 9 of the Act still apply, and consultation is still required under section 7 if listed species may be affected; exclusion from critical habitat removes only the requirement to consult with the Service on effects to critical habitat. Therefore, it is incorrect to state that the wind farm project ''is not presently subject to this consultation obligation.''

(118) *Comment:* One commenter noted the discussion in our proposed rule at 77 FR 34496 (June 11, 2012) regarding the potential effects of changes in environmental conditions that may result from global climate change on the 38 species proposed for listing and the Maui Nui ecosystems. This commenter noted our regulations at 50 CFR 424.12(a)(1)(ii), which state that critical habitat designation is not prudent if such designation ''would not be beneficial to the species.'' According to the commenter, designation of critical habitat on Lanai will adversely affect the development of the proposed wind farm, a renewable energy project intended to have a positive impact on climate change. Therefore, the benefits to these species will be lost, and critical habitat designation is arbitrary, capricious, an abuse of the Service's discretion, and not in accordance with law.

Our Response: We share the commenter's concern for minimizing and ameliorating climate change and its effects upon Hawaii's endangered and threatened plants and animals. In our proposed rule, in the absence of finding that the designation of critical habitat would increase threats to a species, if there are any benefits to a critical habitat designation, then a prudent finding is warranted (see Prudency Determination for 44 Maui Nui Species, at 77 FR 34511; June 11, 2012). The potential benefits to the 44 species include: (1) Triggering consultation under section 7 of the Act for actions in which it would not otherwise occur; (2)

focusing conservation activities on the most essential features and areas; (3) providing educational benefits to State or county governments or private entities; and (4) preventing people from causing inadvertent harm to the species. While the commenter states that ''the benefits to these species will be lost'' from positive impacts to climate change due to critical habitat designation on Lanai, for the reasons given at 77 FR 34512 (June 11, 2012), we found designation of critical habitat to be prudent for these 44 species. Prudency determinations for the other 91 species were made in previous rulemakings (see above, *Previous Federal Actions*). In addition, for the reasons described below (see *Exclusions Based on Other Relevant Factors*), critical habitat is not designated on the island of Lanai in this final rule, as a consequence of exclusions under section 4(b)(2) of the Act.

(119) *Comment:* One commenter stated that the areas where the proposed critical habitat designation overlaps the proposed Lanai wind farm are devoid of the plant species for which the designation is proposed. The commenter also stated that extensive erosion is not identified in the proposed rule and that the cost of any habitat restoration in these extremely eroded areas would be prohibitive.

Our Response: The commenter is referring to proposed Lanai—Lowland Mesic—Unit 1, a proposed critical habitat unit totaling 11,172 ac (4,521 ha) that overlaps the jeep road area, east of and including the ''Garden of the Gods'' area. The jeep road would be used to access the wind tower project area. Based on our understanding of existing wind projects in Hawaii and elsewhere, the actual footprint of wind tower facilities is quite small, and on Lanai it is anticipated that the existing jeep road will be used for access to the wind tower project. Lanai—Lowland Mesic—Unit 1 was proposed as critical habitat for a total of 13 plant species, and is occupied by 5 species and unoccupied by 8 species. This critical habitat unit provides the physical or biological features essential to the conservation of the species and requires special management considerations or protections (*e.g.,* feral ungulate control) (occupied habitat) or habitat that is essential to the conservation and recovery of the species (unoccupied habitat). Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for the recovery of the species. There are seven fenced units (TNC's Kanepuu units) spaced along approximately 4.5 miles (7 km) of the summit ridge. To protect these fenced units, provide enough landscape-scale ecosystem habitat for recovery of the 13 lowland mesic species, and to prevent ''edge effects,'' Lanai—Lowland Mesic—Unit 1 was delineated in the proposed rule to provide an essential area of habitat up to 1,000 ft (400 m) from the current fencelines. Removal of ungulates (axis deer and mouflon) from within this unit would allow regrowth of vegetation and prevent the ultimate progression of erosion into the fenced units (Laurance *et al.* 2002 in Miller 2009, in litt.). This is an effective and relatively inexpensive approach to begin restoration efforts in this area, and has been demonstrated in other restoration areas on east Maui at Auwahi and Nuu Mauka, and on the island of Kahoolawe, especially if ungulates are controlled and the seed bank is established through seed-scattering (Medeiros 1999, 14 pp.). In any case, for the reasons described below (see *Exclusions Based on Other Relevant Factors*), critical habitat is not designated on the island of Lanai in this final rule, as a consequence of exclusions under section 4(b)(2) of the Act.

(120) *Comment:* One commenter stated that the proposed rule applies broad-brush designations on Lanai that cover vast territory with entirely disparate ecosystems, elevations, and terrain such that designation is without an adequate scientific basis. According to this commenter, the Service did not establish any rational basis for concluding that each designated ecosystem unit has all of the necessary primary constituent elements (PCEs). Throughout the proposed rule, boundaries for units are drawn without regard for the actual unit definitions and PCEs, including vastly disparate terrain and ecological conditions. Indeed, areas described in the proposed rule as having certain topography, rainfall, and other ''essential'' elements do not have those conditions at all. Often, even correct descriptions are so generalized as to be almost meaningless in the context of assessing whether areas are critical for survival of a species. The result of drawing boundaries without particular regard to the unit definition compels the conclusion that either the PCEs are, in fact, unimportant or the environment is not critical for specific species recovery.

Our Response: When determining critical habitat we used the best available scientific information, including TNC's High Island Ecoregion Plan, along with the accompanying GIS ecosystem data. When we found inconsistencies with regard to data from more recent botanical surveys, geological and vegetation databases, and other resources, we conducted an analysis to determine which ecosystem characteristics best represented the area and the species' needs at a large landscape scale. However, for the reasons described below (see *Exclusions Based on Other Relevant Factors*), critical habitat is not designated on the island of Lanai in this final rule, as a consequence of exclusions under section 4(b)(2) of the Act.

(121) *Comment:* One commenter disputed our characterizations of ecosystem type and definitions of PCEs within several proposed critical habitat units on Lanai including Lanai—Coastal Unit—1, Lanai—Coastal—Unit 2, Lanai—Coastal Unit—3, Lanai—Lowland Dry—Unit 1, Lanai—Lowland Dry—Unit 2, Lanai—Lowland Mesic—1, and Lanai—Dry Cliff—1. The commenter stated that characterizations of ecosystem type and the described PCEs for these units were either incorrect or contradictory or both.

Our Response: We disagree. We consider the PCEs as described for each unit and for each species to be the specific compositional elements of physical and biological features that are essential to the conservation of those species. Our proposed rule (77 FR 34464; June 11, 2012) identified the PCEs that support the life-history processes for each species within the ecosystems in which they occur, and reflects a distribution that we believe achieves the species' recovery needs. The described ecosystems' features include the appropriate microclimatic conditions for germination and growth of the plants (*e.g.,* light availability, soil nutrients, hydrologic regime, and temperature, and space within the appropriate habitats for population growth and expansion). The PCEs are defined by elevation, annual levels of precipitation, locally influenced fog-drip, substrate type and slope, and the characteristic native plant genera in the canopy, subcanopy, or understory levels of the vegetative community. The physical or biological features for each of the described ecosystems were presented in Table 5 of our proposed rule (77 FR 34464; June 11, 2012) and were derived from several sources, including:

(a) The Nature Conservancy's Ecoregional Assessment of the Hawaiian High Islands (2006) and ecosystem maps (2007);

(b) Natural Resources Conservation Service's soil type analysis data layer for GIS mapping;

(c) Ecosystem community analyses by Gagne and Cuddihy (1999, pp. 45–114);

(d) Geographic information system maps of habitat essential to the recovery of Hawaiian plants (Hawaii and Pacific Plant Recovery Coordinating Committee 1998);

(e) GAP (geographic analysis program) vegetation data (GAP 2005);

(f) Projections of geographic ranges of plant species in the Hawaiian Islands, including climate data, substrate data, topography, soils, and disturbance, Price *et al.* 2012 (34 pp. + appendices);

(g) Final critical habitat designations for the island of Lanai (68 FR 1220; January 9, 2003); and

(h) Recent biological surveys, site visits, and scientific reports regarding species and their habitats.

(122) *Comment:* One commenter stated that the area of proposed critical habitat for the Lanai tree snails (*Partulina semicarinata* and *P. variabilis*) was excessive and too extensive based upon the known biology of these species and was therefore unlawful.

Our Response: We disagree. The extent and range of habitat required by these species (lowland wet, montane wet, wet cliff) is well-documented. Both species were once widely distributed on Lanai. Historically, *Partulina semicarinata* was found in wet and mesic *Metrosideros polymorpha* forests on Lanai. In 1993, 105 individuals of *P. semicarinata* were found during surveys conducted in its historical range. Subsequent surveys in 1994, 2000, 2001, and 2005 documented this species in the lowland wet, montane wet, and wet cliff ecosystems in central Lanai (Hadfield 2005, pp. 3–5; TNC 2007). *Partulina variabilis* was found historically in wet and mesic *Metrosideros polymorpha* forests on Lanai. In 1993, 111 individuals of *P. variabilis* were found during surveys conducted in its historical range. Subsequent surveys in 1994, 2000, 2001, and 2005 documented this species in the lowland wet, montane wet, and wet cliff ecosystems in central Lanai (Hadfield 2005, pp. 3–5; TNC 2007).

For each tree snail, *Partulina semicarinata* and *P. variabilis,* we proposed critical habitat in the habitat types and in the amount and distribution we concluded is essential to the conservation of these species. Under the Act's sections 4(a)(3) and 4(b)(2) and our regulations at 50 CFR 424.14, we are to designate critical habitat on the basis of the best scientific data available. The best scientific data available include the surveys conducted over the past 20 years and unpublished reports cited above, which indicated that the areas proposed as critical habitat for the Lanai tree snails are essential for the conservation of the species. Regardless, for the reasons described below (see *Exclusions Based on Other Relevant Factors*), we have excluded all lands on Lanai under section 4(b)(2), including the lands that we proposed for critical habitat for these two tree snails, from critical habitat designation in this final rule. We again note that exclusion from critical habitat does not indicate that these areas are not essential for the conservation of the species, only that the Secretary has determined that the benefits of excluding these areas outweigh the benefits of including them in critical habitat (and that the exclusion will not result in the extinction of the species).

(123) According to one commenter, the proposed rule violates the Act, Administrative Procedure Act (APA; 5 U.S.C. Subchapter II), various Executive Orders, and the 2002 memorandum of agreement between the Service and Castle and Cooke Resorts.

Our Response: We disagree. Section 4(a)(3)(A) of the Act provides the Secretary with the responsibility to designate critical habitat for endangered or threatened species to the maximum extent prudent and determinable. Section 4(b)(2) of the Act directs the Secretary (acting through the Service) to designate critical habitat on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impact of the designation. The Administrative Procedure Act (APA) governs the process by which Federal agencies develop and issue regulations. It requires the Federal agency to publish notices of proposed and final rulemaking in the **Federal Register**, and to provide opportunities for public comment. In our June 11, 2012, proposed rule (77 FR 34464) and in this final rule we used the best scientific data available (see Methods, below). Following publication of our proposed rule, we had 135 days of public comment and held a public information meeting and public hearing. We determined that the proposed rule would have no impact on national security, but as a result of considering other relevant impacts, we evaluated and determined that the benefits of excluding several areas from designation outweighed the benefits of inclusion, and will not lead to the extinction of the species. The 2002 MOA referenced by the commenter has been replaced by the 2015 Memorandum of Understanding (MOU). As a result of the conservation benefits provided by this 2015 MOU, in part, in this final rule, all areas proposed as critical habitat on Lanai are excluded from designation (see below, *Exclusions Based on Other Relevant Factors*).

(124) *Comment:* One commenter stated that the proposed rule failed to provide sufficiently detailed narrative descriptions of the proposed units on Lanai to allow fair comment. Additionally, the commenter stated that the proposed rule contained only generalized maps to indicate the areas proposed for designation, and this failure to provide sufficient maps and information to allow fully informed public review and comment was not in accordance with law.

Our Response: A description of each critical habitat unit is found in *Descriptions of Proposed Critical Habitat Units* in the June 11, 2012, proposed rule (77 FR 34464). In the Proposed Regulation Promulgation section of our proposed rule, we used a placeholder, ''[Reserved for textual description of . . .],'' to refer to the UTMs (mapping vertices) for unit delineation using GIS, which, until recently, were identified and published in the **Federal Register** in final rulemakings. However, on May 1, 2012, the Service published a final rule (77 FR 25611) revising the regulations for requirements to publish textual descriptions of final critical habitat boundaries in the **Federal Register**. As of May 31, 2012 (the effective date of that final rule), the Service no longer publishes the coordinates for critical habitat boundaries in the **Federal Register**. The coordinates on which each map is based are available to the public at the Federal eRulemaking portal (*http://www.regulations.gov*) using the docket number for the rulemaking (in this case, FWS–R1–ES–2015–0071), and at the Web site of the field office responsible for the final critical habitat for 125 Maui Nui species (*http://www.fws.gov/pacificislands*). The maps provided in the proposed rule identify the areas proposed for critical habitat designation. We believe these maps are adequate for regulatory purposes. The proposed rule also directs reviewers to contact the Service for further clarification on any part of the proposed rule, and provides contact information (77 FR 34464; June 11, 2012). Although we did not include parcel-specific maps in our proposed rule (77 FR 34464; June 11, 2012), we did provide maps of this specificity to every landowner who contacted us and requested them following publication of the proposed rule.

(125) *Comment:* The Service did not respond to the Castle and Cooke Resorts, LLC, Freedom of Information Act (FOIA) request in a timely manner to

allow meaningful comment on the proposed rule.

Our Response: The rule proposing listing 38 species and critical habitat for 135 species on Maui Nui was published June 11, 2012 (77 FR 34464), with an initial 60-day public comment period that ran through August 10, 2012. We received a FOIA request dated July 9, 2012, from Castle and Cooke Resorts, LLC, on July 10, 2012. The letter requested the Service to withdraw the proposed designation of critical habitat on the island of Lanai and the proposed listing, as endangered, of species for which critical habitat is proposed on Lanai, or as an alternative, extend the comment period to February 2013, for the proposed designation. On August 9, 2012 (77 FR 47587), we extended the comment period for an additional 30 days, through September 10, 2012, for a total initial comment period 90 days in length. We also notified the commenter that we would again be reopening the comment period for the forthcoming draft economic analysis, which would provide the opportunity for further comments. On January 31, 2013 (78 FR 6785), we announced the reopening of the comment period for the proposed rule and the draft economic analysis for an additional 30 days, through March 4, 2013. We also announced a public information meeting and public hearing to be held on Maui on February 21, 2013. On June 10, 2015 (80 FR 32922), we reopened the comment period for another 15 days. We believe the commenter had sufficient time to prepare comments on the proposed rule during these open comment periods, which totaled 135 days in length and extended over more than 3 years.

(126) *Comment:* The proposed rule states that ''The Office of Information and Regulatory Affairs [(OIRA)] has determined that this rule is not significant'' (77 FR 34586). However, this is contradicted by overwhelming evidence to the contrary. The proposed rule encompasses areas slated for development, including a proposed wind farm on Lanai that will be the largest in the State. The investment in the project, including its undersea cable, is estimated to total over $1 billion. The critical habitat designation may seriously impede the wind farm's construction or operation. Adverse impacts on the project from the critical habitat designation could jeopardize or greatly impede the project, resulting in an enormous economic effect. Executive Order 12866 requires agencies to consider not only the dollar figure associated with the proposed rule's impact, but also the effect on State and local communities. The proposed rule would negatively impact the State's policies, laws, goals, and commitments to reduce its dependence on fossil fuels. Similarly, delays or other negative impacts on the proposed wind farm could affect the jobs that the project would create, as well as substantial tax revenues and community benefits related to the development and operation of the wind farm. If the wind farm is not constructed, the State's heavy reliance on fossil fuels will continue, contributing to global warming, which will have a deleterious effect on the plant and snail species for which the designation is made. Given the potential effects, economic and otherwise, the proposed rule is a ''significant regulatory action'' and should be treated as such.

Our Response: Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) will review all significant rules. The Office of Information and Regulatory Affairs determined that our proposed rule published on June 11, 2012 (77 FR 34464) is not a significant rule. As defined by Executive Order 12866, a rule is determined to be significant if it may:

- Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive order.

Like the proposed rule, this final rule does not meet any of these criteria, and OIRA does not consider it to be a significant regulatory action.

(127) *Comment:* One commenter disagreed that the proposed rule does not ''significantly affect energy supply, distribution, and use'' because proposed critical habitat includes areas that are part of the planned Lanai wind farm, which will be ''an enormous step towards reducing Hawaii's dependence on fossil fuels.'' According to this commenter, the process required by the Federal agencies to receive a ''special exemption'' under 16 U.S.C. 1536(a)(2) to authorize, fund, or carry out any action likely to result in destruction or adverse modification of critical habitat will present enormous barriers to Hawaii's transition to sustainable energy. Finally, the commenter stated that the Service must prepare a Statement of Energy Effects that addresses the planned Lanai wind farm.

Our Response: According to information in our files, the proposed critical habitat overlaps with an existing agricultural road that will be upgraded to provide access to lands identified for a planned Lanai wind farm. The commenter assumes that upgrading the agricultural road will result in destruction or adverse modification of critical habitat, and would prohibit Federal agencies from authorizing or funding the project. As stated elsewhere in this final rule, manmade features, including roads, are not considered critical habitat pursuant to this rule, because these features and structures normally do not contain, and are not likely to develop, any primary constituent elements and do not meet the definition of critical habitat. Moreover, the Service excluded this critical habitat unit from the final designation under section 4(b)(2) of the Act for the reasons described below. We note, however, that consultation on any Federal permits needed may be required due to potential effects on listed species. If no Federal agency is involved with the project, but the project may take federally listed species, the applicant should apply for an incidental take permit under section 10(a)(1)(B) of the Act.

We do not need to submit a summary of the potential effects of this designation on the supply, distribution, or use of energy (Energy Supply, Distribution, or Use—Executive Order 13211), because our regulatory action would not result in a ''significant adverse effect'' as defined by Office of Management and Budget (OMB) Memoranda 01–27 (Guidance for Implementing E.O. 13211) (July 13, 2001).

Public Comments on the Memorandum of Understanding (MOU) Between Lanai Resorts, LLC, (Doing Business as Pulama Lanai), Castle & Cooke Properties, Inc. (CCPI), and the Service

(128) *Comment:* Two commenters stated that, through the MOU, the landowner acknowledges the importance of commitment to habitat management and that the interests of preservation and conservation are often better served through mutual agreements between landowners and the Service.

Our response: We agree. Continued support of management actions for Lanai's natural resources is important to

the landowner and to the threatened and endangered species known from Lanai.

(129) *Comment:* Five commenters oppose the MOU between the Service, Pulama Lanai, and CCPI, and the exclusion of critical habitat on Lanai. Three of these commenters believe that the Service would allow the landowner ''free rein'' over Lanai's environment, removing all regulatory controls and all private responsibilities of land stewardship. Two of these commenters believe the MOU would be used for personal gain by the landowner and the Service. One commenter states that the MOU will not contribute to the long-term conservation of the Maui Nui species.

Our response: The MOU promotes cooperative conservation efforts that benefit the covered species, including preparation and implementation of the Lanai Natural Resources Plan (LNRP). Any funding for conservation measures and implementation will be used for such, and certainly not for personal gain. The MOU does not limit or diminish the legal obligations and responsibilities to engage in consultation as required under section 7 of the Act for listed species occurring on Lanai. The MOU does not place the Service in a position to advocate for activities counter to its mission. We believe that there is a higher likelihood of beneficial conservation activities occurring on Lanai with the MOU between Pulama Lanai, CCPI, and the Service. Designation of critical habitat ensures that, if there is a Federal nexus, the Federal action agency must consult with the Service on actions that may affect the critical habitat and must avoid destroying or adversely modifying critical habitat. However, designation of critical habitat does not result in preparation of land management plans by a landowner or require a landowner to manage land areas, or to undertake specific steps toward recovery of a species. The Service therefore believes that the value of the MOU lessens the benefits of possible section 7 consultations related to critical habitat, allows for a positive working relationship between all parties involved, and will result in long-term benefits for species and their habitats. Our rationale for concluding that the benefits of exclusion outweigh the benefits of including this area as critical habitat is discussed in detail in the *Exclusions Based on Other Relevant Factors* section, below.

(130) *Comment:* One commenter stated that the MOU does not provide enough specific information regarding conservation measures.

Our response: The MOU is not a management plan, it is a document that initiates the cooperative conservation efforts between the Service and the Pulama Lanai. As outlined in the MOU, the Service will provide technical assistance to Pulama Lanai in the development and implementation of the LNRP.

(131) *Comment:* Eight commenters stated that preparation and implementation of the MOU and the LNRP lacks community input and approvals.

Our response: The Lanai MOU is an agreement specifically between the landowner and the Service. The Service published a notice in the **Federal Register** on June 10, 2015(80 FR 32922), reopening the comment period on the proposed rule from that day through June 25, 2015, to allow the public the opportunity to provide further input on the proposed exclusions and the conservation benefits provided by continued landowner partnerships for Maui Nui. We have incorporated our responses to those comments in this final rule. The LNRP is currently being developed by Pulama Lanai with technical assistance from the Service.

(132) *Comment:* Three commenters state that Pulama Lanai has attempted to disband the Lanai Water Advisory Committee and the Lanai Forest and Watershed Partnership, and based on this action, the Service should not establish a partnership with Pulama Lanai.

Our response: Participation in Hawaii Watershed Partnerships are voluntary and are only one of many ways in which the Service may engage and cooperate with a private landowner on conservation actions. The Act allows the Secretary of the Interior to exclude areas when the benefits of exclusion outweigh the benefits of inclusion, unless the Secretary determines that such exclusion will result in the extinction of the species (16 U.S.C. 1533(b)(2)). The Service, Pulama Lanai, and CCPI, have worked in partnership to execute an MOU that is intended to benefit the covered species on the island of Lanai. For reasons described below (see *Exclusions Based on Other Relevant Factors*), no critical habitat is designated on the island of Lanai in this final rule as a consequence of exclusions under section 4(b)(2) of the Act.

(133) *Comment:* Six commenters oppose the development of a wind power facility on Lanai and believe the MOU between Pulama Lanai, CCPI, and the Service facilitates such development.

Our response: The Lanai MOU and exclusion from critical habitat does not preclude the need for CCPI to avoid the incidental take of listed species and it is our expectation that CCPI will consult with the Service and DOFAW regarding the impacts of wind development to such species. This activity would likely require the development of a Habitat Conservation Plan (HCP) that appropriately avoids, minimizes, and mitigates potential project impacts on listed species. If so, the Service would evaluate impact of issuing an Incidental Take Permit for the HCP under the National Environmental Policy Act (NEPA) and conduct a section 7 consultation. While we believe that Pulama Lanai's voluntary participation in conducting conservation measures lessens the conservation benefits of critical habitat, making exclusion from this designation warranted, nothing in the MOU supersedes the requirements of the Act.

(134) *Comment:* Five commenters stated that an annual commitment of $210,000 annually, as included in the MOU, is not enough funding to support management actions.

Our response: An MOU does not obligate a landowner to any set amount of funding for conservation actions in covered areas. Landowner participation in an MOU is voluntary. An MOU sets goals for conservation measures, including preparation and implementation of management plans. Within the Lanai MOU, the landowner has committed to contribute a minimum of $210,000 annually for implementation of activities described in the MOU and the LNRP, based on priorities identified in the LNRP. LNRP funds shall not be inclusive of costs of mitigation actions for management activities in No Development Areas (as outlined in Exhibit H of the MOU).

(135) *Comment:* Four commenters stated that oversight of implementation of the MOU and the LNRP would be inadequate. One commenter also stated that the fencing project begun in 2002 was not completed.

Our response: The current landowner has indicated interest in being a good steward of Lanai's natural resources, and has entered into the MOU agreement with the Service with that understanding, and has also expanded resources management capabilities. The LNRP, resulting from the MOU, will describe in more detail conservation measures and timelines, including how adaptive management measures will be addressed. Fencing projects are expensive and often larger projects are broken into increments to allow for the complexities of construction and management. The first and second increments of the planned fencing

project, beginning with the MOU in 2002, were completed. Other fencing activities will be covered in the LNRP. See also our response to *Comment* (140).

(136) *Comment:* Five commenters objected to statements in the MOU regarding the permit process and stated that the Service oversteps its bounds.

Our response: Under the MOU, the Service agreed to cooperate with Pulama Lanai and CCPI to process in a timely manner any necessary recovery permits that may be required to implement objectives of the LNRP. This would allow completion of conservation measures in a timely manner to meet specified timelines as outlined in the LNRP. However, any permit would have to comply with normal permitting requirements and procedures. Permits for wind farm and other projects would be obtained by the landowner independently from the MOU agreement, and may include the development of an HCP, and associated NEPA evaluation and section 7 consultation, as described above.

(137) *Comment:* Five commenters object to exclusion of The Nature Conservancy's Kanepuu management unit of Kanepuu Preserve from critical habitat, and also state that widening of the road in that area would contribute to negative impacts to habitat.

Our response: As stated in the MOU, both the landowner and the Service recognize the importance of habitat within Kanepuu. We believe that the benefits of exclusion this area from critical habitat outweigh the benefits of including this area in critical habitat. Both the landowner and the Service support identification and implementation of conservation measures for the habitat and any listed species. Improvement or widening of the existing access roadway through or around Kanepuu may occur as long as such activities: (1) Have the consent of The Nature Conservancy (who holds a permanent easement of the area) or its successor, (2) have the consent of Pulama Lanai, and (3) mitigation measures by CCPI are reasonably agreed to by the Service in order to mitigate any adverse effects on native vegetation. However, nothing in the MOU supersedes the requirements of the Act and all activities undertaken pursuant to the MOU must be in compliance with all applicable State and Federal laws and regulations. Currently, the Service has not received a project proposal for a wind farm on Lanai; however, as discussed above, it would likely entail a Habitat Conservation Plan (HCP) process, including NEPA and section 7 consultation, to assess and mitigate for environmental impacts.

(138) *Comment:* One commenter suggested that the uau, or Hawaiian petrel, be considered as part of the LNRP.

Our response: The LNRP is a comprehensive resource management plan and will include conservation actions for this species.

(139) *Comment:* One commenter stated that the MOU and any future LNRP do not provide sufficient information to determine if a specific exclusion may result in extinction of a species.

Our response: The determination of whether an exclusion will result in the extinction of a listed species is not provided in the MOU or the LNRP, but is provided in this final rule. Here, at the conclusion of the section titled ''*Exclusions Based on Other Relevant Factors*,'' we detail our assessment of whether the exclusion of any particular areas would result in the extinction of the listed species that occur within that area (see ''*Exclusion Will Not Result in Extinction of the Species*''). We have carefully considered the status of each species within each of the areas excluded, and evaluated whether the exclusion would result in the extinction of each listed species on a case by case basis. We paid particular attention to several of the Lanai species, as some of these species occur only within the areas excluded from the final designation of critical habitat (*i.e.,* the two Lanai tree snails, and the plants *Abutilon eremitopetalum, Cyanea gibsonii, Kadua cordata* ssp. *remyi, Labordia tinifolia* var. *lanaiensis, Pleomele fernaldii, Viola lanaiensis*). As described in this final rule, in the case of each exclusion from this final designation of critical habitat, we conclude that the benefits of exclusion outweigh the benefits of inclusion, for the reasons detailed below, and further conclude that the failure to designate such areas as critical habitat will not result in the extinction of the listed species concerned. Each exclusion made in this final rule is based upon the strength of existing conservation actions, commitments, and partnerships, which will maintain, restore, or enhance habitat for the Maui Nui species, above and beyond the benefits that would accrue from the designation of critical habitat. Based on the management plans and agreements in place, and the proven track record of our conservation partners, we reasonably assume these positive actions will continue into the future. For all of these reasons, we conclude not only that exclusion will not result in the extinction of any of the Maui Nui species, but we expect that exclusion will result in the improvement of the status of each species in question, due to the positive conservation efforts taking place in those areas excluded. See, for example, our response to *Comment* (140), below, for an accounting of the positive conservation benefits demonstrated to date for the Lanai species as a result of the actions of our conservation partners and the management plans and agreements in place on that island, and the further benefits that are expected to accrue to those species as a result of future efforts as well.

(140) *Comment:* One commenter stated that, based on previous failure to complete the Lanaihale fencing project, the current MOU would also result in failure to complete conservation measures or management actions.

Our response: The first two phases of an ungulate exclusion fence, described by the commenter as the Lanaihale fencing project, were completed under a MOU and partnership with Lanai's previous landowner. We anticipate the completion of the fence and other conservation measures under the Lanai Natural Resources Plan (LNRP), which is currently under development as a consequence of the MOU with the new landowners, recently signed by the Service, Lanai Resorts, LLC (dba Pulama Lanai), and Castle and Cooke Properties, Inc., on January 26, 2015. Since that time, the parties have worked diligently to implement the actions described in the MOU. Beginning in February, 2015, Pulama Lanai has convened meetings with their planning team, including the Service, for the development of the comprehensive LNRP that will address priorities and actionable items necessary for the conservation of species and habitats on the island. While this effort is ongoing, Pulama Lanai has begun to implement specific conservation measures for priority species and areas. The MOU also calls for the landowner to identify conservation measures for some of the rarest plants that would be implemented in the near term, even before the LNRP is completed. Specifically, to date Pulama Lanai has: (1) Worked with the Service and the Hawaii Division of Forestry and Wildlife (DOFAW) regarding necessary permits to conduct listed plant species conservation work; (2) designated an additional 220 ac (89 ha) to be added to the Lanaihale No Development Area; (3) developed and implemented a fence maintenance plan for all existing conservation fences; (4) conducted monitoring for ungulates within existing conservation fences and implemented ungulate removal; (5) communicated with The Nature

Conservancy regarding ungulate management and fence maintenance at Kanepuu Preserve; (6) installed deer proof fencing for *Hibiscus brackenridgei* along Keomuku Road and have plans to do the same for the populations of *Tetramalopium remyi* and *Abutilon menziesii* (also referred to as the ''Core Rare Plant Clusters'') within the 24-month time frame set forth in the MOU; (7) identified other rare plant species for conservation actions and protection in coordination with the Plant Extinction Prevention Program (PEPP); and (8) implemented advanced technology and additional measures to improve bio-security on the island to reduce the incursion of invasive species. Additionally, Pulama Lanai has coordinated closely with the Service on the location of a protective listed tree snail enclosure, which will be constructed following a ranking of potential sites by the State's snail experts. Further coordination is occurring on the conservation of listed Hawaiian petrels on Lanaihale. While not part of the MOU, Pulama Lanai and the Service are working on plans to implement conservation activities starting in 2016. Most recently, Pulama Lanai has hired a lead wildlife biologist to assist with the planning and implementation of conservation actions across the island. Developing and maintaining public and private partnerships for species conservation is important and we believe that the steps this landowner has already taken to implement the MOU and the significant conservation benefits that have already been realized as a result indicate that this conservation partnership will provide significant benefits to the listed species that occur on Lanai. These benefits lessen the incremental benefit of critical habitat.

(141) *Comment:* One commenter stated that the selection of no more than 215 additional acres to the ''no development area'' is inexplicable and unexplained.

Our response: The addition of 215 acres to the No Development Area was in response to possible disturbance of habitat resulting from development of a wellhead within Increment 1 fencing (see Exhibit J, and section 4.3.2(1) of the MOU), if it occurs. Development of a new water well would be subject to conditions as outlined in the MOU, including botanical surveys, restoration, and mitigation of other impacts (and consistent with applicable provisions of Exhibit H of the MOU).

Comments on the Draft Economic Analysis (DEA)

Comments From the State of Hawaii Agencies on the DEA

(142) *Comment:* The Hawaii Department of Agriculture (HDOA) is concerned that incremental impacts of critical habitat designation are not sufficiently quantified in the DEA and the DEA uses probable or possible ranges of other listed species to discount the economic impacts of proposed critical habitat. The HDOA believes that baseline protection costs should include only already designated critical habitat that is occupied by listed species and subject to existing conservation measures.

Our Response: The presence of a listed species provides extensive baseline protections under sections 7, 9, and 10 of the Act, regardless of the designation of critical habitat; therefore we do not limit our consideration of baseline protections to those areas that are already designated as critical habitat. As described in chapter 2 of the draft EA, section 7 of the Act in particular requires Federal agencies to consult with the Service to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species, even absent critical habitat designation. In this case, the presence of the listed Blackburn's sphinx moth would trigger protections under the jeopardy standard that would by extension provide baseline protections to the Maui Nui species in areas within the probable range of the moth (see paragraphs 71 through 73 of the final EA). Because these protections are in place regardless of designated critical habitat, they are appropriately considered as part of the baseline for this analysis.

(143) *Comment:* The HDOA and two other commenters stated that the Service has already designated critical habitat in a significant amount of area in Hawaii and should use the costs of these designations on agricultural landowners to monetize some of the indirect impacts in the current DEA.

Our Response: The DEA does consider how previous critical habitat designations may have indirectly affected agricultural landowners and therefore no changes were made in the FEA in response to this comment. This analysis involved outreach to agricultural landowners and organizations to gather information on experience with previous critical habitat designations in Hawaii. The information gathered supports the qualitative analysis of potential indirect impacts of critical habitat designation on grazing and farming in Exhibit 5–8, including descriptions of potential change in management of land by the State and county; perceptional effects on land values; limitations on ability of ranch owners to diversify; increased potential for legal actions; and obstacle to statewide food sustainability. However, we could identify no specific historical studies or examples of critical habitat designation precipitating these types of impacts in Hawaii. For each of the potential indirect impacts, Exhibit 5–8 accordingly describes the uncertainties that preclude their monetization but highlights their potential for consideration alongside the quantified impacts in the analysis.

Comments From the Public on the DEA

(144) *Comment:* The Association of Universities for Research in Astronomy (AURA) disagreed with the conclusions of the draft economic analysis (DEA). According to AURA, the DEA doesn't take into consideration the lengthy and costly consultations that have already taken place regarding the University of Hawaii's Haleakala High Altitude Observatory Site (also known as the Advanced Technology Solar Telescope (ATST) project) and it does not consider more than $1.5 million in funds committed to wildlife protection in the 328-acre mitigation area.

Our Response: Our DEA was designed to look at the potential economic impacts stemming specifically from the proposed designation of critical habitat for the Maui Nui species; it was not intended to address any and all costs that may have been incurred as a consequence of other actions (for example, prior consultations that may have occurred related to the presence of listed species at the ATST site). The FEA concluded that construction of the ATST facilities, which falls within proposed critical habitat unit Maui—Alpine—Unit 1, was likely to result in land disturbance of less than 1 acre (IEc 2015, p. 3–12). The FEA also acknowledges that the Service conducted a formal consultation on the proposed construction and issued a biological opinion on June 15, 2011 (IEc 2015, p. 3–13). The Service indicated that they would likely not recommend any further project modifications beyond the mitigation already planned, and that any further incremental costs would be limited to additional administrative costs, estimated to be $4,000 borne by the Service, Federal action agency, and the project proponent (IEc 2015, p. 3–13). However, in this final rule, we also re-evaluated proposed critical habitat for two

proposed units within or bordering the project area (Maui—Subalpine—Unit 1 and Maui—Alpine—Unit 1) and removed areas that no longer contained the physical or biological features that could support and provide for species' recovery, or that we determined was otherwise not essential for the conservation of the species (see our response at *Comment* (36), above). As a result of this evaluation, the University of Hawaii's Haleakala High Altitude Observatory Site has been removed from the final designation because it does not meet the definition of critical habitat for the Maui Nui species.

(145) *Comment:* The DEA contains no mention of the Makena Resort or Makena property, and fails to consider the economic impact of designation on the ATC Makena property. ATC Makena was not contacted during preparation of the DEA regarding the proposed designation or for additional information on their property.

Our Response: The final economic analysis (FEA) incorporates additional discussion regarding the potential expansion of the Piilani Highway within Maui—Lowland Dry—Unit 3 (IEc 2015, p. 3–18). Although the timing, nature, and location of the project is currently uncertain, we forecast costs associated with a formal section 7 consultation on the project. The Service has determined that the potential project area for the highway expansion overlaps with the probable range of the Blackburn's sphinx moth (see pp. 2–11—2–13 of our FEA (IEc 2015) for a detailed discussion of the baseline protections associated with the Blackburn's sphinx moth, as well as an explanation of the term ''probable range'' as applied here; see also our response to *Comment* (149), below). As described in our FEA, consultation on this project would be required due to the presence of the Blackburn's sphinx moth regardless of whether critical habitat is designated for the Maui Nui species (IEc 2015, pp. 2–11—2–13). As discussed in Section 2.3.2 of the FEA, critical habitat designation for the Maui Nui species is not likely to generate additional conservation recommendations beyond what would be recommended due to the presence of the moth. Accordingly, we conclude that the incremental impacts of critical habitat on the Piilani Highway project would be limited to the administrative costs of considering critical habitat as part of the forecast section 7 consultation, estimated at approximately $4,000 (IEc 2015, p. 3–18). Such costs are generally borne primarily by the Service and the Federal action agency, with some costs occasionally accrued by the project proponent.

(146) *Comment:* Several commenters stated that: (1) The estimated costs of $115,000 to $125,000 over the next 10 years for Maui, Molokai, Lanai, and Kahoolawe, combined, were not credible; (2) an analysis of the total cost of designation (as in the DEA) does not help to determine which parcels should be included in the critical habitat area and which should be excluded; and (3) consultations in Hawaii require more effort than elsewhere.

Our Response: As stated in the FEA, quantified incremental impacts of the proposed critical habitat designation are estimated at $100,000 for areas proposed for critical habitat designation, and $5,000 for areas considered for exclusion (2014–2023, 7 percent discount rate) (IEc 2015, p. 1–7). The derivation of these costs are presented at the proposed critical habitat unit level throughout the FEA, are detailed in Chapters 3, 4, and 5 of the FEA, and are also summarized in the Executive Summary Exhibit ES–3. As stated in Section 2.3.2 of the FEA, the administrative costs of consultation applied in the analysis are based on data from the Federal Government Schedule Rates, Office of Personnel Management, and a review of consultation records from several Service field offices across the country, as described in the notes to Exhibit 2–2 (IEc 2015, p. 2–18). The costs are intended to provide a representative order of magnitude for administrative costs associated with consultation. To the extent that consultations occurring in the areas proposed for critical habitat designation require a greater amount of effort, the FEA may underestimate consultation costs; this limitation is acknowledged throughout the FEA (IEc 2015, Exhibits 3–11, 4–5, and 5–9). The administrative cost estimates and associated implications on the findings of the analysis are described in Section 2.3.2 of the FEA.

(147) *Comment:* The impact of critical habitat designation on 13,700 acres of private lands on Maui may range up to $50 million or more. Impacts from the designation on the per acre land value range from $975 to $45,000. For the islands of Maui, Molokai, and Lanai, the total impact from the designation will be $56.5 million or more, with an average of up to $3,900 or more, per acre.

Our Response: We are uncertain as to the source of the commenter's information; no documentation was provided to support the costs claimed. The FEA quantified the impacts of designation of critical habitat on Maui to be approximately $100,000 over 10 years, and annualized impacts of $20,000, based on our consideration of the potential impacts of critical habitat on development projects, energy projects, and grazing and farming activities, as documented and described in detail in Chapters 3, 4, and 5 of the FEA (IEc 2015). We did consider the potential for loss in land value associated with foregone potential future uses, based on an average ''asset value'' for agricultural land (including buildings) of $8,201 per acre in 2007. This average asset value is based on County level information from the National Agricultural Statistics Service, U.S. Department of Agriculture (IEc 2015, p. 5–19).

(148) *Comment:* One commenter, citing the DEAs for critical habitat designation for three Willamette species and 124 Oahu species, stated that the loss of land value in those analyses ranged from 73 to 100 percent, with devaluation of property by as much as $65 million.

Our Response: The findings of the two studies referenced in the comment are not transferable to this analysis for multiple reasons. First, the three Willamette species analysis applied a different framework for evaluating impacts (Northwest Economic Associates 2006). Specifically, the analysis quantified all impacts of species conservation regardless of whether they were incremental effects of the critical habitat designation. Thus the results should not be interpreted as impacts of critical habitat designation. Furthermore, the analysis acknowledges that it is uncertain whether the quantified impacts would occur at all, explaining: ''The estimates of economic loss in this section are overstated. As stated in the introduction, the impact of species and habitat conservation on future development projects is uncertain. Absent specific information on how development projects would mitigate for impacts to Fender's blue butterfly, Kincaid's lupine, and Willamette Daisy, the economic analysis presents the value derived from potential future development on private lands within the proposed critical habitat designation. To the extent that development is excluded from the proposed critical habitat designation, the estimated impacts accurately represent the non-agriculture component of land value lost by private landowners. To the extent that development is allowed within the proposed critical habitat designation the estimated impacts are overstated (Northwest Economic Associates 2006, pp. 39–41).''

In the case of Oahu, the commenter has overstated the range of potential impacts to land values estimated in the DEA (IEc 2013). Potential effects to land values were forecast only in the context of one particular critical habitat unit that was slated for development, Lowland Dry 8. In that case, we stated ''The Service believes that a realistic lower-bound estimate of the potential economic impacts to the landowners in Lowland Dry 8 is no impact at all. The Service cannot identify any realistic Federal nexus on the types of future uses identified. Critical habitat designations have no effect on private actions on private property absent a Federal nexus that would allow the Service to consult on the activity with its Federal partner.'' The possible decrease in land value cited by the commenter refers to the ''worst case scenario'' contemplated in the DEA that no future development would proceed on the property at all; this scenario was included to be conservative, but is described as ''extremely unlikely to occur'' (IEc 2013, p. 74). The designation of critical habitat does not prevent development from occurring; it requires Federal agencies to avoid destruction or adverse modification of critical habitat. Even if such a finding is made, we will attempt to recommend reasonable and prudent alternatives. Therefore, we have no basis to assume that development would be prohibited.

(149) *Comment:* Four commenters stated that the incremental impacts are not sufficiently quantified or monetized. The commenters are concerned that the DEA is using probable or possible ranges of other listed species, such as the Blackburn's sphinx moth, to discount economic impacts of proposed critical habitat. The commenters believe that only prior critical habitat designations where protected species occupy the land and are subject to existing conservation measures under the Act should be used as baseline protection costs. One commenter stated that it was inappropriate to use the probable range of Blackburn's sphinx moth to minimize the impacts of the proposed designation. In addition, no maps of historical or probable range of the moth are provided in the proposed rule or DEA.

Our Response: See our responses to *Comment* (142) and (145). The probable range of the Blackburn's sphinx moth is an important consideration in this analysis, because due to the significant overlap between the essential physical or biological features for the moth and those of the Maui Nui species, consultations under the jeopardy standard (and associated conservation recommendations) within the probable range of the moth afford extensive baseline protections to the Maui Nui species within the area of overlap and limits the potential impact of critical habitat (see Section 2.3.2 of the FEA). Exhibit ES–5 of the DEA showed the relevant map of unoccupied units that do not overlap with the probable range of the Blackburn's sphinx moth (and hence have the potential for relatively greater incremental impacts); however, we have updated this figure in the FEA to show the entirety of the Blackburn's sphinx moth's probable range. As detailed on p. 2–12 of the FEA, the term ''probable range'' is used because the precise location of the present range of the Blackburn's sphinx moth is not well known; therefore, the Service recommends consultation in areas within the historical range of the moth because the species may be present. Within that range, the Service suggests surveys to determine whether there is suitable habitat for the moth within the proposed project area. If there is suitable habitat within the project area, the Service recommends that project proponents survey within these areas to determine presence or absence of the moth. Because the majority of the moth's lifespan is spent underground in a pupal stage, and only moth larvae and adults transit the landscape, it may not be feasible to confirm absence of the moth from the proposed project area. Due to the difficulty in confirmation of moth absence, many project proponents opt to assume the moth is present in suitable habitat. Because of the significant overlap between the essential physical or biological features for the moth and those of the Maui Nui species, the Service has assumed for purposes of this analysis that within the probable range of the moth, there will be significant overlap between those areas that provide suitable habitat for the moth and the areas identified as critical habitat for the Maui Nui species.

(150) *Comment:* One commenter stated that because the legal standards for determination of jeopardy and adverse modification are not the same, the Service cannot assume that the outcomes of jeopardy and adverse modification analyses for the designation will be closely linked.

Our Response: We agree that the standards for determination of jeopardy and adverse modification are not the same, nor did we intend to give the impression that we consider them to be so. Section 7 of the Act (7)(a)(2) states that ''each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species . . .'' If jeopardy or adverse modification is determined, reasonable and prudent alternatives are recommended. These recommendations focus on minimizing impacts so as to avoid jeopardy or adverse modification (IEc 2015, p. 2–15). In some cases, such as for the Maui Nui species considered here, project modifications recommended to avoid jeopardy may be similar to those recommended to avoid adverse modification of habitat, such as ''avoid destruction of individual listed plants,'' ''control feral ungulates,'' and ''propagate and outplant'' (IEc 2015, pp. D–11—D–12). However, the FEA recognizes that the analyses for jeopardy and those for adverse modification can differ. The economic impacts of conservation measures undertaken to avoid jeopardy to the species are considered baseline impacts in the FEA, as they are not generated by the critical habitat designation. Baseline conservation measures and associated economic impacts are not affected by decisions related to critical habitat designation for the species (IEc 2015, pp. 2–7—2–9).

(151) *Comment:* Some commenters stated that the incremental administrative consultation costs estimated by the Service are too low. Environmental activist groups have sued landowners to force them to undertake conservation activities. Note the palila case, in which the State was sued for allowing destruction of habitat by uncontrolled feral ungulates. Given that ungulates are identified as one of the primary threats to endangered species, there is a possibility of landowners being forced to undertake costly ungulate control on their land as a result of critical habitat designation. A baseline cost for mitigation is $6,000,000 for every 120 acres of disturbed habitat, which is the cost of mitigation for the Saddle Road-Palila project on the Big Island.

Our Response: The *Palila* case was based on section 9 of the Act, which makes it a crime for anyone to ''take'' (defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt any of these actions) an endangered species. This provision of the Act can be asserted by private citizens or by the Federal government. In *Palila,* private non-profit organizations claimed that the State's Department of Land and Natural Resources was taking the palila by maintaining populations of feral sheep

and goats in the bird's habitat. The fact that it was designated critical habitat had no legal relevance to this allegation; the designation played only an informational role in identifying habitat important to the species.

In contrast to section 9, which sets forth protections that apply to individuals of the listed species, critical habitat receives protection under section 7 of the Act. The requirements of section 7 apply to Federal agencies and requires that these agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. Section 7 requirements do not apply to non-Federal landowners absent a Federal nexus. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. The designation does not allow the government or public to access private lands, and does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act apply, but even in the event of a destruction or adverse modification finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

We do acknowledge that in some highly unusual cases, wherein a landowner undertakes an action with a Federal nexus, and that action is so significant to the critical habitat as a whole as to be considered potential adverse modification, some reasonable and prudent alternatives may result in significant costs. We recognize this possibility in our FEA, which underscores that such a situation may have a potentially major effect on the economic impacts as estimated in our analysis. Specifically, the FEA clarifies that while we anticipate that the most likely change in conservation recommendations, if any, would be the additional specification that habitat offsets occur within the affected critical habitat unit, or within critical habitat of the same type (based on our past experience with consultation), nonetheless ''final recommendations to avoid adverse effects on critical habitat will depend upon the specific nature of the proposed project and will be made as part of future consultation on the project'' (IEc 2015, p. 3–21). Because of the significant uncertainties surrounding the probability of such a situation arising, and the entirely speculative nature of what reasonable and prudent alternatives might be called for in such a hypothetical, it is not possible to quantify such potential impacts. We therefore acknowledge in our FEA that our assumptions regarding the effect of critical habitat designation on potential conservation recommendations may result in an underestimate of costs (IEc 2015, p. 3–21).

(152) *Comment:* One commenter stated that, of the 25,413 acres proposed for designation on Lanai, 99.99 percent (25,408 acres) are privately owned by Lanai Resorts. This is in contrast to the entire proposed designation, which is reported [in the DEA] to only overlap private lands by 42 percent. Lanai Resorts suffers a disproportionate burden resulting from the proposed designation on Lanai and the DEA fails to recognize this disproportionate burden. Another commenter stated that the DEA fails to quantify impacts to existing and proposed development (*e.g.,* Manele Project, Koele Project, water utility infrastructure, electric utility infrastructure, Lanai wind project) on Lanai.

Our Response: Forty-two percent of the proposed critical habitat on the four islands of Maui, Kahoolawe, Molokai, and Lanai overlapped private lands. The DEA analyzed the effects of critical habitat designation on those areas with known or possible development pressure. At the time of the writing of the DEA, the level of uncertainty regarding the nature of future development, as well as how the designation of critical habitat may affect projects, precluded the quantification of impacts of critical habitat on future development in three proposed Lanai critical habitat units (Lanai—Coastal—1, Lanai—Dry Cliff—Unit 1, and Lanai—Lowland Mesic—Unit 1). As a result, the DEA qualitatively described the likely incremental impacts to potential future development activities in these units. However, for the reasons described below (see *Exclusions Based on Other Relevant Factors,* below), critical habitat is not designated on the island of Lanai in this final rule, as a consequence of exclusions under section 4(b)(2) of the Act.

(153) *Comment:* One commenter stated that the DEA is flawed and does not meet the requirements to support the designation. Specifically, the commenter stated that the designation must be limited geographically to what is essential to the conservation of the species, and that the Service cannot arbitrarily proposed to designate ''acres upon acres of areas already developed or proposed for development'' without first identifying the elements essential for the survival of the species. The commenter further stated that the determination must consider the probable economic and other impacts of the designation upon proposed or ongoing activities, and implied that the Service failed to clearly identify accurate and relevant facts to support its economic analysis. The commenter cited several court cases to support this statement and concludes that the DEA contained several errors that biased the analysis in a single direction, producing lower estimates of the costs resulting from critical habitat designation.

Our Response: First, our process for identifying those areas proposed as critical habitat is not arbitrary, and is clearly detailed in the Methods section of this document. As required by the Act, we used the best scientific data available to first determine the physical or biological feature essential to the conservation of the species, and to identify those specific areas within the geographical area occupied by the species that provide those essential features, which may require special management considerations or protection. In addition, we identified some specific areas outside the geographical area occupied by the species upon a determination that such areas are essential for the conservation of the species.

Second, the purpose of the DEA is not to ''support the designation,'' but to inform the Secretary for the purpose of considering the potential economic impacts of the designation, as required by section 4(b)(2) of the Act. Specifically, the information contained in the DEA is intended to assist the Secretary in determining whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation. Our DEA, and subsequent FEA, analyzed the potential for both direct and indirect incremental impacts of the critical habitat designation; this analysis is thoroughly detailed and documented, and clearly identifies the source of all relevant facts and figures utilized (IEc 2015, entire). The FEA incorporates consideration of all reasonably foreseeable potential economic impacts, including some that were not initially recognized but that were identified during the public comment periods; this includes consideration of the potential impacts of the designation on ongoing or proposed development projects, energy projects,

and grazing and farming activities. Although the FEA quantifies the potential direct and indirect impacts of the designation wherever possible, in some cases of significant uncertainty, such quantification was not possible. However, the FEA is explicit in acknowledging all assumptions and limitations of the analysis, including the identification of those areas where the potential impacts may be underestimated (*e.g.,* Exhibits 3–11, 4–5, and 5–9).

(154) *Comment:* One commenter states the Honuaula project is not being held up by consultations with State and Federal wildlife officials, but because the developer has failed to complete an accurate archeological review, as required for Phase II Project District approval.

Our Response: Section 3.3.1 of the FEA describes that the Honuaula project has been subject to delays related to the revision of the HCP following the proposed critical habitat designation (IEc 2015, p. 3–17). The analysis does not address delays that may be associated with State Historic Preservation Division's processes, as these are unrelated to the proposed critical habitat designation.

(155) *Comment:* Many of the areas proposed for designation are not currently inhabited by any of the listed species. Thus, the ''baseline'' for evaluating the economic impact of designation of these areas is ''zero'' because there is no present duty to consult with the Service. The Service must consider the full economic impact of the proposed habitat designation, rather than just looking at the incremental increase in cost.

Our Response: We agree that areas not presently occupied by any listed species and therefore not already subject to consultation with the Service have the potential for greater economic impacts. We explicitly acknowledged this situation in the DEA, stating ''Where critical habitat is both unoccupied by the Maui Nui species and outside of the probable range of the Blackburn's sphinx moth, the incremental impact of critical habitat designation would be greater than in units occupied by the Maui Nui species or the moth. This is because impacts of critical habitat in these units would include all administrative costs of consultation and all costs associated with implementing conservation measures for the Maui Nui species'' (IEc 2013, p. 2–12). Recognizing that economic activities in these units are the most likely to be subject to recommendations for incremental conservation measures to avoid adverse modification of critical habitat, and therefore experience incremental economic impacts, the DEA (and subsequent FEA) focused the analysis specifically on these units (IEc 2015, p. ES–10, Exhibit ES–7). The potential economic impact of the designation reported in the DEA (and subsequent FEA) therefore directly incorporates this consideration into its estimate, and the costs presented are those that are fully attributable to the proposed critical habitat.

(156) *Comment:* A key finding of the DEA is that ''The presence of the Maui Nui species provides extensive baseline protection that includes offsetting habitat loss. . .'' This statement is erroneous in that it assumes that each proposed unit claimed to be occupied by the species is entirely occupied. This is not the case. This is because the Service has a unique and unprecedented ''ecosystem'' approach to this proposed designation.

Our Response: As described in the FEA (pp. ES–10—ES–13, 2–11), a number of the proposed critical habitat units are not considered to be occupied by the Maui Nui species. In addition, within the occupied units for the plant species, we clearly acknowledge that the plants are not necessarily identified throughout the unit but may occur intermittently throughout the unit (IEc 2015, p. 2–11). Where the species are not present at a project or activity site, section 7 consultations may not focus on the effects to the species but will consider the potential for adverse modification of critical habitat. With this in mind, the FEA identified ongoing and currently planned projects within the proposed critical habitat units and determined whether and how the designation would affect the projects. As stated in the FEA, for most of the ongoing and currently planned projects identified, project modifications, including habitat offsets, have been implemented or are currently being planned within the critical habitat unit even absent the proposed designation (IEc 2015, p. ES–4). Therefore, for these projects, incremental impacts are expected to be limited to the costs of additional administrative effort in section 7 consultations. However, the FEA also states that ''critical habitat designation may generate the additional specification that offsets be located within the affected critical habitat unit, or within critical habitat of the same type'' (IEc 2015, p. ES–4). The FEA identified one project for which this was the case (the Honuaula project) and presents both quantified and unquantified incremental effects of critical habitat in Chapter 3 of the FEA.

The ''ecosystem approach'' used in this rule is not unprecedented, but has been used in similar rulemakings for species in the Hawaiian islands as an organizational tool due to many of the characteristics shared by the listed species (for example, 48 Species on Kauai; 75 FR 18959, April 13, 2010). These characteristics include common threats to the essential physical or biological features (*e.g.,* introduced ungulates, nonnative plants) and a shared dependence on similar habitat types or ecosystems. In addition, in many cases the species in question are extremely rare or have been extirpated from the wild, therefore data to inform us as to the essential physical or biological features for each species is extremely limited. In such cases, the identification of indicator species or other characteristics of the specific ecosystems known to have historically supported the species in question represent the best scientific data available to help us identify the physical or biological features essential to the conservation of these species (occupied areas), as well as the specific areas essential to the conservation of these species (unoccupied areas). This approach and our application of it to each of the species addressed in the final rule is detailed in the Methods section of this document.

(157) *Comment:* Based on a single telephone call with an unidentified staff person at the DLNR Office of Conservation and Coastal Lands, the DEA concludes that the proposed critical habitat designation will have no effect on conservation district boundary amendments. There is no opinion from a Hawaii court, attorney general, or the chair of DLNR to that effect. Without substantial legal authority to the contrary, the appropriate assumption for the DEA is that all land designated as critical habitat will be included within conservation district boundaries by DLNR. It must be assumed that agencies will dutifully encourage protection of areas designated as critical habitat, meaning that permits, entitlements, or rezoning sought for such lands will either be denied, or extremely expensive mitigation or offsetting will be required. These assumptions must be applied even to areas presently unoccupied by any species for which they are designated. In addition, the comments note that because critical habitat triggers reclassification of land to the conservation district under Hawaii law, this will lower property values, making it difficult to sell property in the future, cause project delays, lead to EIS

requirements, and cause costly lawsuits, and therefore constitutes a ''taking.''

Our Response: As described in Section 3.1 of the FEA, the analysis integrates the best available information regarding the potential effects of critical habitat on State and county land management based on interviews with staff from the Department of Land and Natural Resources (DLNR)'s Office of Conservation and Coastal Lands (OCCL) and the State Office of Planning, as well as the County of Maui's Department of Planning. According to the State Office of Planning, critical habitat is taken into consideration during the redistricting process, but does not itself generate a redistricting of lands to the Conservation District. According to the County Department of Planning, the presence of critical habitat is one of many factors under consideration during the rezoning process. Representatives from OCCL, the State, and the county were unable to identify an instance in which the presence of critical habitat specifically drove decisions related to redistricting or rezoning. As such, it has not been the State's practice thus far to redistrict critical habitat areas as conservation district lands. The FEA does, however, describe uncertainty with regard to the future State and county management of these lands in Section 3.4. In addition, Section 5.3.2 of the FEA describes the potential indirect effects of critical habitat designation, including concern that the designation may result in lawsuits. Uncertainty exists regarding the potential for as well as the number, timing, and outcome of such lawsuits, thus associated impacts are not monetized in the economic analysis. Please also see our responses to *Comment* (22), (50), and (59), concerning critical habitat and rezoning issues, above.

(158) *Comment:* No attribution to the Service or agreement by the Service is offered in the DEA for the conclusion that the expectation that ''the effects of critical habitat [on the Lanai wind project] will be limited to incremental administrative effort as part of a future formal section 7 consultation.'' and that ''it is unlikely however, that the project will be subject to additional conservation . . . ''. Three factors are listed as the basis for the conclusion that additional conservation is unlikely to be required: (1) The project will have a limited physical footprint and only affect poor quality habitat; (2) the level of ground disturbance as access roads will be located on existing roadways; and (3) the project is already subject to considerable conservation measures as identified by the Hawaii Clean Energy PEIS. There is no indication that the Service is in agreement with these reasons.

Our Response: The FEA provides explanation for each of these conclusions, with attribution, in section 4.3.1 (IEc 2015, pp. 4–10—4–11). We agree with the statements in the DEA (and subsequent FEA) cited by the commenter, as well as the ultimate conclusion that the effects of critical habitat will be limited to incremental administrative effort as part of a future formal section 7 consultation on the Lanai wind project. We note that for the reasons described below (see *Exclusions Based on Other Relevant Factors,* below), critical habitat is not designated on the island of Lanai in this final rule, as a consequence of exclusions under section 4(b)(2) of the Act.

(159) *Comment:* The DEA should be revised to include the new development plans that encompass grazing and farming on Lanai.

Our Response: The level of uncertainty regarding the nature of future development, as well as how the designation of critical habitat may result in project modifications, precluded the quantification of impacts of critical habitat on future development in the FEA (IEc 2015, p. 3–2). However, for the reasons described below (see *Exclusions Based on Other Relevant Factors*), critical habitat is not designated on the island of Lanai in this final rule as a consequence of exclusion under section 4(b)(2) of the Act.

(160) *Comment:* The DEA fails to adequately quantify the impacts of critical habitat designation on Kaupo Ranch operations. The DEA does not acknowledge that the designation of critical habitat on ranch lands will result in the removal of 756 acres from production.

Our Response: We do not anticipate that critical habitat would result in Kaupo Ranch's land being taken out of production. As described in Section 5.3 of the FEA, the designation is not likely to change how NRCS and the Service manage and regulate farming and grazing activities. Chapter 5 of the analysis also notes the potential fire break benefit of cattle grazing; however, absent changes in management of grazing activity, we do not expect critical habitat to affect this potential benefit. In any case, for the reasons described below (see *Exclusions Based on Other Relevant Factors*) Kaupo Ranch lands have been excluded from critical habitat under section 4(b)(2) of the Act in this final rule.

(161) *Comment:* One commenter requested that an analysis of the interplay of grazing activities, critical habitat designation and ''harm'' under Hawaii's endangered species State law be conducted by experts familiar with State law and included in the final economic analysis.

Our Response: As described in Section 3.1 of the FEA, several State agencies were contacted to inform the discussion and evaluation of the interplay between critical habitat designation and land use in Hawaii, including the potential for critical habitat to result in redistricting to the Conservation District. State agencies contacted include the State Office of Planning, the Department of Land and Natural Resources' Office of Conservation and Coastal Lands, the State Department of Fish and Wildlife, the State Land Use Commission, and the Department of Hawaiian Homelands. The Maui County Planning Department's Zoning Administration and Enforcement Division was also contacted regarding the issue of critical habitat affecting how the county implements zoning changes. However, although critical habitat may be an educational tool to identify habitat where a species may occur, it does not increase or decrease a landowner's liability for take of a listed species under either State or Federal law.

(162) *Comment:* The incremental approach to evaluating economic impacts has been misapplied in the DEA and the incremental impacts are likely underestimated. As much as 70 to 80 percent of the critical habitat could be expected to be unoccupied habitat where recommendations for habitat offsets for habitat disturbance would not be baseline recommendations, and therefore, the incremental costs of critical habitat designation could be significant. The DEA contends that approximately 42 percent of unoccupied critical habitat overlaps with the probable range of the Blackburn's sphinx moth. The basis for this assumption is unclear and it is unclear why the probable range of the moth is the regulatory equivalent of occupied habitat.

Our Response: We have provided further detail regarding our rationale for the baseline protections provided within the probable range of the Blackburn's sphinx moth in paragraphs 71 through 75 of the FEA. See also our responses to *Comment* (142) and (149), above.

(163) *Comment:* The DEA does not adequately consider costs associated with indirect impacts of critical habitat designation. Failure to quantify these impacts renders them meaningless in terms of the overall economic impact

estimated for the proposed critical habitat.

Our Response: Both the DEA and subsequent FEA consider the potential for both direct and indirect incremental impacts of the designation. The FEA provides an extensive discussion on the potential indirect impacts of the designation, including the entirety of Sections 2.3.2 (IEc 2015, pp. 2–19—2–21) and section 5.3.2 of the FEA (IEc 2015, pp. 5–16—5–22); Exhibit 5.8 is entirely devoted to potential indirect effects of the proposed critical habitat. Chapter 5, in particular, includes an extensive discussion on the potential indirect impacts of the designation, and considers information provided by stakeholders indicating particular concerns with the potential for changes in the way the State or county may manage lands, possible reductions in land values due to changes in land management, and perceptional effects on land values. These concerns are all presented and discussed, but the potential indirect impacts cannot be quantified due to their speculative nature. There is substantial uncertainty regarding whether they will occur, and, if they do, the potential magnitude of any effect. For example, although many landowners expressed concern that their land would use value as a result of redistricting or rezoning in response to critical habitat, the assumption that this would occur and result in limiting development is speculative, based on information provided to us by State and county agencies (IEc 2015, pp. 3–3—3–4; see our response to *Comment* (148), above). According to the Department of Planning's Zoning Administration and Enforcement Division, there has never been an instance when an area of land was rezoned due to the presence of critical habitat (IEc 2015, p. 3–7). The FEA presents a discussion that specifically addresses the uncertainty surrounding the potential indirect impacts of critical habitat that preclude quantification in this particular instance, but acknowledges that such uncertainties may result in an underestimate of the quantified impacts of the designation reported in the analysis (IEc 2015, pp. 5–22—5–23).

(164) *Comment:* The economic analysis needs to include specific cost estimates or ranges of potential costs for a variety of other potential impacts from critical habitat designation. These costs include: Impacts on credit availability, lawsuits, limitations on ability to diversify land uses, project delays, environmental compliance, and reduction in food production. In addition, the economic analysis should quantify these types of incremental costs: $100,000 per acre to acquire mitigation land to offset impacts to critical habitat (these are costs above and beyond the costs of offsetting impacts to listed species), impacts of administrative consultation, project modifications and delays, section 7 consultations, and completion of an EIS.

Our Response: The quantified impacts presented in the analysis include costs associated with section 7 consultations, as well as costs of additional conservation measures for the Honuaula development project resulting from the proposed critical habitat designation. The analysis also identifies areas in which projects or activities may be affected by critical habitat designation but significant uncertainty and data limitations preclude quantification of impacts—these impacts are referred to in the analysis as ''unquantified impacts.'' Section 5.3.2 of the FEA addresses stakeholders' concerns that critical habitat designation will change the way the State or county manages and permits current and future activities on designated lands; results in perceptional effects on land values; limits the ability of land owners to diversify current land uses; generates costly lawsuits; and hinders the State's goal to work toward food sustainability. While uncertainty regarding the likelihood of such outcomes and magnitude of associated impacts precludes quantification, the Service considers all potential impacts of the proposed critical habitat, regardless of whether they are direct or indirect, or quantified or unquantified. See also our response to *Comment* (151), above.

(165) *Comment:* Many commenters expressed concern that the proposed critical habitat will negatively affect hunting, for example by causing areas to be fenced and thus limiting land available for hunting.

Our Response: Critical habitat designation does not affect activities, including human access, on State or private lands unless some kind of Federal permit, license, or funding is involved (there is a Federal nexus) and the activities may affect the species. Recreational, commercial, and subsistence activities, including hunting, on non-Federal lands are not regulated by critical habitat designation, and may be impacted only where there is Federal involvement in the action and the action is likely to destroy or adversely modify critical habitat. As noted in our FEA, the Service coordinates with the State in managing hunting areas. The State does not fence critical habitat areas and the Service does not anticipate recommending to the State that the Maui Nui critical habitat area be fenced. Critical habitat is accordingly not expected to limit land available for hunting (IEc 2015, p. 1–5).

V. Summary of Changes From the Proposed Rule

In preparing this final rule, we reviewed and fully considered comments from the public on the proposed critical habitat designation for 135 Maui Nui species. This final rule incorporates the following substantive changes to our proposed designation, based on the comments we received:

(1) In the Methods section of our June 11, 2012 proposed rule (77 FR 34464), we explained that we used the recovery areas delineated in the Service's 2006 Revised Recovery Plan for Hawaiian Forest Birds to assist us in our identification of proposed critical habitat. In response to public comments, in this final rule we have expanded our discussion of how we used the information in that plan, which we consider to be the best scientific data available, to explain the need to designate critical habitat in unoccupied areas for the akohekohe and kiwikiu. In addition, we have outlined the goals and necessary management actions to ensure the conservation of these two endangered forest birds within their existing occupied habitat and those unoccupied habitats identified as necessary for their conservation (see *Criteria Used to Identify Critical Habitat Boundaries* and *Special Management Considerations or Protections,* below), based on peer review comments.

(2) We have included additional information on disease and disease vectors in our discussion of Hawaiian forest birds (see ''Disease and Disease Vectors'' in *Special Management Considerations or Protections,* below), based on peer review comments.

(3) In response to public comments, we have included additional information from the Service's recovery plans for one or more of the Maui Nui plants to further clarify why it is essential to the conservation of each species to designate critical habitat in unoccupied areas and to include area for the expansion or augmentation of existing populations. In addition, although we had explained in our proposed rule (June 11, 2012; 77 FR 34464) that we had relied, in part, on maps of habitat essential to the recovery of Hawaiian plants, as determined by the HPPRCC (1998, 32 pp. + appendices), in response to public comments received, in this final rule we have provided further clarifying information on the overall recovery goals and objectives for Hawaiian plants (see ''Recovery Strategy for Hawaiian

Plants,'' below) that we used to help guide the areas identified as critical habitat for those species lacking recovery plans. Where specific recovery plans were lacking, we relied on all species information in our files, including the recovery guidelines provided by the HPPRCC (1998) and other reports such as the recently developed plant species range maps (Price *et al.* 2012, 34 pp.), if available for the species. In this final rule, we further clarify why it is essential to the conservation of each species to designate critical habitat in unoccupied areas, and to include area for the expansion or augmentation of existing populations.

(4) We have included additional information on current recovery delisting objectives for the three tree snails included in this final rule (see ''Recovery Strategy for Three Tree Snails,'' below), to further clarify the habitat needs of these species in response to public comments.

(5) We have included additional information on the threat posed by the predatory rosy wolf snail (*Euglandina rosea*) to the Newcomb's tree snail (see ''Predation by the Nonnative Rosy Wolf Snail,'' in *Special Management Considerations or Protections,* below).

(6) We made revisions to the primary constituent elements (PCEs) for eight plants, based on comments we received. Because of these PCE revisions, we removed *Alectryon macrococcus* var. *auwahiensis* and *Melicope adscendens* from the list of plants in Maui—Lowland Dry—Units 3 and 4 because the elevation of these units is too low to have the ability to provide habitat for these species. We added Dry Cliff as an ecosystem for *Argyroxiphium sandwicense* ssp. *macrocephalum, Bidens micrantha* ssp. *kalealaha,* and *Geranium multiflorum* on east Maui in Maui—Dry Cliff—Units 1 through 4, added Lowland Wet and Montane Wet as ecosystems for *Phyllostegia haliakalae* on east Maui (Maui—Lowland Wet—Unit 1, Maui—Montane Wet—Units 1–4), added Lowland Dry as an ecosystem for *Hibiscus brackenridgei* on Molokai (Molokai—Lowland Dry—Units 1 and 2), and we removed Maui—Subalpine—Units 1 and 2 for *Solanum incompletum* on east Maui, in response to comments received from biologists regarding critical habitat and habitat requirements for these species. We also revised Tables 5 and 6 to reflect these changes.

(7) We had specifically described in the text of the proposed rule (June 11, 2012; 77 FR 34464) that space within the appropriate habitats for population growth and expansion, as well as to maintain the historical geographical and ecological distribution of each species, is an essential physical or biological feature for each of the Maui Nui species. In this final rule, in response to public comment, we have expanded that discussion to further clarify why additional suitable habitat in areas that are currently unoccupied, or that may have been unoccupied at the time of listing, is essential for the conservation of each of the Maui Nui species.

(8) We have modified Table 5, Physical or Biological Features in Each Ecosystem, so that the heading for canopy, subcanopy, and understory plants reads ''Supporting one or more of these associated native plant genera'' instead of ''Capable of supporting one or more of these associated native plant genera,'' to make it clear that the presence of one or more of the associated native plant genera identified is a physical or biological feature for the listed species in each ecosystem.

(9) We are removing the entry for ''Family Rhamnaceae: *Gouania hillebrandii*'' from 50 CFR 17.96(a). With this rule, the critical habitat designation for *Gouania hillebrandii* is set forth at 50 CFR 17.99.

(10) We revised the unit boundaries proposed for Molokai, Maui, and Kahoolawe, based on comments indicating that changes in land use had occurred within the proposed critical habitat units that would preclude certain occupied areas from supporting the primary constituent elements, or that the unoccupied areas in question were not essential to the conservation of the species. Such areas do not meet the statutory definition of critical habitat, therefore we removed them from the final designation. In addition, portions of some units were excluded from critical habitat under section 4(b)(2) of the Act (as described in the section *Exclusions Based on Other Relevant Factors,* below). These removals and exclusions resulted in acreage reductions in several units on Maui, Molokai, and Kahoolawe. In addition, four units on Maui (Dry Cliff—Unit 7, Montane Wet—Unit 8, Montane Mesic—Unit 6, Wet Cliff—Unit 5) and all units on Lanai are removed entirely as critical habitat as a result of exclusions under section 4(b)(2) of the Act. Table 3, A through E, provides details for all units that have changed as a result of these removals and exclusions between the proposed and final rules.

Table 3. Summary of Changes From Proposed Rule—Critical Habitat Units With Changes to Area (Note: Units that are unchanged are not shown in this table, hence final acreages do not sum up to equal the total final critical habitat). All changes are reductions unless otherwise noted; values denoted with a plus sign (+) are additions to units. In many cases, additions reflect acres that were initially misclassified into a different ecosystem unit and were simply moved from one unit to another (thus those acres are reflected as a reduction in a different unit under the Boundary Adjustment column).

TABLE 3–A—ISLAND OF MAUI

Maui units	Proposed critical habitat acres (hectares)	Removed * acres (hectares)	Boundary adjustments * acres (hectares)	Excluded acres (hectares)	Final critical habitat acres (hectares)
Coastal—Unit 2	68 (28)	43 (17)			25 (10)
Coastal—Unit 3	54 (22)	43 (17)			10 (4)
Coastal—Unit 4	243 (98)	169 (68)			74 (30)
Coastal—Unit 5	27 (11)	1 (0)			26 (11)
Coastal—Unit 7	187 (76)	71 (29)		71 (29)	46 (19)
Coastal—Unit 8	597 (242)	104 (42)			493 (200)
Coastal—Unit 9	393 (159)	19 (8)		205 (83)	170 (69)
Coastal—Unit 10	434 (176)	261 (106)			173 (70)
Lowland Dry—Unit 1	22,196 (8,983)	1,607 (650)		7,053 (2,854)	13,537 (5,478)
Lowland Dry—Unit 2	2,612 (1,057)	30 (12)		732 (296)	1,851 (749)
Lowland Dry—Unit 3	1,089 (441)			901 (365)	188 (76)
Lowland Dry—Unit 4	1,283 (519)	17 (7)			1,266 (512)
Lowland Dry—Unit 5	5,448 (2,205)	99 (40)		1,690 (685)	3,658 (1,480)
Lowland Dry—Unit 6	579 (234)	156 (63)		184 (74)	240 (97)

TABLE 3–A—ISLAND OF MAUI—Continued

Maui units	Proposed critical habitat acres (hectares)	Removed * acres (hectares)	Boundary adjustments * acres (hectares)	Excluded acres (hectares)	Final critical habitat acres (hectares)
Lowland Mesic—Unit 1	1,930 (781)	43 (17)		6 (2)	1,882 (762)
Lowland Mesic—Unit 2	3,424 (1,386)	549 (222)		1,729 (700)	1,147 (464)
Lowland Wet—Unit 1	26,703 (10,807)	9,822 (3,975)		802 (325)	16,079 (6,507)
Lowland Wet—Unit 2	5,066 (2,050)	5 (2)		4,997 (2,022)	65 (26)
Lowland Wet—Unit 3	1,427 (577)			180 (73)	1,247 (505)
Lowland Wet—Unit 4	1,165 (472)			301 (122)	864 (350)
Lowland Wet—Unit 5	2,112 (855)			2,082 (843)	30 (12)
Lowland Wet—Unit 6	639 (259)			503 (204)	136 (55)
Montane Wet—Unit 1	7,815 (3,162)	46 (19)	+282 (+114)	5,940 (2,404)	2,110 (854)
Montane Wet—Unit 2	16,687 (6,753)			2,104 (851)	14,583 (5,901)
Montane Wet—Unit 6	3,964 (1,604)			2,565 (1,038)	1,399 (566)
Montane Wet—Unit 7	608 (246)			528 (214)	80 (32)
Montane Wet—Unit 8	46 (19)			46 (18)	0 (0)
Montane Mesic—Unit 1	20,972 (8,487)	2,449 (991)	−282 (−114)	7,269 (2,942)	10,972 (4,440)
Montane Mesic—Unit 2	366 (148)			242 (98)	124 (50)
Montane Mesic—Unit 3	218 (88)			44 (18)	174 (70)
Montane Mesic—Unit 5	304 (123)			134 (54)	170 (69)
Montane Mesic—Unit 6	94 (38)			94 (38)	0 (0)
Montane Dry—Unit 1	4,988 (2,019)			1,464 (592)	3,524 (1,426)
Subalpine—Unit 1	19,401 (7,851)	1,215 (492)		2,211 (895)	15,975 (6,465)
Subalpine—Unit 2	10,931 (4,424)			1,045 (423)	9,886 (4,001)
Alpine—Unit 1	2,107 (853)	295 (119)		15 (6)	1,797 (727)
Dry Cliff—Unit 1	1,018 (412)			264 (107)	755 (305)
Dry Cliff—Unit 3	293 (119)			93 (38)	200 (81)
Dry Cliff—Unit 5	1,536 (622)			238 (97)	1,298 (525)
Dry Cliff—Unit 7	808 (327)			808 (327)	0 (0)
Wet Cliff—Unit 1	460 (186)			170 (69)	290 (117)
Wet Cliff—Unit 5	2,048 (829)	52 (21)		1,996 (808)	0 (0)
Wet Cliff—Unit 6	9,103 (3,684)			6,993 (2,830)	2,110 (854)
Wet Cliff—Unit 7	781 (316)			222 (90)	557 (225)
Total	182,225 (73,744)	17,094 (6,918)	0 (0)	55,921 (22,631)	109,210 (44,196)

* Refinement in unit areas made in response to public comments and additional field visits; includes reclassification from one ecosystem type to another.

TABLE 3–B—ISLAND OF MOLOKAI

Critical habitat units	Proposed critical habitat acres (hectares)	Removed * acres (hectares)	Boundary adjustments * acres (hectares)	Excluded acres (hectares)	Final critical habitat acres (hectares)
Coastal—Unit 1	250 (101)	126 (51)			125 (50)
Coastal—Unit 2	3,544 (1,434)	1,642 (664)		924 (374)	977 (396)
Coastal—Unit 3	862 (349)	60 (24)			803 (325)
Coastal—Unit 6	1,913 (774)	29 (12)			1,884 (762)
Coastal—Unit 7	306 (124)	257 (104)	+10 (+4)		49 (20)
Lowland Dry—Unit 1	70 (28)	46 (19)			24 (10)
Lowland Dry—Unit 2	3,201 (1,295)	2,608 (1,055)	−4 (−2)		589 (238)
Lowland Mesic—Unit 1	10,330 (4,180)	1,199 (485)	+27 (+11)	388 (157)	8,770 (3,549)
Lowland Wet—Unit 1	3,628 (1,468)	679 (275)			2,949 (1,193)
Lowland Wet—Unit 2	1,952 (790)	5 (2)	+3 (+1)		1,950 (789)
Lowland Wet—Unit 3	8,074 (3,267)	4,832 (1,955)	−23 (−9)		3,219 (1,303)
Montane Wet—Unit 1	4,818 (1,950)	3 (1)	+0.5 (+ 0)	1,419 (574)	3,397 (1,375)
Montane Mesic—Unit 1	1,629 (659)			813 (329)	816 (330)
Wet Cliff—Unit 1	1,888 (764)	281 (114)			1,607 (651)
Wet Cliff—Unit 2	1,280 (518)			12 (5)	1,268 (513)
Total	43,746 (17,703)	11,766 (4,761)	+14 (+5)	3,557 (1,440)	28,434 (11,507)

* Refinement in unit areas made in response to public comments and additional field visits; includes reclassification from one ecosystem type to another.

TABLE 3–C—ISLAND OF KAHOOLAWE

Critical habitat units	Proposed critical habitat acres (hectares)	Removed * acres (hectares)	Excluded acres (hectares)	Final critical habitat acres (hectares)
Coastal—Unit 3	339 (137)	151 (61)		* 189 (76)

TABLE 3–C—ISLAND OF KAHOOLAWE—Continued

Critical habitat units	Proposed critical habitat acres (hectares)	Removed * acres (hectares)	Excluded acres (hectares)	Final critical habitat acres (hectares)
Lowland Dry—Unit 1	1,380 (559)	160 (65)	.....	1,220 (494)
Total	1,719 (696)	311 (126)	.....	1,409 (570)

* Reflects adjustment for original unit acreage, which mistakenly overlapped with Lowland Dry 1.

TABLE 3–D—ISLAND OF LANAI

Critical habitat units	Proposed critical habitat acres (hectares)	Excluded acres (hectares)	Final critical habitat acres (hectares)
Coastal—Unit 1	373 (151)	373 (151)	0 (0)
Coastal—Unit 2	2 (1)	2 (1)	0 (0)
Coastal—Unit 3	509 (206)	509 (206)	0 (0)
Lowland Dry—Unit 1	9,766 (3,952)	9,766 (3,952)	0 (0)
Lowland Dry—Unit 2	939 (380)	939 (380)	0 (0)
Lowland Mesic—Unit 1	11,172 (4,521)	11,172 (4,521)	0 (0)
Lowland Wet—Unit 1	374 (152)	374 (152)	0 (0)
Lowland Wet—Unit 2	232 (94)	232 (94)	0 (0)
Montane Wet—Unit 1	248 (101)	248 (101)	0 (0)
Dry Cliff—Unit 1	83 (34)	83 (34)	0 (0)
Dry Cliff—Unit 2	354 (143)	354 (143)	0 (0)
Dry Cliff—Unit 3	398 (161)	398 (161)	0 (0)
Wet Cliff—Unit 1	731 (296)	731 (296)	0 (0)
Wet Cliff—Unit 2	230 (93)	230 (93)	0 (0)
Total	25,413 (10,284)	25,413 (10,284)	0 (0)

TABLE 3–E—SUMMARY OF CHANGES FROM PROPOSED RULE IN TERMS OF AREA

	Proposed critical habitat acres (hectares)	Removed * acres (hectares)	Excluded acres (hectares)	Final critical habitat acres (hectares)
Maui	192,362 (77,852)	17,094 (6,918)	55,921 (22,631)	119,349 (48,299)
Molokai	46,831 (18,949)	* 11,752 (4,755)	3,557 (1,440)	31,523 (12,757)
Kahoolawe	6,451 (2,611)	311 (126)	0 (0)	6,142 (2,486)
Lanai	25,413 (10,284)	0 (0)	25,413 (10,284)	0 (0)
Total	271,062 (109,695)	* 29,157 (11,799)	84,891 (34,354)	157,014 (63,541)

* Net acres removed, adjusted to reflect 13 ac (5 ha) added in course of boundary adjustments, as detailed in Table 3B.

VI. Critical Habitat

Background

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided under the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management, such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot otherwise be relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the prohibition against Federal agencies carrying out, funding, or authorizing the destruction or adverse modification of critical habitat. Section 7(a)(2) of the Act requires consultation on Federal actions that may affect critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public access to private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner seeks or requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act would apply, but even in the event of a destruction or adverse modification finding, the Federal action agency's and the applicant's obligation is not to restore or recover the species, but to

implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) essential to the conservation of the species and (2) that may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical or biological features within an area, we focus on the principal biological or physical constituent elements (primary constituent elements such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, soil type) that are essential to the conservation of the species. Primary constituent elements are those specific elements of the physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For example, an area currently occupied by the species but that was not occupied at the time of listing may be essential to the conservation of the species and may be included in the critical habitat designation. We designate critical habitat in areas outside the geographical area occupied by a species only when designation limited to its range would be inadequate to ensure the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species; articles in peer-reviewed journals; conservation plans developed by States and counties; scientific status surveys and studies; biological assessments; or other unpublished materials and expert opinion or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine to be necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be required for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to insure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) section 9 of the Act's prohibitions on taking any individual of the species, including taking caused by actions that affect habitat. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of the species. 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 (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

Prudency Determination for 44 Maui Nui Species

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. Our regulations at 50 CFR 424.12(a)(1) state that designation of critical habitat is not prudent when one or both of the following situations exist: (1) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species; or (2) such designation of critical habitat would not be beneficial to the species.

40 Maui Nui Species

On May 28, 2013, we published the final rule to list as endangered 38 Maui Nui species (35 plants and 3 tree snails) and reaffirm the listing as endangered of two endemic Hawaii plants (78 FR 32014). These 40 species include 3 tree snails and 37 plants, as follows: Newcomb's tree snail (*Newcombia cumingi*) and the two Lanai tree snails (*Partulina semicarinata* and *P. variabilis*); the plants *Bidens campylotheca* ssp. *pentamera, Bidens campylotheca* ssp. *waihoiensis, Bidens conjuncta, Calamagrostis hillebrandii, Canavalia pubescens, Cyanea asplenifolia, Cyanea duvalliorum, Cyanea grimesiana* ssp. *grimesiana, Cyanea horrida, Cyanea kunthiana, Cyanea magnicalyx, Cyanea maritae, Cyanea mauiensis, Cyanea munroi, Cyanea obtusa, Cyanea profuga, Cyanea solanacea, Cyrtandra ferripilosa, Cyrtandra filipes, Cyrtandra oxybapha, Festuca molokaiensis, Geranium hanaense, Geranium hillebrandii, Mucuna sloanei* var. *persericea, Myrsine vaccinioides, Peperomia subpetiolata, Phyllostegia bracteata, Phyllostegia haliakalae, Phyllostegia pilosa, Pittosporum halophilum, Pleomele fernaldii, Santalum haleakalae* var. *lanaiense, Schiedea jacobii, Schiedea laui, Schiedea salicaria, Stenogyne kauaulaensis,* and *Wikstroemia villosa.* There is currently no documentation that the 37 listed endangered or threatened plants are threatened by taking or other human activity. Overcollection is a potential serious threat to the three listed endangered tree snails (*Newcombia cumingi, Partulina semicarinata,* and *P. variabilis*) (see ''B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes,'' at 78 FR 32050; May 28, 2013). Europeans and others collected

Hawaiian tree snails starting in the 1800s and into the early 20th century. Even today, there are Internet Web sites that sell Hawaiian tree snail shells, including other species of the Hawaiian *Partulina.* It is unknown if the shells offered for sale are from historical collections or recent collections from the wild. However, we do not believe the designated critical habitat will increase the threat of overcollection of *N. cumingi, P. semicarinata,* and *P. variabilis* because our approach to critical habitat designation is based on the physical or biological features essential to the conservation of the species and does not identify the locations of individuals of the three tree snails. In addition, the critical habitat unit maps are published at a scale that does not pinpoint the locations of the three snail species to the extent that individuals of these three tree snail species can be located on the private lands on which they occur.

Four Previously Listed Maui Nui Species

We listed the akohekohe or crested honeycreeper and the kiwikiu or Maui parrotbill as endangered species in 1967 (32 FR 4001; March 11, 1967), under the Endangered Species Preservation Act of 1966 (precursor to the Endangered Species Act of 1973). Critical habitat was not determined at that time because it was not required under the Act until 1978. Neither the akohekohe nor the kiwikiu is threatened by taking or other human activity (32 FR 4001, March 11, 1967; USFWS 2006, pp. 2–81 to 2–82, 2–142).

At the time we listed the plant *Kokia cookei* (Cooke's kokia) as endangered in 1979, we found that designation of critical habitat was not prudent because this species had been extirpated from its natural range on Molokai and was known only from a single specimen in cultivation and tissue culture maintained in a laboratory, therefore at that time we concluded that the species would not benefit from the designation of critical habitat (44 FR 62470; October 30, 1979). *Kokia cookei* is not threatened by vandalism, collecting, or other human activities, and we believe there is a benefit to a critical habitat designation for this species (see discussion below).

We listed the plant *Acaena exigua* (liliwai), known from Kauai and Maui, as endangered in 1992 (57 FR 20772; May 15, 1992). At that time, the species had not been seen since 1973. In 1997, botanists rediscovered *A. exigua* in the Puu Kukui Preserve on west Maui, but it has not been seen at this location since 2000 (68 FR 25934; May 14, 2003). We determined that critical habitat was not prudent for *Acaena exigua* at the time of listing (1992) and again at the time we reevaluated prudency determinations for many listed plants in the Hawaiian Islands because at that time we believed *A. exigua* was most likely extinct, and therefore would not benefit from a critical habitat designation (2003) (57 FR 20772, May 15, 1992; 68 FR 9116, February 27, 2003, p. 9185). *Acaena exigua* is not threatened by vandalism, collecting, or other human activities, and we believe there is a benefit to a critical habitat designation for this species (see discussion below). Although the reasons for the disappearance of this species on west Maui are not known, botanists believe it may be rediscovered in the same area where it was last seen in 2000, with sustained searching.

We reviewed the information available for the 39 endangered plants, 3 tree snails, and the 2 endangered birds (akohekohe and kiwikiu) pertaining to the biological needs of these 44 species and characteristics of their last known habitats. In the absence of finding that the designation of critical habitat would increase threats to a species, if there are any benefits to a critical habitat designation, then a prudent finding is warranted. The potential benefits to the 39 endangered plants, the 3 tree snails, and the 2 endangered birds (akohekohe and kiwikiu) include: (1) Triggering consultation under section 7 of the Act, in new areas for actions in which there may be a Federal nexus 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 features and areas; (3) providing educational benefits to State or county governments or private entities; and (4) preventing people from causing inadvertent harm to the species.

There are two plant species, *Kokia cookei* and *Acaena exigua,* for which we now find that the designation of critical habitat is prudent, which is a change from earlier determinations that critical habitat was not prudent for these species, neither of which is known to occur in the wild. At the time the *K. cookei* was listed (October 30, 1979; 44 FR 62470) we determined that the designation of critical habitat was not prudent, because *K. cookei* had been extirpated from its natural range; however, the rule noted that critical habitat may be determined at a future date in connection with efforts to reintroduce the species. Currently, there is a single individual of *K. cookei* in cultivation on Oahu, and there are propagules in captive propagation, with two individuals outplanted on Molokai in a living gardens collection. *Acaena exigua* was listed as endangered in 1992, at which time it was determined that critical habitat was not prudent as it would not provide a benefit to the species (May 15, 1992; 47 FR 20772). When we reconsidered not prudent findings as required by *Conservation Council for Hawaii* v. *Babbitt,* 2 F. Supp. 2d 1280 (D. Haw. 1998) we found (65 FR 79192, December 18, 2000) that critical habitat for *A. exigua* was not prudent because it had not been seen in the wild, and no genetic material of the species was known to exist. However, as described in our proposed rule (June 11, 2012; 74 FR 34464,), we have reconsidered these findings and now conclude that designation of critical habitat is prudent for these two species. Recovery of these two plants, *K. cookei* and *A. exigua,* neither of which are currently known to occur as wild individuals (*A. exigua* was briefly rediscovered in 1997, and survived until 2000), will require *in-situ* conservation and protection of wild individuals, if rediscovered; enhancement of existing populations with outplantings; and establishment of new populations through outplanting of propagated individuals into potentially suitable habitat within their historical ranges (USFWS 1997, p. 11; USFWS 1998a, pp. 22–23; Orr 2007, in litt., p. 8; Seidman 2007, in litt.). The conservation of these species cannot be achieved unless individuals are reintroduced and eventually populations are reestablished in the wild. Therefore, for the reasons described above, we have determined that critical habitat is prudent and will be of benefit to these species, as suitable habitat within their historical range is essential to their conservation to provide for the reintroduction and reestablishment of the species in the wild.

The primary regulatory effect of critical habitat is the section 7(a)(2) requirement that Federal agencies refrain from taking any action that destroys or adversely modifies critical habitat. We find that the designation of critical habitat for each of the 44 endangered species identified above will benefit it by serving to focus conservation efforts on the restoration and maintenance of ecosystem functions that are essential for attaining its recovery and long-term viability. In addition, the designation of critical habitat serves to inform management and conservation decisions by identifying any additional physical or biological features of the ecosystem that

may be essential for the conservation of certain species, such as the availability of bogs for *Calamagrostis hillebrandii, Geranium hanaense,* and *G. hillebrandii.* Therefore, as we have determined that the designation of critical habitat will not likely increase the degree of threat to the species and may provide some measure of benefit, we find that designation of critical habitat is prudent for the following 44 species, as critical habitat would be beneficial and there is no evidence that the designation of critical habitat would result in an increased threat from taking or other human activity for these species:

(1) Plants—*Acaena exigua, Bidens campylotheca* ssp. *pentamera, Bidens campylotheca* ssp. *waihoiensis, Bidens conjuncta, Calamagrostis hillebrandii, Canavalia pubescens, Cyanea asplenifolia, Cyanea duvalliorum, Cyanea grimesiana* ssp. *grimesiana, Cyanea horrida, Cyanea kunthiana, Cyanea magnicalyx, Cyanea maritae, Cyanea mauiensis, Cyanea munroi, Cyanea obtusa, Cyanea profuga, Cyanea solanacea, Cyrtandra ferripilosa, Cyrtandra filipes, Cyrtandra oxybapha, Festuca molokaiensis, Geranium hanaense, Geranium hillebrandii, Kokia cookei, Mucuna sloanei* var. *persericea, Myrsine vaccinioides, Peperomia subpetiolata, Phyllostegia bracteata, Phyllostegia haliakalae, Phyllostegia pilosa, Pittosporum halophilum, Pleomele fernaldii, Santalum haleakalae* var. *lanaiense, Schiedea jacobii, Schiedea laui, Schiedea salicaria, Stenogyne kauaulaensis,* and *Wikstroemia villosa;*

(2) Animals—birds: akohekohe and kiwikiu; snails: *Newcombia cumingi, Partulina semicarinata,* and *Partulina variabilis.*

Critical Habitat Determinability for the Listed Plant Species Cyanea mauiensis and Phyllostegia hispida

As stated above, section 4(a)(3) of the Act requires the designation of critical habitat concurrently with the species' listing ''to the maximum extent prudent and determinable.'' Our regulations at 50 CFR 424.12(a)(2) state that critical habitat is not determinable when one or both of the following situations exist:

(i) Information sufficient to perform required analyses of the impacts of the designation is lacking, or

(ii) The biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat.

When critical habitat is not determinable, the Act provides for an additional year to publish a critical habitat designation (16 U.S.C. 1533(b)(6)(C)(ii)).

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas occupied by the species at the time of listing to designate as critical habitat, we consider those physical and biological features essential to the conservation of the species that may require special management considerations or protection. The primary constituent elements of critical habitat include, but are not limited to:

(1) Space for individual and population growth, and for normal behavior;

(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;

(3) Cover or shelter;

(4) Sites for breeding, reproduction, rearing (or development) of offspring; and

(5) Habitats that are protected from disturbance or are representative of the historical geographical and ecological distributions of a species.

We are currently unable to identify the physical and biological features that are considered essential to the conservation of the plant *Cyanea mauiensis,* one of the recently listed species on Maui, because information necessary to understand the life-history needs of the species is not available at this time. Key features of the life history of this plant species, such as flowering cycles, pollination vectors, specific environmental requirements, and limiting factors, remain unknown. Nothing is known of the preferred habitat of, or native species associated with, this species on the island of Maui. *Cyanea mauiensis* was last observed on Maui over 100 years ago, and its habitat has been modified and altered by nonnative ungulates and plants, fire, and stochastic events (*e.g.,* hurricanes, landslides). In addition, predation by nonnative rats, and herbivory by nonnative ungulates and invertebrates, likely led to the extirpation of this species from Maui. Because a century has elapsed since *C. mauiensis* was last observed, the optimal conditions that provide the biological or ecological requisites of this species are not known. As described above, we can surmise that habitat degradation from a variety of factors and predation by a number of nonnative species has contributed to the decline of this species on Maui; however, we do not know the physical or biological features that are essential for *C. mauiensis.* As we are unable to identify the physical and biological features essential to the conservation of this species, we are unable to identify areas on Maui that contain these features.

Although we have determined that the designation of critical habitat is prudent for the plant *Cyanea mauiensis,* the biological needs of this species are not sufficiently well known to permit identification of the physical or biological features that may be essential for the conservation of the species, or those areas that provide the physical or biological features essential to the conservation of the species. Therefore, we find that critical habitat for *C. mauiensis* is not determinable at this time. We intend to continue gathering information regarding the essential life-history requirements of this plant species to facilitate the identification of those physical or biological features that are essential to the conservation of *C. mauiensis.* We recognize that in the case of a ''not determinable'' finding the Act provides 1 year from the date of the proposed rule in which such a finding is made to propose critical habitat. As such a proposal would further delay the finalization of critical habitat for the other 135 Maui Nui species addressed in this rule, we will be proposing critical habitat for *C. mauiensis* in a separate rulemaking in the near future.

We listed the plant *Phyllostegia hispida* (NCN), known only from the island of Molokai, as an endangered species on March 17, 2009 (74 FR 11319). At the time of listing, we determined that critical habitat was prudent but not determinable for this species, but acknowledged that for the future designation of critical habitat we would evaluate the needs of *P. hispida* within the ecological context of the ecosystem in which it occurs. We are now designating critical habitat for *P. hispida,* based on the identification of the physical and biological features that contribute to the successful functioning of the ecosystem upon which it depends.

Critical Habitat Designation for 50 Species and Revision of Critical Habitat Designation for 85 Species on Molokai, Lanai, Maui, and Kahoolawe

In this section, we discuss the designation of critical habitat for 50 listed plants and animals on the islands of Maui Nui (39 of the 40 species discussed above in our listing proposal and reevaluation, for which we concluded that critical habitat was both prudent and determinable; 2 listed bird species (akohekohe or crested honeycreeper and kiwikiu or Maui parrotbill); and 9 listed plants *Abutilon eremitopetalum, Acaena exigua, Cyanea gibsonii, Kadua cordata* ssp. *remyi, Kokia cookei, Labordia tinifolia* var.

lanaiensis, Melicope munroi, Phyllostegia hispida, and *Viola lanaiensis.* This section also discusses the currently designated critical habitat for 85 species of plants on the islands of Molokai, Lanai, Maui, and Kahoolawe, which is being revised here based on new information. This information represents the best current scientific information available.

Recovery Strategy for Hawaiian Plants

The lack of detailed scientific data on the life history of the 130 plant species in this final rule 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. Based on the best information available at this time, including information on which the listing and recovery plans for most of these species were based, we have concluded that the current size and distribution of the extant populations are not sufficient to provide for the conservation of these plant species (Ellstrand and Elam 1993, pp. 217–238; Reed 2005, pp. 563–568).

For 95 of these plant 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 historical range; and (4) research on species biology and ecology (Service Recovery Plan for *Gouania hillebrandii* (Rhamnaceae), July 1990; Recovery Plan for the Kauai Plant Cluster, September 1995; Lanai Plant Cluster Recovery Plan, September 1995; Recovery Plan for *Marsilea villosa,* April 1996; Recovery Plan for the Big Island Plant Cluster, September 1996; Recovery Plan for Molokai Plant Cluster, September 1996; Recovery Plan for the Maui Plant Cluster, July 1997; Recovery Plan for *Kokia cookei,* June 1998; Recovery Plan for the Oahu Plant Cluster, August 1998; Recovery Plan for 4 Hawaiian Ferns, April 1998; Molokai II: Addendum to the Recovery Plan for the Molokai Plant Cluster, May 1998; Recovery Plan for the Multi-Island Plants, July 1999; and Addendum to the Recovery Plan for Multi-Island Plants, September). Although recovery plans have not yet been developed for 35 of the plants in this final rule (*Bidens campylotheca* ssp. *pentamera, B. campylotheca* ssp. *waihoiensis, B. conjuncta, Calamagrostis hillebrandii, Canavalia pubescens, Cyanea asplenifolia, C. duvalliorum, C. horrida, C. kunthiana, C. magnicalyx, C. maritae, C. munroi, C. obtusa, C. profuga, C. solanacea, Cyrtandra ferripilosa, C. filipes, C. oxybapha, Festuca molokaiensis, Geranium hanaense, G. hillebrandii, Mucuna sloanei* var. *persericea, Myrsine vaccinioides, Peperomia subpetiolata, Phyllostegia bracteata, P. haliakalae, P. pilosa, Pittosporum halophilum, Pleomele fernaldii, Schiedea jacobii, S. laui, S. salicaria, Stenogyne kauaulaensis,* and *Wikstroemia villosa)* listed as endangered on May 28, 2013 (78 FR 32014), or for *Phyllostegia hispida,* listed as endangered on March 17, 2009 (74 FR 11319), and for which we are designating critical habitat in this final rule, we believe it is reasonable to apply this same recovery strategy to these 35 plant species because they have similar life histories, occur in the same habitat, and face the same threats as the 95 plant species with approved recovery plans and addressed in this final rule, including small numbers of individuals and greatly reduced distributions.

The overall recovery goal stated in the recovery plans for each of 95 plant species with approved recovery plans and which we have applied to the 35 plant species without recovery plans, 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. These are the minimum population targets set for considering delisting of the species, which we consider the equivalent of achieving the conservation of the species as defined in section 3 of the Act (hereafter we refer to these delisting objectives as defined in recovery plans or by the HPPRCC (1998) as simply ''recovery objectives''). (There is only one exception to the criteria above, and that is *Marsilea villosa,* a short-lived terrestrial fern dependent on flooding regimes for its reproductive cycle. The recovery plan states that for downlisting, at least six distinct, self-sustaining populations must be maintained over two successive flooding events, and that to delist, the six populations must no longer be in need of active management, and that these criteria should then be reconsidered 5 years following the delisting). To be considered recovered, the populations of multi-island species should be distributed among the islands of its known historical range (Service Recovery Plan for *Gouania hillebrandii* (Rhamnaceae), July 1990; Recovery Plan for the Kauai Plant Cluster, September 1995; Lanai Plant Cluster Recovery Plan, September 1995; Recovery Plan for *Marsilea villosa,* April 1996; Recovery Plan for the Big Island Plant Cluster, September 1996; Recovery Plan for Molokai Plant Cluster, September 1996; Recovery Plan for the Maui Plant Cluster, July 1997; Recovery Plan for *Kokia cookei,* June 1998; Recovery Plan for the Oahu Plant Cluster, August 1998; Recovery Plan for 4 Hawaiian Ferns, April 1998; Molokai II: Addendum to the Recovery Plan for the Molokai Plant Cluster, May 1998; Recovery Plan for the Multi-Island Plants, July 1999; and Addendum to the Recovery Plan for Multi-Island Plants, September; HPPRCC 1998). 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, respectively. For all plant species, propagated and outplanted individuals are generally not initially counted toward recovery, as populations must demonstrate recruitment (the ability to reproduce and generate multiple generations) and viability over an extended period of time to be considered self-sustaining.

By adopting the specific recovery objectives enumerated above, the adverse effects of genetic inbreeding and random environmental events and catastrophes, such as landslides, floods, and hurricanes, which could destroy a large percentage of a species at any one time, may be reduced (Kramer *et al.* 2008, p. 879; Menges 1990, pp. 56–60; Neel and Ellstrand 2003, p. 347). These recovery objectives were initially developed by the HPPRCC and are found in the recovery plans for 95 plant species, and applied to the 35 plant species without approved recovery plans. Further discussion on these recovery objectives can be found in our final critical habitat designations for 3 plants on the island of Lanai (68 FR 1220; January 9, 2003), 41 plants on Molokai (68 FR 12982; March 18, 2003), and 60 plants on the islands of Maui and Kahoolawe (68 FR 25934; May 14, 2003). As stated above, these objectives describe the minimum population criteria to be met, based on the best available scientific data, to ensure adequate population resiliency (population size, growth rate, and connectivity; indicative of ability to

withstand stochastic disturbances), redundancy (spreading the risk among multiple populations over a large geographic area; ability to withstand catastrophic events), and representation (genetic and environmental diversity; ability to adapt to changing conditions over time) to ensure long-term viability and bring these species to the point at which the protections of the Act are no longer necessary (delisting). As this is the definition of conservation under section 3 of the Act, we consider the ability to meet these recovery objectives as essential to the conservation of these species. These population recovery objectives are not necessarily the only recovery criteria for each species, but they served as the guide for our identification of the critical habitat areas essential for the conservation of the Maui Nui species in this rule, in terms of providing the ability to meet the specified population objectives.

In conclusion, for the 130 plant species addressed in this final rule, their conservation is dependent upon the protection of habitat for existing population sites, including room for population growth and expansion, and suitable unoccupied habitat within their historical range to provide for the requisite resiliency, redundancy, and representation of populations through restoration and reintroductions (see Unoccupied Areas, below).

Recovery Strategy for Two Forest Birds

The recovery strategies for the akohekohe and kiwikiu are generally similar because these two birds inhabit similar geographic areas and face common threats (Service 2006, pp. 2–83, 2–143). These recovery strategies, enumerated in the Service's 2006 Revised Recovery Plan for Hawaiian Forest Birds (pp. 2–83, 2–143), include the protection, restoration, and management of native high-elevation habitat on east Maui; research to understand the threats from disease and predation; and reestablishment (through captive propagation (both akohekohe and kiwikiu) or translocation of wild-caught adult birds (kiwikiu)) of a second population of both species in historical habitat on west Maui or east Molokai to reduce the risk of extinction due to catastrophic events, such as hurricanes and disease outbreaks (Service 2006, pp. 2–83, 2–143). Currently, there is only one population each of the akohekohe and kiwikiu, both on the windward side of Haleakala, east Maui. Suitable habitat is needed in other areas to achieve at least two populations or a metapopulation of each species on the islands of Maui Nui. The akohekohe and kiwikiu are known to have occurred on Molokai. West Maui and Molokai contain intact native forest suitable for both species, except for the presence of mosquitoes and avian diseases. Haleakala supports a population of approximately 3,800 akohekohe that occupy 22 sq mi (58 sq km), and a population of approximately 500 kiwikiu that occupy about 19 sq mi (59 sq km). For each species these areas represent less than 5 percent of the estimated historical ranges on Maui. Both species appear to occupy almost all habitat that is currently suitable, because of disease constraints at lower elevations. To ensure the potential for population increase, additional habitat must be restored from 4,000 to 7,000 ft (1,200 to 2,000 m) on the leeward slopes and from 5,000 to 7,000 ft (1,500 to 2,000 m) on the western slopes, including a lower elevational limit of 2,500 ft (750 m) on windward Haleakala to encompass nonbreeding habitat for some birds following seasonal flowering downslope. A recovery area on west Maui, from 2,500 ft (750 m) to the summit (5,800 ft (1,800 m) that encompasses suitable forest habitat, most of which is already managed for conservation, with large areas of native forest, would provide a second geographically disjunct population for each of these species. A recovery area on Molokai, from 2,500 ft (750 m) to the summit, would encompass forest habitat suitable for the two forest birds, and currently, upper elevations are managed for conservation, with management still required for control and prevention of avian disease. This would provide for population increases and populations disjunct from the island of Maui, in case of catastrophic events. The establishment of these additional populations in unoccupied but suitable habitat is essential to the conservation of these two bird species, as each remains highly vulnerable to extinction through either a single catastrophic event or a disease epizootic, since each species has been reduced to only a single population.

The recovery plan also provides the recovery criteria for delisting the akohekohe and kiwikiu (*i.e.,* removing the species from protection under the Act). The following criteria must be met over a 30-year time period: (1) Two or more viable populations or a viable metapopulation on Haleakala and either west Maui or Molokai that represent the ecological, morphological, behavioral, and genetic diversity of the species; (2) population viability demonstrated by quantitative surveys or demographic monitoring and total population size not expected to decline by more than 20 percent over a 30-year period; (3) sufficient habitat in recovery areas is protected and managed to achieve criteria 1 and 2; and (4) threats that led to the decline of the species are identified and controlled (Service 2006, pp. x–xi, 3–5).

In conclusion, for both of these birds, their conservation is dependent upon the protection of existing population sites and suitable unoccupied habitat within their historical range. Unoccupied but suitable habitat, as described in the Revised Forest Birds Recovery Plan, is essential for the conservation of both bird species to provide for the expansion of extant populations, as well as sites for translocation or reintroduction to establish additional populations essential to the conservation of the species. Areas both on east and west Maui, and on Molokai, are designated as critical habitat because these areas are necessary to promote natural demographic and evolutionary processes, and to allow the species to expand into potential habitat in a ''ring'' of suitable forest at upper elevations where mosquitoes (that spread disease) are rare. Reestablishment of these forest birds on west Maui or Molokai is necessary; however, it is uncertain in exactly which area (east or west Maui, or Molokai) a new population of birds might have the most success in reestablishing. Relatively large areas of suitable unoccupied habitat are needed to support the additional populations that are essential to the conservation of each species, based on the large home ranges of the birds, their territorial behavior, and the requisite availability of food sources that are ephemeral on the landscape and therefore shift in geographic location over time (*i.e.,* trees come into flower in different locations at different times).

Recovery Strategy for Three Tree Snails

Only one recovery plan is available for listed Hawaiian tree snails, and it is for 41 species on Oahu previously listed as endangered (Service Recovery Plan for Oahu Tree Snails of the Genus *Achatinella* 1992, entire). Although there are no downlisting or delisting criteria for these 41 endangered species of tree snails, the primary interim recovery objective is to stabilize populations in the wild and initiate captive propagation. Additional actions include conducting surveys, assessing and managing threats, protecting habitat, and conducting research. Although recovery plans have not yet been developed for the three tree snails in this final rule, it is reasonable to conclude that their conservation needs

would be similar and apply these same interim recovery objectives to the three Maui Nui tree snails because they are in the same family, have similar life histories (long-lived, low reproductive rates, etc.), occur in similar habitat, and face the same threats as the 41 species of *Achatinella* tree snails that have an approved recovery plan (Browning 2013, in litt.; Sether 2013, in litt.). The essential habitat for the *Achatinella* tree snails was determined by mapping their current and historical ranges on the island of Oahu, and selecting forest areas with suitable vegetation and rainfall within those current and historical ranges. As described in the recovery plan, *Achatinella* sp. had ranges varying from 3 to 150 square kilometers (sq km) (1 to 58 square miles (sq mi). In the absence of a recovery plan for the three species at issue here, we are following the same delisting objectives as for the *Achatinella* tree snails, *i.e.,* determine their current range on the island of Maui (*Newcombia cumingi*) and Lanai (*Partulina semicarinata* and *P. variabilis*) and select forest areas with suitable vegetation and rainfall within those areas, to stabilize wild populations by managing threats and protecting habitat within suitable forest areas within their current ranges, and to initiate captive propagation for reintroduction to these areas. As each of the three Maui Nui tree snails has been considerably reduced in both range and number (each of the three species is a single-island endemic; on Maui, the last survey for *N. cumingi* in 2012 identified a single individual, and on Lanai, the most recent surveys in 2005 estimated a total of 29 individuals of *P. semicarinata* and 90 of *P. variabilis*), unoccupied but suitable habitat including the forest and rainfall to provide for wet forest habitat within their current range (a total of approximately 10 sq km (4 sq mi) for each *Partulina* sp. and 2.5 sq km (1 sq mi) for *Newcombia*) will be essential to the conservation of each of these species.

In summary, the overall recovery of these 135 Hawaiian species (130 plants, 2 forest birds, and 3 tree snails) in this final rule includes protection of existing populations and their habitat, augmentation of existing populations and reestablishment of new populations within their historical range, control of threats, research on species' biology and ecology, and research on abatement and control of threats that are currently not addressed. Relevant to this designation of critical habitat, the recovery of these 135 Hawaiian species therefore requires a combination of both presently occupied habitat (to protect existing populations) and unoccupied habitat (for expansion or augmentation of existing populations and reestablishment of new populations within their historical range) (see Occupied Areas and Unoccupied Areas, below).

Revision of Critical Habitat for 85 Plants on Molokai, Lanai, Maui, and Kahoolawe

Under section 4(a)(3)(A)(ii) of the Act we may, as appropriate, revise a critical habitat designation. In 1984, we designated critical habitat for a single species of plant, *Gouania hillebrandii,* on 114 ac (46 ha) in four units (49 FR 44753) based on its known location at the time. In 2003, we designated critical habitat for 3 Lanai plants on 789 ac (320 ha) in 6 units (68 FR 1220, January 9, 2003); for 41 Molokai plants on 24,333 ac (9,843 ha) in 88 units (68 FR 12982, March 18, 2003); and for 60 plants on Maui (93,200 ac (37,717 ha)) and Kahoolawe (2,915 ac (1,180 ha)) in 139 units (68 FR 25934, May 14, 2003). All designations were based on the known locations of the species at the time. Based on new scientific data available since 2003, we are revising critical habitat for these 85 plant species on the islands of Molokai, Lanai, Maui, and Kahoolawe (this number differs from the original number of species with critical habitat designations, due to some taxonomic revisions made subsequent to the original designations; in addition, as some species occur on more than one island, they are counted twice if the species are counted on an island-by-island basis; see Table 1). When designating critical habitat in occupied areas, we focus on the essential physical or biological features that may be essential to the conservation of the species and which may require special management considerations or protections. In unoccupied habitat, we focus on whether the area is essential to the conservation of the species. We have determined that the physical or biological features identified in the original critical habitat designations for these 85 plant species can be improved, based on new information that has become available. The physical or biological features for occupied areas as described in this rule, in conjunction with the unoccupied areas needed to expand and reestablish wild populations within their historical range, provide a more accurate picture of the geographic areas needed for the recovery of each species. We believe this information will be helpful to Federal agencies and our other partners, as we collectively work to recover these imperiled species.

Approximately 64 percent of the area we are designating as critical habitat in this rule overlaps with the areas already designated in the 1984 and 2003 final critical habitat rules. In some areas, the footprint of the revision is larger than the 1984 and 2003 designations, to accommodate the expansion of species' ranges within the particular ecosystem in which they occur (*e.g.,* expansion into currently unoccupied habitat), which may not have been accounted for in the original designations. Based on the best available information, the revision correlates each species' physical or biological requirements with the characteristics of the ecosystems on which they depend (*e.g.,* elevation, rainfall, species associations, etc.), and also includes some areas unoccupied by the species but determined to be essential for the conservation of the species. One ancillary benefit is that the revision should enable managers to focus conservation management efforts on common threats that occur across shared ecosystems and facilitates the restoration of the ecosystem function and species-specific habitat needs for the recovery of each of the 85 species. Another added benefit is that the publication of more comprehensive critical habitat unit maps that should be more useful to the public and conservation managers.

Here we have reevaluated the physical or biological features for each of the 85 plant species for which we are revising critical habitat, based on habitat type using species information from the 1984 and 2003 critical habitat designations, and new scientific information that has become available since that time. As noted above, in 1984 and 2003, the physical or biological features for each plant species were defined on the basis of the habitat features of the areas actually occupied by the plants, which included plant community, associated native plant species, locale information (*e.g.,* steep rocky cliffs, talus slopes, gulches, stream banks), and elevation (49 FR 44753, November 9, 1984; 68 FR 1220, January 9, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003). In this final rule, we are designating critical habitat in areas occupied by the species at the time of listing as well as areas currently unoccupied by the species but determined to be essential for their conservation (*i.e.,* areas necessary to bring the species to the point at which the measures provided under the Act are no longer needed). The physical or biological features have now been more precisely identified for

these 85 plant species, and include elevation, precipitation, substrate, canopy, subcanopy, and understory characteristics. In addition, since 2003, we have found that many areas where these species are currently or recently reported from are marginal habitat and that the species occurs there due to remoteness or inaccessibility to feral ungulates. The physical or biological features essential to the species' conservation have now been more accurately identified for these 85 plant species, and include elevation, precipitation, substrate, canopy, subcanopy, and understory characteristics. In addition, as all of the species addressed in this final rule have been greatly reduced from their former abundance and distribution, a designation limited to the areas currently occupied by these species is inadequate for their conservation, especially if the areas currently occupied represent suboptimal habitats. Therefore, the 1984 and 2003 critical habitat designations may not have included all of the unoccupied areas that are essential for the conservation of the species. When occupied areas were not adequate to achieve essential recovery goals, we also identified some unoccupied areas as critical habitat upon a determination that such areas are essential to the conservation of the species. We concluded that each of the Maui Nui species requires some currently unoccupied areas that are essential to achieve recovery and therefore the conservation of the species. We address this issue under ''Unoccupied Areas,'' below.

VII. Methods

As required by section 4(b) of the Act, we used the best scientific data available in determining those areas occupied at the time of listing and that contain the physical or biological features essential to the conservation of the 135 species, and those areas that may be unoccupied but are essential to the conservation of the species, by identifying the occurrence data for each species and determining the ecosystems upon which they depend. This information was developed by using:

- The known locations of the 135 species, including site-specific species information from the Hawaii Biodiversity and Mapping Program (HBMP) database (HBMP 2010), the TNC database (TNC 2007), and our own rare plant database;
- Species information from the plant database housed at the National Tropical Botanical Garden (NTBG);
- Maps of habitat essential to the recovery of Hawaiian plants, as determined by the Hawaii and Pacific Plant Recovery Coordinating Committee (HPPRCC 1998, 32 pp. + appendices);
- Recovery area as determined in the revised Recovery Plan for Hawaiian Forest Birds (USFWS 2006);
- Maps of important habitat for the recovery of plants protected under the Act (USFWS 1999, pp. F8–F11);
- Projections of geographic ranges of plant species in the Hawaiian Islands, including climate data, substrate data, topography, soils, and disturbance, Price *et al.* 2012 (34 pp. + appendices);
- Recovery plans that are available for 95 of the plant species (Recovery Plan for *Gouania hillebrandii* (Rhamnaceae), July 1990; Recovery Plan for the Kauai Plant Cluster, September 1995; Lanai Plant Cluster Recovery Plan, September 1995; Recovery Plan for *Marsilea villosa,* April 1996; Recovery Plan for the Big Island Plant Cluster, September 1996; Recovery Plan for Molokai Plant Cluster, September 1996; Recovery Plan for the Maui Plant Cluster, July 1997; Recovery Plan for *Kokia cookei,* June 1998; Recovery Plan for the Oahu Plant Cluster, August 1998; Recovery Plan for 4 Hawaiian Ferns, April 1998; Molokai II: Addendum to the Recovery Plan for the Molokai Plant Cluster, May 1998; Recovery Plan for the Multi-Island Plants, July 1999; and Addendum to the Recovery Plan for Multi-Island Plants, September);
- Recovery plan for Oahu tree snails (Recovery Plan for Oahu Tree Snails of the Genus *Achatinella,* April 1993);
- The Nature Conservancy's Ecoregional Assessment of the Hawaiian High Islands (2006) and ecosystem maps (TNC 2007);
- Color mosaic 1:19,000 scale digital aerial photographs for the Hawaiian Islands (April to May 2005);
- Island-wide Geographic Information System (GIS) coverage (*e.g.,* Gap Analysis Program (GAP) vegetation data of 2005);
- 1:24,000 scale digital raster graphics of U.S. Geological Survey (USGS) topographic quadrangles;
- Geospatial data sets associated with parcel data from Maui County (includes Molokai, Lanai, Maui, and Kahoolawe) (2010);
- Final critical habitat designations for *Gouania hillebrandii* and for listed plant species on the islands of Lanai, Molokai, Maui, and Kahoolawe (49 FR 44753, November 9, 1984; 68 FR 1220, January 9, 2003; 68 FR 12982, March 18, 2003; 68 FR 25934, May 14, 2003);
- Recent biological surveys and reports; and
- Discussions with qualified individuals familiar with these species and ecosystems.

Based upon all of this data, we determined that one or more of the 11 habitat types described in this rule are currently occupied or were occupied at the time of listing by one or more of the 135 species addressed in this rule and contain the physical or biological features essential to the conservation of the species, or are currently not occupied by one or more of the 135 species but are areas essential for the conservation of the species (coastal (TNC 2006a), lowland dry (TNC 2006b), lowland mesic (TNC 2006c), lowland wet (TNC 2006d), montane wet (TNC 2006e), montane mesic (TNC 2006f), montane dry (TNC 2006g), subalpine (TNC 2006h), alpine (TNC 2006i), dry cliff (TNC 2006j), and wet cliff (TNC 2006k)).

Occupied Areas

Essential Physical or Biological Features

In accordance with section 3(5)(A)(i) of the Act, we determine which areas within the geographical area occupied at the time of listing contain the physical and biological features essential to the conservation of the species, and which may require special management considerations or protection. These physical or biological features provide the essential life-history requirements of the species, and include, but are not limited to:

(1) Space for individual and population growth and for normal behavior;

(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;

(3) Cover or shelter;

(4) Sites for breeding, reproduction, rearing (or development) of offspring, germination, or seed dispersal; and

(5) Habitats that are protected from disturbance or are representative of the historical geographical and ecological distributions of a species.

For plant species, ecosystems that provide appropriate seasonal wetland and dry land habitats, host species, pollinators, soil types, and associated plant communities are taken into consideration when determining the physical or biological features essential for a species. For the two forest bird species, ecosystems that provide appropriate forest habitat for shelter, breeding, reproduction, rearing (or development) of offspring and nutritional requirements are taken into consideration when determining the physical or biological features essential for both species. For tree snail species, ecosystems that provide appropriate host plant species for shelter, reproduction, and nutritional

requirements are taken into consideration when determining the physical or biological features essential for the three species in this final rule.

Under section 4(a)(3)(A)(ii) of the Act we may, as appropriate, revise a critical habitat designation. For the reasons described above, we are revising critical habitat for 85 plants from Molokai, Lanai, Maui, and Kahoolawe, based on new information received since the original designations and the need to designate unoccupied habitat to conserve the species. In addition, the recovery plans for 95 of the plant species (see list, above) identify several actions needed to recover these species (see above, ''Recovery Strategy for Hawaiian Plants,'' ''Recovery Strategy for Two Forest Birds,'' and ''Recovery Strategy for Three Tree Snails''), including: (1) Protecting habitat and controlling threats; (2) expanding existing wild populations; (3) conducting essential research; (4) developing and maintaining monitoring plans; (5) reestablishing wild populations within the historical range; and (6) validating and revising recovery criteria. Of these actions essential for the conservation and recovery of these species, of primary relevance to this designation of critical habitat for the Maui Nui species is the objective of providing for expansion or augmentation of existing wild populations (relevant to consideration of occupied critical habitat) and the need for reintroduction and reestablishment of populations within the historical range (relevant to the consideration of unoccupied critical habitat). For species with recovery plans, recovery criteria have been established, and generally include specific objectives in terms of numbers of populations and individuals that are needed to achieve the conservation of the species. Where such objectives exist, we considered them in our identification of critical habitat (*i.e.,* whether population expansion, augmentation, or reestablishment is essential to the conservation of the species, in light of its current status). As noted above, most but not all of the plant species included in this final rule have a recovery plan in place. For those plant species without specific recovery goals set forth in a recovery plan, we used the general recovery objective guidelines established by the HPPRC (1998) to help determine what is needed for each species in terms of critical habitat. Although we have described these guidelines earlier, here we summarize them for ease of reference in Table 4.

TABLE 4—RECOVERY OBJECTIVE GUIDELINES FOR HAWAIIAN PLANTS

[Goals presented here are for delisting, which is equivalent to achieving the conservation of the species, as defined in section 3 of the Act. In addition to achieving the numbers shown here, the guidelines stipulate that all populations must be stable, secure, and naturally reproducing]

Life history	Number of populations [2]	Number of individuals per population [3]	Total number of individuals	Time sustained (years)
Long-lived perennials [4]	5–10	100–200	500–2,000	10
Short-lived perennials	5–10	300–500	1,500–5,000	5–10
Annuals	5–10	500–1,000	2,500–10,000	5

We derive the specific physical and biological features required for each of the plant and animal species from studies of the species' habitat, ecology, and life history as described in the Critical Habitat section of the June 11, 2012 (77 FR 34464), proposed rule, and in the information presented below. The consideration of whether space for the expansion or augmentation of current occurrences or populations is needed, in light of the recovery objectives for each species and its current status, was also taken into account in our derivation of the physical or biological features essential to the conservation of the species.

Primary Constituent Elements

Under the Act and its implementing regulations, we are required to identify the physical or biological features essential to the conservation of the 135 species in areas occupied at the time of listing, focusing on the features' primary constituent elements. Primary constituent elements are those specific elements of the physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

The primary constituent elements identified in this final rule take into consideration the habitat types in which each species occurs and reflect a distribution that we believe is essential to achieving the species' recovery needs within those ecosystems. As described above, we considered the current population status of each species, to the extent it is known, and assessed its status relative to the recovery objectives for that species, in terms of population goals (numbers of populations and individuals in each population, which contributes to population resiliency) and distribution (whether the species occurs in habitats representative of its historic geographical and ecological distribution, and are sufficiently redundant to withstand the loss of some populations over time). This assessment informed us as to whether the species requires space for population growth and expansion in areas occupied at the time of listing, or whether additional areas unoccupied at the time of listing may be required for the reestablishment of populations to achieve conservation.

In this final rule, primary constituent elements for each of the 135 species are defined based on those physical or biological features essential to support the successful functioning of the habitat type upon which each species depends, and which may require special management considerations or protection. As the conservation of each species is dependent upon functioning habitat to provide its fundamental life requirements, such as a certain soil type, minimum level of rainfall, or suitable native host plant, we consider the physical or biological features present in the ecosystems described in this rule to provide the necessary PCEs for each species. These features collectively provide the suite of environmental conditions within each ecosystem essential to meeting the requirements of each species, including space for individual and population growth, and for normal behavior, the appropriate microclimatic conditions for germination and growth of the plants (*e.g.,* light availability, soil nutrients,

[2] Number of populations that must reach stability.

[3] Number of mature, reproducing individuals that must be present in each stable population.

[4] Known to live for more than 10 reproductive years; if no solid information available, assume short-lived.

hydrologic regime, temperature); maintenance of upland habitat to provide for the proper ecological functioning of forest elements for the three tree snails and the two forest birds; and, in all cases, space within the appropriate habitats for population growth and expansion, as well as to maintain the historical geographical and ecological distribution of each species. Due to our limited knowledge of the specific life-history requirements for the species that are little-studied and occur in remote and inaccessible areas, the physical or biological features described in this document that provide for the successful function of the ecosystem that is essential to the conservation of the species represents the best (and, in many cases, the only) scientific information available. Accordingly, for purposes of this rule, the physical or biological features of a properly functioning ecosystem are, at least in part, the physical or biological features essential to the conservation of these 135 species.

Table 5 identifies the physical or biological features of a functioning ecosystem for each of the habitat types identified in this final rule, and each species identified in this rule requires the physical or biological features for each ecosystem in which that species occurs. These physical or biological features provide the PCEs for the individual species in each ecosystem or habitat type. The physical or biological features are defined here by elevation, annual levels of precipitation, substrate type and slope, and the characteristic native plant genera that are found in the canopy, subcanopy, and understory levels of the vegetative community where applicable. If further information is available indicating additional, specific life-history requirements for some species, PCEs relating to these requirements are described separately and are termed ''species-specific PCEs,'' which are identified in Table 6. The PCEs for each species are therefore composed of the physical or biological features found in its functioning ecosystem(s) (Table 5), in combination with additional requirements specific to that species, if any (Table 6). Note that the PCEs identified in Table 6 for each species are directly related to the physical or biological features presented in detail in Table 5; thus, both Tables 5 and 6 must be read together to fully describe all of the PCEs for each species.

TABLE 5–PHYSICAL OR BIOLOGICAL FEATURES IN EACH ECOSYSTEM

[Read in association with Table 6]

Ecosystem	Elevation	Annual precipitation	Substrate	Supporting one or more of these associated native plant genera		
				Canopy	Subcanopy	Understory
Coastal [1]	<980 ft (<300 m)	<20 in (<50 cm)	Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.	*Hibiscus, Myoporum, Santalum, Scaevola.*	*Gossypium, Sida, Vitex.*	*Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*
Lowland Dry [2]	<3,300 ft (<1,000 m).	<50 in (<130 cm)	Weathered silty loams to stony clay, rocky ledges, little-weathered lava.	*Diospyros, Myoporum, Pleomele, Santalum.*	*Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*	*Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*
Lowland Mesic [3]	<3,300 ft (<1,000 m).	50–75 in (130–190 cm).	Shallow soils, little to no herbaceous layer.	*Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*	*Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*	*Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*
Lowland Wet [4]	<3,300 ft (<1,000 m).	>75 in (>190 cm)	Clays; ashbeds; deep, well-drained soils; lowland bogs.	*Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*	*Cibotium, Claoxylon, Kadua, Melicope.*	*Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*
Montane Wet [5]	3,300–6,500 ft (1,000–2,000 m).	>75 in (>190 cm)	Well-developed soils, montane bogs.	*Acacia, Charpentiera, Cheirodendron, Metrosideros.*	*Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*	Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*
Montane Mesic [6]	3,300–6,500 ft (1,000–2,000 m).	50–75 in (130–190 cm).	Deep ash deposits, thin silty loams.	*Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*	*Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*	Ferns, *Carex, Peperomia.*

TABLE 5–PHYSICAL OR BIOLOGICAL FEATURES IN EACH ECOSYSTEM—Continued

[Read in association with Table 6]

Ecosystem	Elevation	Annual precipitation	Substrate	Supporting one or more of these associated native plant genera		
				Canopy	Subcanopy	Understory
Montane Dry [7]	3,300–6,500 ft (1,000–2,000 m).	<50 in (<130 cm)	Dry cinder or ash soils, loamy volcanic sands, blocky lava, rock outcroppings.	*Acacia, Metrosideros, Myoporum, Santalum, Sophora.*	*Chamaesyce, Coprosma, Dodonaea, Dubautia, Leptecophylla, Osteomeles, Wikstroemia.*	*Bidens, Eragrostis, Melanthera, Vaccinium.*
Subalpine [8]	6,500–9,800 ft (2,000–3,000 m).	15–40 in (38–100 cm).	Dry ash, sandy loam, rocky, undeveloped soils, weathered lava.	*Chamaesyce, Chenopodium, Metrosideros, Myoporum, Santalum, Sophora.*	*Coprosma, Dodonaea, Dubautia, Geranium, Leptecophylla, Vaccinium, Wikstroemia.*	Ferns, *Bidens, Carex, Deschampsia, Eragrostis, Gahnia, Luzula, Panicum, Pseudognaphalium, Sicyos, Tetramolopium.*
Alpine [9]	>9,800 ft (>3,000 m).	30–50 in (75–125 cm).	Barren gravel, debris, cinders.	none	*Argyroxiphium, Dubautia, Silene, Tetramolopium.*	none.
Dry Cliff [10]	unrestricted	<75 in (<190 cm)	>65 degree slope, rocky talus.	none	*Antidesma, Chamaesyce, Diospyros, Dodonaea.*	*Bidens, Eragrostis, Melanthera, Schiedea.*
Wet Cliff [11]	unrestricted	>75 in (>190 cm)	>65 degree slope, shallow soils, weathered lava.	none	*Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*	Bryophytes, Ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

[1] The physical or biological features for the species in the Coastal ecosystem apply to the following units: Maui–Coastal–Units 1–11; Kahoolawe–Coastal–Units 1–3; Molokai–Coastal–Units 1–7.

[2] The physical or biological features for the species in the Lowland Dry ecosystem apply to the following units: Maui–Lowland Dry–Units 1–6; Kahoolawe–Lowland Dry–Units 1–2; Molokai–Lowland Dry–Units 1–2.

[3] The physical or biological features for the species in the Lowland Mesic ecosystem apply to the following units: Maui–Lowland Mesic–Units 1–3;

Lanai–Lowland Mesic–Unit 1; Molokai–Lowland Mesic–Unit 1.

[4] The physical or biological features for the species in the Lowland Wet ecosystem apply to the following units: Maui–Lowland Wet–Units 1–8; Molokai–Lowland Wet–Units 1–3.

[5] The physical or biological features for the species in the Montane Wet ecosystem apply to the following units: Maui–Montane Wet–Units 1–77; Molokai–Montane Wet–Units 1–3.

[6] The physical or biological features for the species in the Montane Mesic ecosystem apply to the following units: Maui–Montane Mesic–Units 1–55; Molokai–Montane Mesic–Unit 1.

[7] The physical or biological features for the species in the Montane Dry ecosystem apply to the following units: Maui–Montane Dry–Unit 1.

[8] The physical or biological features for the species in the Subalpine ecosystem apply to the following units: Maui–Subalpine–Units 1–2.

[9] The physical or biological features for the species in the Alpine ecosystem apply to the following units: Maui–Alpine–Unit 1.

[10] The physical or biological features for the species in the Dry Cliff ecosystem apply to the following units: Maui–Dry Cliff–Units 1–66.

[11] The physical or biological features for the species in the Wet Cliff ecosystem apply to the following units: Maui–Wet Cliff–Units 1–44, 6–8; Molokai–Wet Cliff–Units 1–3.

TABLE 6—PRIMARY CONSTITUENT ELEMENTS FOR THE MAUI NUI SPECIES ARE A COMBINATION OF THE PHYSICAL OR BIOLOGICAL FEATURES (SEE TABLE 5) IN THE APPLICABLE ECOSYSTEM(S) AS WELL AS PCES SPECIFIC TO EACH SPECIES, IF ANY ARE IDENTIFIED

	Ecosystem											Species-specific physical or biological features
	Coastal	Lowland dry	Lowland mesic	Lowland wet	Montane wet	Montane mesic	Montane dry	Sub-alpine	Alpine	Dry cliff	Wet cliff	
Plants												
Abutilon eremitopetalum		LA.										
Acaena exigua					WMA							bogs.
Adenophorus periens					EMA, LA, MO.							epiphytic.
Alectryon macrococcus var. *auwahiensis*		EMA				EMA	EMA					elevation >1,200 ft (>370 m).
Alectryon macrococcus var. *macrococcus*			MO	WMA		EMA, MO					WMA	elevation >1,200 ft (>370 m).
Argyroxiphium sandwicense ssp.*macrocephalum*						EMA		EMA	EMA	EMA		alpine cinder deserts.
Asplenium dielerectum		WMA, LA	WMA, MO	WMA, MO		EMA, MO				LA.		
Asplenium peruvianum var. *insulare*					EMA	EMA		EMA.				
Bidens campylotheca ssp. *pentamera*		WMA	WMA		EMA	EMA				EMA	EMA, WMA.	
Bidens campylotheca ssp. *waihoiensis*				EMA	EMA						EMA	stream banks.
Bidens conjuncta				WMA	WMA						WMA.	
Bidens micrantha ssp. *kalealaha*		EMA, LA	LA	WMA		EMA		EMA		EMA, LA.		
Bidens wiebkei	MO			MO	MO	MO.						
Bonamia menziesii		EMA, MO	LA, MO							WMA	WMA.	
Brighamia rockii	EMA, WMA, MO.									LA	MO.	
Calamagrostis hillebrandii					WMA							bogs.
Canavalia molokaiensis	MO		MO	MO							MO	
Canavalia pubescens	LA	EMA.										
Cenchrus agrimonioides		EMA, WMA.	LA.									
Clermontia lindseyana						EMA.						
Clermontia oblongifolia ssp. *brevipes*			MO	MO	MO						MO.	
Clermontia oblongifolia ssp. *mauiensis*			LA	EMA, WMA, LA.	EMA.							
Clermontia peleana				EMA								observed epiphytic on ohia, koa, olapa.
Clermontia samuelii				EMA	EMA							bog margins.
Colubrina oppositifolia		EMA	WMA.									
Ctenitis squamigera		EMA, WMA.	EMA, WMA, MO.	WMA		WMA				LA	WMA, LA.	
Cyanea asplenifolia			EMA	EMA, WMA.								
Cyanea copelandii ssp. *haleakalaensis*			EMA	EMA	EMA						EMA.	
Cyanea dunbariae			MO	MO		MO.						
Cyanea duvalliorum				EMA	EMA.							
Cyanea gibsonii					LA						LA.	

Cyanea glabra				WMA	EMA	EMA					WMA.	
Cyanea grimesiana ssp. *grimesiana*				MO							MO.	
Cyanea hamatiflora ssp. *hamatiflora*				EMA	EMA	EMA.						
Cyanea horrida					EMA	EMA					EMA.	
Cyanea kunthiana				EMA, WMA.	EMA, WMA.	EMA.						
Cyanea lobata ssp. *baldwinii*					LA.							
Cyanea lobata ssp. *lobata*				WMA							WMA.	
Cyanea magnicalyx				WMA		WMA					WMA.	
Cyanea mannii			MO		MO	MO.						
Cyanea maritae				EMA	EMA.							
Cyanea mceldowneyi				EMA	EMA	EMA.						
Cyanea munroi											LA, MO.	
Cyanea obtusa		WMA				EMA.						
Cyanea procera			MO		MO	MO.						
Cyanea profuga			MO		MO.							
Cyanea solanacea			MO	MO	MO	MO.						
Cyperus fauriei		LA	MO			MO.						
Cyperus pennatiformis	EMA.											
Cyperus trachysanthos		LA, MO										seasonally wet soil and pond margins.
Cyrtandra ferripilosa					EMA	EMA.						
Cyrtandra filipes			MO	WMA, MO							WMA.	
Cyrtandra munroi				WMA	LA						WMA, LA.	
Cyrtandra oxybapha					WMA	EMA.						
Diplazium molokaiense			LA, MO	WMA	EMA	EMA, WMA.				LA.		
Dubautia plantaginea ssp. *humilis*											WMA.	
Eugenia koolauensis		MO.										
Festuca molokaiensis			MO.									
Flueggea neowawraea		EMA	MO.									
Geranium arboreum						EMA	EMA	EMA.				
Geranium hanaense					EMA							bogs.
Geranium hillebrandii					WMA	WMA						bogs.
Geranium multiflorum					EMA	EMA		EMA		EMA.		
Gouania hillebrandii		WMA, KAH	MO.									
Gouania vitifolia											WMA.	
Hesperomannia arborescens				WMA	MO						WMA, MO, LA.	
Hesperomannia arbuscula		WMA		WMA						WMA	WMA.	
Hibiscus arnottianus ssp. *immaculatus*	MO										MO.	
Hibiscus brackenridgei	LA, MO	EMA, WMA, LA, MO, KAH.										
Huperzia mannii			EMA	EMA, WMA.	EMA, WMA.	EMA, WMA.						epiphytic.
Ischaemum byrone	EMA, MO.											
Isodendrion pyrifolium			MO	WMA						WMA	WMA.	
Kadua cordata ssp. *remyi*			LA	LA.								
Kadua coriacea		WMA.										
Kadua laxiflora			LA, MO	WMA, LA	LA	MO				WMA	WMA, LA.	
Kanaloa kahoolawensis	KAH	KAH.										
Kokia cookei		MO.										
Labordia tinifolia var. *lanaiensis*			LA	LA	LA						LA.	
Labordia triflora			MO.									
Lysimachia lydgatei		WMA				WMA					WMA.	
Lysimachia maxima				MO	MO.							
Marsilea villosa	MO											seasonal wetland.
Melanthera kamolensis		EMA.										

TABLE 6—PRIMARY CONSTITUENT ELEMENTS FOR THE MAUI NUI SPECIES ARE A COMBINATION OF THE PHYSICAL OR BIOLOGICAL FEATURES (SEE TABLE 5) IN THE APPLICABLE ECOSYSTEM(S) AS WELL AS PCES SPECIFIC TO EACH SPECIES, IF ANY ARE IDENTIFIED—Continued

	Ecosystem											Species-specific physical or biological features
	Coastal	Lowland dry	Lowland mesic	Lowland wet	Montane wet	Montane mesic	Montane dry	Sub-alpine	Alpine	Dry cliff	Wet cliff	
Melicope adscendens		EMA				EMA						elevation >3,200 ft (>975 m).
Melicope balloui				EMA	EMA.							
Melicope knudsenii							EMA.					
Melicope mucronulata		EMA	MO			MO	EMA.					
Melicope munroi			MO		LA						LA.	
Melicope ovalis				EMA	EMA						EMA.	
Melicope reflexa			MO	MO	MO.							
Mucuna sloanei var. *persericea*				EMA.								
Myrsine vaccinioides					WMA							bogs.
Neraudia sericea		EMA, WMA, LA, KAH.	MO			EMA, MO				WMA, LA.		
Nototrichium humile		EMA.										
Peperomia subpetiolata					EMA.							
Peucedanum sandwicense	EMA, MO			WMA, MO.								
Phyllostegia bracteata				WMA	EMA, WMA.	EMA		EMA			EMA.	
Phyllostegia haliakalae			MO	EMA	EMA					LA	EMA, LA.	
Phyllostegia hispida				MO	MO						MO.	
Phyllostegia mannii			MO	MO	EMA, MO	EMA.						
Phyllostegia pilosa			MO		EMA, MO.							
Pittosporum halophilum	MO.											
Plantago princeps				MO		MO				EMA	EMA, WMA.	
Platanthera holochila					EMA, WMA, MO.						WMA.	
Pleomele fernaldii		LA	LA	LA						LA	LA.	
Portulaca sclerocarpa	LA.											
Pteris lidgatei				WMA	MO						WMA, MO.	
Remya mauiensis		WMA	WMA	WMA		WMA					WMA.	
Sanicula purpurea					WMA							bogs.
Santalum haleakalae var. *lanaiense*		EMA, WMA.	WMA, LA, MO.	WMA, LA	LA	EMA, WMA, MO.	EMA				WMA, LA.	
Schenkia sebaeoides	WMA, MO	LA.										
Schiedea haleakalensis								EMA		EMA.		
Schiedea jacobii					EMA.							
Schiedea laui					MO.							
Schiedea lydgatei			MO.									
Schiedea salicaria		WMA.										
Schiedea sarmentosa			MO.									
Sesbania tomentosa	WMA, LA, MO, KAH.	EMA, WMA, LA, MO, KAH.	MO.									
Silene alexandri			MO.									
Silene lanceolata		LA	MO.									
Solanum incompletum		EMA, LA	EMA, LA							LA.		
Spermolepis hawaiiensis		EMA, WMA, LA.	LA, MO			MO.						
Stenogyne bifida			MO	MO	MO	MO					MO.	
Stenogyne kauaulaensis						WMA.						

Tetramolopium capillare		WMA								WMA	WMA.
Tetramolopium lepidotum ssp. *lepidotum*		LA.									
Tetramolopium remyi		WMA, LA.									
Tetramolopium rockii	MO.										
Vigna o-wahuensis	EMA, KAH	LA, KAH	LA, MO.								
Viola lanaiensis					LA					LA	LA.
Wikstroemia villosa				EMA, WMA.	EMA	EMA.					
Zanthoxylum hawaiiense		EMA	WMA, MO	LA, MO	MO	EMA, WMA.	EMA	EMA.			
Birds											
Akohekohe			WMA, MO	EMA, WMA, MO.	EMA, WMA, MO.	EMA, WMA, MO.		EMA		EMA, WMA.	EMA, WMA, MO.
Kiwikiu			WMA, MO	EMA, WMA, MO.	EMA, WMA, MO.	EMA, WMA, MO.		EMA		EMA, WMA.	EMA, WMA, MO.
Snails											
Newcombia cumingi (Newcomb's tree snail)				WMA.							
Partulina semicarinata (Lanai tree snail)				LA	LA						LA..
Partulina variabilis (Lanai tree snail)				LA	LA						LA..

EMA = east Maui.
WMA = west Maui.
LA = Lanai.
MO = Molokai.
KAH = Kahoolawe.

Some of the species addressed in this final rule occur in more than one ecosystem. The PCEs for these species are described separately for each ecosystem in which they occur. The reasoning behind this approach is that each species requires a different suite of environmental conditions depending upon the ecosystem in which it occurs. For example, *Bidens campylotheca* ssp. *pentamera* will occur in association with different native plant species, depending on whether it is found within the lowland dry, lowland mesic, montane wet, montane mesic, dry cliff, or wet cliff ecosystems. Each of the physical or biological features described in each ecosystem in which the species occurs are essential to the conservation of the species, to retain its geographical and ecological distribution across the different ecosystem types in which it may occur. Each physical or biological feature is also essential to retaining the genetic representation that allows this species to successfully adapt to different environmental conditions in various native ecosystems. Although some of these species occur in multiple native ecosystems, their declining abundance in the face of ongoing threats, such as increasing numbers of nonnative plant competitors, indicates that they are not such broad habitat generalists as to be able to persist in highly altered habitats. Based on an analysis of the best available scientific information, functioning native ecosystems provide the fundamental biological requirements for the narrow-range endemics addressed in this rule.

Some examples may help to clarify our approach to describing the PCEs for each individual species. If we want to determine the PCEs for the plant *Abutilon eremitopetalum,* we look at Table 6 and see that the PCEs for *A. eremitopetalum* are provided by the physical or biological features in the lowland dry ecosystem. Table 5 indicates that the physical or biological features in the lowland dry ecosystem include elevations of less than 3,300 ft (1,000 m); annual precipitation of less than 50 in (130 cm); weathered silty loams to stony clay, rocky ledges, and little-weathered lava; and potential habitat for one or more genera of the canopy (*Diospyros, Myoporum, Pleomele,* and *Santalum*), subcanopy (*Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola,* and *Wikstroemia*), or understory plants (*Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia,* and *Sicyos*). As we do not specifically know of any PCEs specific to *A. eremitopetalum* and this plant is found only in the lowland dry ecosystem, we believe that the physical or biological features for the lowland dry ecosystem best approximate the PCEs for *A. eremitopetalum*. Thus we use the physical and biological features provided in the ecosystem in which *A. eremitopetalum* is found as the PCEs for *A. eremitopetalum*.

As another example, Table 6 indicates the physical or biological features for the plant *Geranium hillebrandii* include the ecosystem-level physical or biological features for the montane wet and montane mesic ecosystems, depending on the locations, and also that this species has a species-specific PCE: Bogs. The PCEs for *G. hillebrandii* are thus composed of the physical or biological features for each of the two ecosystems it occupies, as described in Table 5 for the montane wet and montane mesic ecosystems, as well as bogs, as identified in Table 6. Table 6 is read in a similar fashion in conjunction with Table 5 to describe the PCEs for each of the 125 species for which we are designating critical habitat in this final rule.

Special Management Considerations or Protections

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features that are essential to the conservation of the species and which may require special management considerations or protection.

In identifying critical habitat in occupied areas, we determine whether those areas that contain the features essential to the conservation of the species require any special management actions. Although the determination that special management may be required is not a prerequisite to designating critical habitat in unoccupied areas, special management is needed throughout all of the critical habitat units in this final rule. The following discussion of special management needs is therefore applicable to each of the Maui Nui species for which we are designating critical habitat in this rule.

In this final rule, we are designating critical habitat for 125 of the 135 species for which we proposed critical habitat. For the reasons described below (see *Exclusions Based on Other Relevant Factors*), we are not designating critical habitat for eight plants (*Abutilon eremitopetalum, Cyanea gibsonii, Kadua cordata* ssp. *remyi, Labordia tinifolia* var. *lanaiensis, Pleomele fernaldii, Portulaca sclerocarpa, Tetramolopium lepidotum* ssp. *lepidotum,* and *Viola lanaiensis*) and two tree snails (*Partulina semicarinata* and *P. variabilis*). The 125 species for which we are designating critical habitat include 108 plant and animal species that are currently found in the wild on Molokai, Maui, and Kahoolawe; (10 plant species which were historically found on one or more of these islands, but are currently found only on other Hawaiian Islands (*Adenophorus periens, Clermontia peleana, Cyanea grimesiana* ssp. *grimesiana, Cyperus trachysanthos, Eugenia koolauensis, Gouania vitifolia, Isodendrion pyrifolium, Kadua coriacea, Nototrichium humile,* and *Solanum incompletum*), 6 plant species that may not be currently extant in the wild (*Acaena exigua, Cyanea glabra, Phyllostegia bracteata, P. haliakalae, Schiedea jacobii,* and *Tetramolopium capillare*), and 1 plant species, *Kokia cookei,* which exists only in cultivation. For each of the 108 species currently found in the wild on Molokai, Maui, and Kahoolawe, we have determined that the features essential to their conservation are those required for the successful functioning of the ecosystem(s) in which they occur (see Tables 5 and 6, above). As described earlier, in some cases, additional species-specific primary constituent elements were also identified (see Table 6, above). Special management considerations or protections are necessary throughout the critical habitat areas designated here to avoid further degradation or destruction of the habitat that provides those features essential to their conservation. The primary threats to the physical or biological features essential to the conservation of all of these species include habitat destruction and modification by nonnative ungulates, competition with nonnative species, hurricanes, landslides, rockfalls, flooding, fire, drought, and climate change. Additionally, the rosy wolf snail poses a threat to the Newcomb's tree snail and mosquito-borne diseases pose threats to the two forest birds. The reduction of these threats will require the implementation of special management actions within each of the critical habitat areas identified in this final rule.

All designated critical habitat requires active management to address the ongoing degradation and loss of native habitat caused by nonnative ungulates (pigs, goats, mouflon sheep, axis deer, and cattle). Nonnative ungulates also impact the habitat through predation and trampling. Without this special management, habitat containing the features that are essential for the

conservation of these species will continue to be degraded and destroyed.

All designated critical habitat requires active management to address the ongoing degradation and loss of native habitat caused by nonnative plants. Special management is also required to prevent the introduction of new nonnative plant species into native habitats. Particular attention is required in nonnative plant control efforts to avoid creating additional disturbances that may facilitate the further introduction and establishment of invasive plant seeds. Precautions are also required to avoid the inadvertent trampling of listed plant species in the course of management activities.

The active control of nonnative plant species would help to address the threat posed by fire to 31 of the designated ecosystem critical habitat units in particular: Maui-Coastal—Units 4 through 7; Maui-Lowland Dry—Units 1 through 6; Maui-Lowland Mesic—Units 1 and 2; Maui-Montane Mesic—Units 1, 2, and 5; Maui-Dry Cliff—Units 1, 5, and 7; Kahoolawe-Coastal—Units 1 through 3; Kahoolawe-Lowland Dry—Units 1 and 2; Molokai-Coastal—Units 1, 2, 3, 6, and 7; Molokai-Lowland Dry—Units 1 and 2; and Molokai-Lowland Mesic—Unit 1. This threat is largely a result of the presence of nonnative plant species such as the grasses *Andropogon virginicus* (broomsedge), *Cenchrus* spp. (sandbur, buffelgrass), and *Melinis minutiflora* (molasses grass), that increase the fuel load and quickly regenerate after a fire. These nonnative grass species can outcompete native plants that are not adapted to fire, creating a grass-fire cycle that alters ecosystem functions (D'Antonio and Vitousek 1992, pp. 64–66; Brooks *et al.* 2004, p. 680).

Nine of the ecosystem critical habitat units (Maui-Lowland Wet—Units 1 and 4; Maui-Montane Wet—Units 1 through 3; Maui-Montane Mesic—Unit 2; Maui-Wet Cliff—Units 6 and 7; and Molokai-Montane Wet—Unit 1) may require special management to reduce the threat of landslides, rockfalls, and flooding. These threaten to further degrade habitat conditions in these units and have the potential to eliminate some occurrences of 50 plant species (*e.g., Adenophorus periens, Alectryon macrococcus, Asplenium peruvianum* var. *insulare, Bidens campylotheca* ssp. *pentamera, B. campylotheca* ssp. *waihoiensis, B. conjuncta, B. wiebkei, Bonamia menziesii, Clermontia oblongifolia* ssp. *brevipes, C. oblongifolia* ssp. *mauiensis, C. samuelii, Ctenitis squamigera, Cyanea asplenifolia, C. copelandii* ssp. *haleakalaensis, C. duvalliorum, C. hamatiflora* ssp. *hamatiflora, C. horrida, C. kunthiana, C. magnicalyx, C. mannii, C. maritae, C. mceldowneyi, C. profuga, C. solanacea, Cyrtandra filipes, C. munroi, Diplazium molokaiense, Dubautia plantaginea* ssp. *humilis, Geranium hanaense, G. multiflorum, Hesperomannia arborescens, Huperzia mannii, Kadua laxiflora, Lysimachia lydgatei, L. maxima, Melicope balloui, M. ovalis, Phyllostegia hispida, P. mannii, P. pilosa, Plantago princeps, Platanthera holochila, Pteris lidgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense, Schiedea laui, Stenogyne bifida, S. kauaulaensis, Wikstroemia villosa,* and *Zanthoxylum hawaiiense*) found on steep slopes and cliffs, or in narrow gulches.

Special Management To Address Disease and Disease Vectors

All of the forest bird critical habitat units may require special management to reduce the threat of mosquitoes. Mosquito-borne disease (*i.e.,* avian pox and malaria) is identified as a threat to both the akohekohe and kiwikiu, and limits distribution of these two birds to their current high-elevation ranges (*i.e.,* above 4,000 ft (1,200 m)). It is believed that the incidence of avian disease is less prevalent above 4,000 ft, where the abundance of mosquito vectors is low and development of the malarial parasite in the mosquito vector is limited by thermal constraints (Service 2006, p. 4–62). The recovery strategy for the akohekohe and kiwikiu calls for the reestablishment of a second population of both species in historical habitat on west Maui or east Molokai in areas that possibly harbor populations of mosquitoes, and therefore will require special management to reduce the threat from mosquito-borne disease.

Special Management To Address Predation by the Nonnative Rosy Wolf Snail

The only critical habitat unit for the Newcomb's tree snail (*Newcombia cumingi*—Unit 1—Lowland Wet) may require special management to reduce the threat of predation by the nonnative rosy wolf snail (*Euglandina rosea*). This nonnative snail is now found on six of the eight main Hawaiian Islands (its presence on Niihau and Kahoolawe has not been confirmed) and it has expanded its range on those islands to include cooler, mid-elevation forests where many endemic tree snails are found. This nonnative snail is likely responsible for the decline and extinction of many of Hawaii's native tree snails (Stone and Anderson 1988, p. 134; Hadfield *et al.* 1993, p. 621; Hadfield 2010a, in litt.). For the reasons described below (see *Exclusions Based on Other Relevant Factors*), critical habitat is not designated on the island of Lanai, where the two Lanai tree snails (*Partulina semicarinata* and *P. variabilis*) are found.

In summary, we find that each of the areas we are designating as critical habitat that were occupied at the time of listing contains features essential for the conservation of the species that may require special management considerations or protection to ensure the conservation of 125 Maui Nui species. These special management considerations and protections may be required to preserve and maintain the essential features provided to these species by the ecosystems upon which they depend.

Unoccupied Areas

Under section 3(5)(A)(ii) of the Act, we may designate as critical habitat specific areas outside the geographical area occupied by the species at the time it is listed upon a determination that such areas are essential for the conservation of the species. Here we have designated critical habitat for 17 plant species that historically occurred on the islands of Maui Nui but are no longer found on these islands. Ten of these plants were historically found on one or more of these islands, but are currently found only on other Hawaiian Islands (*Adenophorus periens, Cyanea grimesiana* ssp. *grimesiana, Cyperus trachysanthos, Eugenia koolauensis, Gouania vitifolia, Isodendrion pyrifolium, Kadua coriacea, Nototrichium humile, Solanum incompletum,* and *Tetramolopium lepidotum* ssp. *lepidotum*), 6 plant species may not be currently extant in the wild (*Acaena exigua, Cyanea glabra, Phyllostegia bracteata, P. haliakalae, Schiedea jacobii,* and *Tetramolopium capillare*), and 1 plant species, *Kokia cookei,* which exists only in cultivation. The conservation of these species will be entirely dependent upon suitable but unoccupied habitat for the reestablishment of populations to ensure their conservation and recovery. In addition, because of reduced population sizes and distribution, and because of ongoing threats in the areas currently occupied by the species, all of the Maui Nui species additionally require presently unoccupied but suitable habitat to provide space for the expansion of existing populations and reestablishment of additional populations to achieve the conservation of the species, as guided by the goals set in recovery plans for the species (for 95 of the plant species, the 3 tree snails, and 2 birds) or general recovery

objectives for Hawaiian plants (for 30 of the plant species without specific recovery plans), and to provide resiliency of the populations in the face of ongoing threats.

One of the primary reasons for listing of these 125 species is that their numbers have been so greatly reduced in terms of numbers of individuals, populations, and distribution as to render these species vulnerable to extinction. Based on the current status of each species (see Current Status of 135 Listed Maui Nui Species, above), we have determined that each requires suitable habitat and space for the expansion of existing populations to achieve a level that could approach recovery; in all cases, this requires areas of suitable habitat that are not currently occupied by the species. Most of these species have been reduced to only a few known occurrences with numbers so low that not even a single existing viable population is known; in such cases, suitable but unoccupied habitat is essential for the conservation of the species to both expand and reestablish populations and maintain its historical geographical and ecological distribution. In addition, for plant species in particular, the reintroduction of imperiled species is a relatively new and inexact science (see, *e.g.,* Guerrant and Kaye 2007, entire). Most attempted reintroductions are not successful; a recent global meta-analysis found rare plant reintroductions resulting in recruitment of offspring ranged from only 5 percent to just under 50 percent (Dalrymple *et al.* 2012, p. 39), despite using conditions associated with extant, wild populations to select reintroduction sites (Dalrymple *et al.* 2012, p. 47). For all of the Maui Nui plant species, reintroductions may therefore be needed at a number of sites of potentially suitable habitat greater than the number of sites eventually required to support the minimum number of populations required for recovery (Kaye 2008, p. 316; Dalrymple *et al.* 2012, pp. 48–49). Furthermore, long-term success of a reintroduction will depend not only on initial growth and survival, but ultimately the reintroduced species must be embedded in a larger ecological community that is capable of promoting persistence (Guerrant and Kaye 2008, p. 367).

We have taken all of these factors into account in our designation of unoccupied habitat for the Maui Nui species, and have concluded that more potentially suitable habitat than what would appear to be the minimum required to achieve conservation goals is essential, space is needed between populations, and a stochastic event may negatively impact one or more populations. Given the need for this redundancy in unoccupied habitat suitable for future reintroductions, because populations must be widely distributed across the range of the species to protect each against extirpation from stochastic events, and because room is needed for expansion of known occurrences, we conclude that all of the unoccupied areas designated here as critical habitat are essential to the conservation of the species, in order to achieve the requisite abundance and distribution of stable, secure, and self-sustaining populations to consider the species recovered. As described above, for similar reasons we have designated unoccupied habitat for the akohekohe and kiwikiu based on the recovery areas identified in the Revised Recovery Plan for Hawaiian Forest Birds (Service 2006), and for future reintroduction sites for the three tree snails based on the interim recovery objectives as identified in the Recovery Plan for Oahu Tree Snails of the Genus *Achatinella* (1992, entire). As we have determined that a designation limited to the current range of the 125 Maui Nui species would be inadequate to achieve their conservation, for all of the reasons outlined above, here we are designating unoccupied critical habitat that we have determined is essential for the conservation of the species.

Criteria Used To Identify Critical Habitat

As required by section 4(b)(1)(A) of the Act, we used the best scientific data available to designate critical habitat. We reviewed available information pertaining to the habitat requirements of the species. In accordance with the Act and our implementing regulations at 50 CFR 424.12(e), we review available information pertaining to the habitat requirements of the species and identify occupied areas at the time of listing that contain the features essential to the conservation of the species. If after identifying currently occupied areas, a determination is made that those areas are inadequate to ensure conservation of the species, in accordance with the Act and our implementing regulations at 50 CFR 424.12(e), we then consider whether designating additional areas—outside those currently occupied—are essential for the conservation of the species. We are designating critical habitat in areas outside the geographical area occupied by the species at the time of listing because we have determined that such areas are essential for the conservation of the species.

We considered several factors in the selection of specific boundaries for critical habitat for the Maui Nui species. We determined critical habitat unit boundaries taking into consideration the known past and present locations of the species, areas determined to be essential to Hawaiian plants (HPPRCC 1998, entire), the recovery areas as determined by species' Recovery Plans (for plants, birds, and tree snails), any previously designated critical habitat for the species, projections of geographic ranges of Hawaiian plant species (Price *et al.* 2012, entire), space to allow for increases in numbers of individuals and for expansion of populations to provide for the minimum numbers required to reach delisting goals (as described in Recovery Plans), space between individual critical habitat units to provide for redundancy of populations across the range of the species in case of catastrophic events such as fire and hurricanes, and critical habitat units on multiple islands for those species known from more than one Hawaiian island (see also Methods, and ''Unoccupied Areas,'' above). The initial boundaries were superimposed over digital topographic maps of the islands of Molokai, Lanai, Maui, and Kahoolawe and further evaluated. In general, land areas that were identified as highly degraded were removed from the proposed critical habitat units, and natural or manmade features (*e.g.,* ridge lines, valleys, streams, coastlines, roads, obvious land features, etc.) were also used to delineate the final critical habitat boundaries. We are designating critical habitat on lands that contain the physical or biological features essential to conserving multiple species, based on their shared dependence on the functioning ecosystems they have in common. Because the 11 habitat types discussed in this final rule do not form a single contiguous area, they are divided into geographic units on the islands of Molokai, Maui, and Kahoolawe: 82 Plant critical habitat units, 82 forest bird critical habitat units (41 units for each bird), and 1 tree snail critical habitat unit. The forest bird and the tree snail critical habitat units completely overlap the 82 plant critical habitat units.

The critical habitat is a combination of areas currently occupied by the species in that ecosystem, as well as areas that may be currently unoccupied. Due to the extremely remote and inaccessible nature of the area, surveys are relatively infrequent and may be limited in scope; therefore, it is difficult to say with certainty whether individual representatives of a rare species may or may not be present. A properly functioning ecosystem provides the life-

history requirements of the species that make up that ecosystem, and the physical or biological features found in such an ecosystem are the PCEs essential for the conservation of the species that occur there. In other words, the occupied areas provide the physical or biological features essential to the conservation of the species occurring in the ecosystems we analyzed, by providing for the successful functioning of the ecosystem on which the species depend. However, due to the small population sizes, few numbers of individuals, and reduced or lost geographic range of each of the 125 species for which critical habitat is designated, we have determined that a designation limited to the known present range of each species would be inadequate to achieve the conservation of those species because the current populations and range are insufficient to meet recovery goals or to provide sufficient resiliency against ongoing threats to ensure the viability of the species. The areas believed to be unoccupied, and that may have been unoccupied at the time of listing, have been determined to be essential for the conservation and recovery of the species because they provide the physical or biological features necessary for the expansion of existing wild populations and reestablishment of wild populations within the historical range of the species. For 15 of the plant species (*Acaena exigua, Cyanea glabra, C. grimesiana* ssp. *grimesiana, Cyperus trachysanthos, Eugenia koolauensis, Gouania vitifolia, Isodendrion pyrifolium, Kadua coriacea, Kokia cookei, Nototrichium humile, Phyllostegia bracteata, P. haliakalae, Schiedea jacobii, Solanum incompletum,* and *Tetramolopium capillare*), we are designating unoccupied areas only, as these species are not believed to be extant on Molokai, Maui, or Kahoolawe. Designating unoccupied critical habitat for these species, which once occurred on these islands but are no longer found there, would promote conservation actions to restore their historical, geographical, and ecological representation, which is essential for their recovery. Critical habitat boundaries for all species were delineated to include the habitat features necessary to provide for functioning ecosystems on which they depend; these areas are essential to the conservation of these species since they have been extirpated from these islands and their recovery will be entirely dependent upon their successful reestablishment in suitable but unoccupied habitat.

In some cases, we have identified areas of critical habitat for species in multiple ecosystem areas. With the exception of *Acaena exigua, Cyanea glabra, C. grimesiana* ssp. *grimesiana, Cyperus trachysanthos, Eugenia koolauensis, Gouania vitifolia, Isodendrion pyrifolium, Kadua coriacea, Kokia cookei, Nototrichium humile, Phyllostegia bracteata, P. haliakalae, Schiedea jacobii, Solanum incompletum,* and *Tetramolopium capillare,* which are believed to be no longer extant on Molokai, Maui, or Kahoolawe, all of the critical habitat units in these ecosystems contain some areas that are currently unoccupied, and that may have been unoccupied at the time of listing, but have been determined to be essential for the conservation of the species. Because of the small numbers of individuals or low population sizes of each of the 125 species, each requires suitable habitat and space for the expansion of existing populations to achieve a level that could approach recovery. For example, although the plant *Huperzia mannii* is found in multiple critical habitat units across four ecosystem types, its entire distribution is comprised of a total of fewer than 200 wild individuals. The unoccupied areas of each unit are essential for the expansion of this species to achieve viable population numbers and maintain its historical geographical and ecological distribution. This same logic applies to each of the Maui Nui species.

On Maui, there are two distinct geographic areas separated by an isthmus (east and west Maui mountains) with geological and evolutionary age differences. Sixty-three of the plant species and the tree snail *Newcombia cumingi,* for which we are designating critical habitat on the islands of Maui Nui, are historically known from only east Maui or only west Maui. In the case of those species endemic to either east or west Maui, we are designating critical habitat only in the geographic area of historical occurrence on this island. Thirty-eight plant species (*Adenophorus periens, Alectryon macrococcus* var. *auwahiensis, Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium peruvianum* var. *insulare, Bidens campylotheca* ssp. *waihoiensis, Canavalia pubescens, Clermontia lindseyana, C. peleana, C. samuelii, Cyanea copelandii* ssp. *haleakalaensis, C. duvalliorum, C. hamatiflora* ssp. *hamatiflora, C. horrida, C. maritae, C. mceldowneyi, Cyperus pennatiformis, Cyrtandra ferripilosa, Flueggea neowawraea, Geranium arboreum, G. hanaense, G. multiflorum, Ischaemum byrone, Melanthera kamolensis, Melicope adscendens, M. balloui, M. knudsenii, M. mucronulata, M. ovalis, Mucuna sloanei* var. *persericea, Nototrichium humile, Peperomia subpetiolata, Phyllostegia haliakalae, P. mannii, P. pilosa, Schiedea haleakalensis, S. jacobii, Solanum incompletum,* and *Vigna o-wahuensis*) are known only from the east Maui mountains, and 26 plant species (*Acaena exigua, Bidens conjuncta, Calamagrostis hillebrandii, Cyanea lobata* ssp. *lobata, C. magnicalyx, Cyrtandra filipes, C. munroi, Dubautia plantaginea* ssp. *humilis, Geranium hillebrandii, Gouania hillebrandii, G. vitifolia, Hesperomannia arborescens, H. arbuscula, Isodendrion pyrifolium, Kadua coriacea, K. laxiflora, Lysimachia lydgatei, Myrsine vaccinioides, Pteris lydgatei, Remyi mauiensis, Sanicula purpurea, Schenkia sebaeoides, Schiedea salicaria, Stenogyne kauaulaensis, Tetramolopium capillare,* and *T. remyi*), and the tree snail *Newcombia cumingi,* are known only from the west Maui mountains.

The critical habitat areas described below constitute our best assessment of the physical or biological features essential for the recovery and conservation of 125 Maui Nui species, and the unoccupied areas needed for the expansion or augmentation of reduced populations or reestablishment of populations. The approximate size of each of the 82 plant critical habitat units, the 82 forest bird critical habitat units (41 units for each bird), and the tree snail critical habitat unit, and the status of their land ownership, are identified in Tables 7A through 7F. The ecosystems in which critical habitat for each of the plant, forest bird, and tree snail species is designated are identified in Tables 8A through 8C, along with areas excluded from critical habitat designation under section 4(b)(2) of the Act (see Exclusions, below). All forest bird and tree snail critical habitat units overlap areas designated as plant critical habitat.

When determining critical habitat boundaries within this final rule, we made every effort to avoid including developed areas such as lands covered by buildings, pavement, and other structures because such lands lack the physical or biological features essential for the conservation of the 125 Maui Nui species. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the

maps of this final rule have been excluded by text in the rule and are not designated as critical habitat. Therefore, a Federal action involving these lands will not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the action would affect the physical or biological features in the adjacent critical habitat.

The critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document in the regulatory portion of this final rule. The coordinates or plot points or both on which each map is based are available to the public on *http://www.regulations.gov* at Docket No. FWS–R1–ES–2015–0071, on our Internet site (*http://www.fws.gov/pacificislands/*), and at the field office responsible for the designation (see **FOR FURTHER INFORMATION CONTACT** above).

Units are designated based on sufficient elements of physical or biological features being present to support the species' life processes. Some units contain all of the identified elements of physical or biological features and supported multiple life processes. Some units contain only some elements of the physical or biological features necessary to support the species' particular use of that habitat.

TABLE 7A—CRITICAL HABITAT FOR 60 PLANT SPECIES ON THE ISLAND OF MOLOKAI

[Totals may not sum due to rounding]

Critical habitat area	Size of unit in acres	Size of unit in hectares	Landownership (acres)			
			State	Federal	County	Private
Molokai—Coastal:						
—Unit 1	125	50	0	54	0	70
—Unit 2	973	396	263	0	0	710
—Unit 3	803	325	794	3	0	0
—Unit 4	10	4	10	0	0	0
—Unit 5	1	0.5	1	0	0	0
—Unit 6	1,884	762	190	0	0	1,685
—Unit 7	49	20	0	0	0	49
Total Coastal *	3,849	1,558	1,258	57	0	2,514
Molokai—Lowland Dry:						
—Unit 1	24	10	0	0	0	24
—Unit 2	589	238	589	0	0	0
Total Lowland Dry	613	248	589	0	0	24
Molokai—Lowland Mesic:						
—Unit 1	8,770	3,549	3,489	0	0	5,281
Total Lowland Mesic	8,770	3,549	3,489	0	0	5,281
Molokai—Lowland Wet:						
—Unit 1	2,949	1,193	2,195	0	0	754
—Unit 2	1,950	789	1,356	0	0	594
—Unit 3	3,219	1,303	94	0	0	3,125
Total Lowland Wet	8,118	3,285	3,645	0	0	4,473
Molokai—Montane Wet:						
—Unit 1	3,397	1,375	1,545	0	0	1,851
—Unit 2	910	368	871	0	0	39
—Unit 3	803	325	77	0	0	726
Total Montane Wet	5,110	2,068	2,493	0	0	2,616
Molokai—Montane Mesic:						
—Unit 1	816	330	257	0	0	559
Total Montane Mesic	816	330	257	0	0	559
Molokai—Wet Cliff:						
—Unit 1	1,607	651	1,395	0	0	212
—Unit 2	1,268	513	462	0	0	806
—Unit 3	1,362	551	1,137	0	0	225
Total Wet Cliff	4,237	1,715	2,994	0	0	1,243
Total all units	31,513	12,753	14,725	57	0	16,710

* Area discrepancy between unit and parcel due to parcel coastline data

TABLE 7B—CRITICAL HABITAT FOR 91 PLANT SPECIES ON THE ISLAND OF MAUI

[Totals may not sum due to rounding]

Critical habitat area	Size of unit in acres	Size of unit in hectares	Landownership (acres)			
			State	Federal	County	Private
Maui—Coastal:						
—Unit 1	2	1	2	0	0	0
—Unit 2	25	10	16	0	0	9
—Unit 3	11	4	0	0	0	10
—Unit 4	74	30	40	0	0	35
—Unit 5	26	11	26	0	0	0
—Unit 6	356	144	356	0	0	0
—Unit 7	46	19	30	0	0	15
—Unit 8	493	200	493	0	0	0
—Unit 9	170	69	170	0	0	<1
—Unit 10	173	70	147	0	0	26
—Unit 11	6	3	6	0	0	0
Total Coastal	1,382	561	1,286	0	0	95
Maui—Lowland Dry:						
—Unit 1	13,537	5,478	11,465	2,069	0	3
—Unit 2	1,851	749	1,851	0	0	0
—Unit 3	188	76	0	0	0	188
—Unit 4	1,266	512	1,266	0	0	0
—Unit 5	3,658	1,480	3,615	0	0	43
—Unit 6	240	97	3	0	0	237
Total Lowland Dry	20,740	8,392	18,200	2,069	0	471
Maui—Lowland Mesic:						
—Unit 1	1,882	762	1,147	494	0	241
—Unit 2	1,147	464	1,034	0	0	113
—Unit 3	477	193	477	0	0	0
Total Lowland Mesic	3,506	1,419	2,658	494	0	354
Maui—Lowland Wet:						
—Unit 1	16,079	6,507	6,616	2,038	0	7,425
—Unit 2	65	26	65	0	0	0
—Unit 3	1,247	505	1,247	0	0	0
—Unit 4	864	350	864	0	0	0
—Unit 5	30	12	30	0	0	0
—Unit 6	136	55	136	0	0	0
—Unit 7	898	364	898	0	0	0
—Unit 8	230	93	230	0	0	0
Total Lowland Wet	19,549	7,912	10,086	2,038	0	7,425
Maui—Montane Wet:						
—Unit 1	2,110	854	1,313	0	0	798
—Unit 2	14,583	5,901	4,075	875	0	9,633
—Unit 3	2,228	902	0	2,228	0	0
—Unit 4	1,833	742	180	1,653	0	0
—Unit 5	387	156	222	165	0	0
—Unit 6	1,399	566	1,113	0	0	286
—Unit 7	80	32	80	0	0	0
Total Montane Wet	22,620	9,153	6,983	4,921	0	10,717
Maui—Montane Mesic:						
—Unit 1	10,972	4,440	6,593	3,672	0	707
—Unit 2	124	50	124	0	0	0
—Unit 3	174	70	174	0	0	0
—Unit 4	72	29	72	0	0	0
—Unit 5	170	69	170	0	0	0
Total Montane Mesic	11,512	4,658	7,133	3,672	0	707
Maui—Montane Dry:						
—Unit 1	3,524	1,426	2,962	563	0	0
Total Montane Dry	3,524	1,426	2,962	563	0	0

TABLE 7B—CRITICAL HABITAT FOR 91 PLANT SPECIES ON THE ISLAND OF MAUI—Continued

[Totals may not sum due to rounding]

Critical habitat area	Size of unit in acres	Size of unit in hectares	Landownership (acres)			
			State	Federal	County	Private
Maui—Subalpine:						
—Unit 1	15,975	6,465	10,785	3,568	0	1,622
—Unit 2	9,886	4,001	0	9,836	0	50
Total Subalpine	25,861	10,465	10,785	13,404	0	1,672
Maui—Alpine:						
—Unit 1	1,797	727	475	911	0	411
Total Alpine	1,797	727	475	911	0	411
Maui—Dry Cliff:						
—Unit 1	755	305	0	755	0	0
—Unit 2	688	279	0	688	0	0
—Unit 3	200	81	0	200	0	0
—Unit 4	315	127	0	315	0	0
—Unit 5	1,298	525	1,298	0	0	0
—Unit 6	279	113	279	0	0	0
Total Dry Cliff	3,535	1,430	1,577	1,958	0	0
Maui—Wet Cliff:						
—Unit 1	290	117	0	0	0	290
—Unit 2	1,407	569	475	912	0	20
—Unit 3	438	177	5	433	0	0
—Unit 4	184	75	184	0	0	0
—Unit 6	2,110	854	1,858	0	0	253
—Unit 7	557	225	556	0	0	0
—Unit 8	337	137	337	0	0	0
Total Wet Cliff	5,323	2,154	3,415	1,345	0	563
Total all units	119,349	48,297	65,560	31,375	0	22,415

TABLE 7C—CRITICAL HABITAT FOR SIX PLANT SPECIES ON THE ISLAND OF KAHOOLAWE

[Totals may not sum due to rounding]

Critical habitat area	Size of unit in acres	Size of unit in hectares	Landownership (acres)			
			State	Federal	County	Private
Kahoolawe—Coastal:						
—Unit 1	1,516	613	1,516	0	0	0
—Unit 2	12	5	12	0	0	0
—Unit 3	189	76	189	0	0	0
Total Coastal	1,717	694	1,717	0	0	0
Kahoolawe—Lowland Dry:						
—Unit 1	1,220	494	1,220	0	0	0
—Unit 2	3,205	1,297	3,205	0	0	0
Total Lowland Dry	4,425	1,791	4,425	0	0	0
Total all Units	6,142	2,485	6,142	0	0	0

TABLE 7D—CRITICAL HABITAT FOR TWO FOREST BIRD SPECIES (AKOHEKOHE AND KIWIKIU) ON THE ISLAND OF MAUI

[Totals may not sum due to rounding]

Critical habitat area	Size of unit in acres	Size of unit in hectares	Landownership (acres)			
			State	Federal	County	Private
Lowland Mesic:						
Maui—Unit 1	477	193	477	0	0	0
Total Lowland Mesic	477	193	477	0	0	0
Lowland Wet:						
Maui—Unit 2	16,079	6,507	6,616	2,038	0	7,425
Maui—Unit 3	65	26	65	0	0	0
Maui—Unit 4	1,247	505	1,247	0	0	0
Maui—Unit 5	864	350	864	0	0	0
Maui—Unit 6	30	12	30	0	0	0
Maui—Unit 7	136	55	136	0	0	0
Maui—Unit 8	898	364	898	0	0	0
Maui—Unit 9	230	93	230	0	0	0
Total Lowland Wet	19,549	7,912	10,086	2,038	0	7,425
Montane Wet:						
Maui—Unit 10	2,110	854	1,313	0	0	798
Maui—Unit 11	14,583	5,901	4,075	875	0	9,633
Maui—Unit 12	2,228	902	0	2,228	0	0
Maui—Unit 13	1,833	742	180	1,653	0	0
Maui—Unit 14	387	156	222	165	0	0
Maui—Unit 15	1,399	566	1,113	0	0	286
Maui—Unit 16	80	32	80	0	0	0
Total Montane Wet	22,620	9,153	6,983	4,921	0	10,717
Montane Mesic:						
Maui—Unit 18	10,972	4,440	6,593	3,672	0	707
Maui—Unit 19	124	50	124	0	0	0
Maui—Unit 20	174	70	174	0	0	0
Maui—Unit 21	72	29	72	0	0	0
Maui—Unit 22	170	69	170	0	0	0
Total Montane Mesic	11,512	4,658	7,133	3,672	0	707
Subalpine:						
Maui—Unit 24	15,975	6,465	10,785	3,568	0	1,622
Maui—Unit 25	9,886	4,001	0	9,836	0	50
Total Subalpine	25,861	10,466	10,785	13,404	0	1,672
Dry Cliff:						
Maui—Unit 26	755	305	0	755	0	0
Maui—Unit 27	200	81	0	200	0	0
Maui—Unit 28	315	127	0	315	0	0
Maui—Unit 29	1,298	525	1,298	0	0	0
Total Dry Cliff	2,568	1,038	1,298	1,270	0	0
Wet Cliff:						
Maui—Unit 30	290	117	0	0	0	290
Maui—Unit 31	1,407	569	475	912	0	20
Maui—Unit 32	438	177	5	433	0	0
Maui—Unit 33	184	75	184	0	0	0
Maui—Unit 35	2,110	854	1,858	0	0	253
Maui—Unit 36	557	225	556	0	0	0
Total Wet Cliff	4,986	2,017	3,078	1,345	0	563
Total all Units	87,573	35,437	39,840	26,650	0	21,084

TABLE 7E—CRITICAL HABITAT FOR TWO FOREST BIRD SPECIES (AKOHEKOHE AND KIWIKIU) ON THE ISLAND OF MOLOKAI

[Totals may not sum due to rounding]

Critical habitat area	Size of unit in acres	Size of unit in hectares	Landownership (acres)			
			State	Federal	County	Private
Lowland Mesic:						
Molokai—Unit 37	8,770	3,549	3,489	0	0	5,281
Total Lowland Mesic	8,770	3,549	3,489	0	0	5,281
Lowland Wet:						
Molokai—Unit 38	2,949	1,193	2,195	0	0	754
Molokai—Unit 39	1,950	789	1,356	0	0	594
Total Lowland Wet	4,899	1,982	3,551	0	0	1,348
Montane Wet:						
Molokai—Unit 40	3,397	1,375	1,545	0	0	1,851
Molokai—Unit 41	910	368	871	0	0	39
Total Montane Wet	4,307	1,743	2,416	0	0	1,890
Montane Mesic:						
Molokai—Unit 42	816	330	257	0	0	559
Total Montane Mesic	816	330	257	0	0	559
Wet Cliff:						
Molokai—Unit 43	1,607	651	1,395	0	0	212
Molokai—Unit 44	1,268	513	462	0	0	806
Total Wet Cliff	2,875	1,164	1,857	0	0	1,018
Total all Units	21,667	8,768	11,570	0	0	10,096

TABLE 7F—CRITICAL HABITAT FOR NEWCOMBIA CUMINGI ON THE ISLAND OF MAUI

[Totals may not sum due to rounding]

Critical habitat area	Size of unit in acres	Size of unit in hectares	Landownership (acres)			
			State	Federal	County	Private
Lowland Wet:						
Maui—Unit 1	65	26	65	0	0	0
Total Lowland Wet	65	26	65	0	0	0
Total all Units	65	26	65	0	0	0

TABLE 8A—PLANT SPECIES FOR WHICH CRITICAL HABITAT IS DESIGNATED IN EACH ECOSYSTEM, AND AREAS EXCLUDED UNDER SECTION 4(b)(2) OF THE ACT

Species	Ecosystem											Excluded from critical habitat ac (ha)	Total critical habitat designated ac (ha)
	Coastal	Lowland dry	Lowland mesic	Lowland wet	Montane wet	Montane mesic	Montane dry	Sub-alpine	Alpine	Dry cliff	Wet cliff		
PLANTS													
Abutilon eremitopetalum		LA										10,705 (4,332)	0 (0)
*Acaena exigua**					WMA							3,139 (1,270)	1,479 (599)
Adenophorus periens					EMA, LA, MO.							9,711 (3,930)	26,251 (10,623)
Alectryon macrococcus var. *auwahiensis.*		EMA				EMA	EMA					9,254 (3,745)	20,974 (8,415)
Alectryon macrococcus var. *macrococcus.*			MO	WMA		EMA, MO					WMA	25,746 (10,419)	27,032 (10,940)
Argyroxiphium sandwicense ssp. *macrocephalum.*						EMA		EMA	EMA	EMA		10,897 (4,410)	40,588 (16,425)
Asplenium dielerectum		WMA, LA	WMA, MO	WMA, MO		EMA, MO				LA		31,677 (12,819)	37,668 (15,244)
Asplenium peruvianum var. *insulare.*					EMA	EMA		EMA				18,569 (7,515)	57,974 (23,461)
Bidens campylotheca ssp. *pentamera.*		WMA	WMA		EMA	EMA				EMA	EMA, WMA.	28,654 (11,596)	44,915 (18,177)
Bidens campylotheca ssp. *waihoiensis.*				EMA	EMA						EMA	9,017 (3,649)	39,538 (16,001)
Bidens conjuncta				WMA	WMA						WMA	20,414 (8,261)	7,953 (3,219)
Bidens micrantha ssp. *kalealaha*		EMA, LA	LA	WMA		EMA		EMA		EMA, LA		50,343 (20,373)	59,101 (23,917)
Bidens wiebkei	MO			MO	MO	MO						3,157 (1,277)	17,895 (7,241)
Bonamia menziesii		EMA, MO	LA, MO							WMA	WMA	30,503 (12,344)	30,806 (12,467)
Brighamia rockii	EMA, WMA, MO.									LA	MO	2,061 (834)	9,470 (3,832)
Calamagrostis hillebrandii					WMA							3,139, (1,270)	1,479 (599)
Canavalia molokaiensis	MO		MO	MO							MO	1,325 (536)	24,976 (10,107)
Canavalia pubescens	LA	EMA										9,571 (3,873)	16,841 (6,816)
Cenchrus agrimonioides		EMA, WMA.	LA									21,265 (8,605)	20,739 (8,393)
Clermontia lindseyana						EMA						7,269 (2,942)	10,972 (4,440)
Clermontia oblongifolia ssp. *brevipes.*			MO	MO	MO						MO	1,820 (736)	26,235 (10,617)
Clermontia oblongifolia ssp. *mauiensis.*			LA	EMA, WMA, LA.	EMA							28,688 (11,610)	40,689 (16,466)
Clermontia peleana *				EMA								802 (325)	16,079 (6,507)
Clermontia samuelii				EMA	EMA							8,846 (3,580)	37,219 (15,062)
Colubrina oppositifolia		EMA	WMA									10,414 (4,214)	18,466 (7,473)
Ctenitis squamigera		EMA, WMA.	EMA, WMA, MO.	WMA		WMA				LA	WMA, LA	32,267 (13,058)	40,030 (16,200)
Cyanea asplenifolia			EMA	EMA, WMA.								8,872 (3,590)	21,430 (8,673)

TABLE 8A—PLANT SPECIES FOR WHICH CRITICAL HABITAT IS DESIGNATED IN EACH ECOSYSTEM, AND AREAS EXCLUDED UNDER SECTION 4(b)(2) OF THE ACT—Continued

Species	Ecosystem											Excluded from critical habitat ac (ha)	Total critical habitat designated ac (ha)
	Coastal	Lowland dry	Lowland mesic	Lowland wet	Montane wet	Montane mesic	Montane dry	Sub-alpine	Alpine	Dry cliff	Wet cliff		
Cyanea copelandii ssp. *haleakalaensis.*			EMA	EMA	EMA						EMA	9,022 (3,651)	41,420 (16,762)
Cyanea dunbariae			MO	MO		MO						1,202 (486)	17,704 (7,165)
Cyanea duvalliorum				EMA	EMA							8,846 (3,580)	37,219 (15,062)
Cyanea gibsonii					LA						LA	1,209 (489)	0 (0)
*Cyanea glabra**				WMA	EMA	EMA					WMA	32,588 (13,188)	38,586 (15,615)
Cyanea grimesiana ssp. *grimesiana**.				MO							MO	12 (5)	12,355 (5,000)
Cyanea hamatiflora ssp. *hamatiflora.*				EMA	EMA	EMA						16,116 (6,522)	48,191 (19,502)
Cyanea horrida					EMA	EMA					EMA	15,484 (6,266)	34,431 (13,934)
Cyanea kunthiana				EMA, WMA.	EMA, WMA.	EMA						27,318 (11,055)	53,140 (21,505)
Cyanea lobata ssp. *baldwinii*					LA							248 (101)	0 (0)
Cyanea lobata ssp. *lobata*				WMA							WMA	17,275 (6,991)	6,473 (2,620)
Cyanea magnicalyx				WMA		WMA					WMA	17,790 (7,199)	7,014 (2,839)
Cyanea mannii			MO		MO	MO						2,621 (1,060)	14,696 (5,947)
Cyanea maritae				EMA	EMA							8,846 (3,580)	37,219 (15,062)
Cyanea mceldowneyi				EMA	EMA	EMA						16,116 (6,522)	48,191 (19,502)
Cyanea munroi											LA, MO	974 (394)	4,237 (1,715)
Cyanea obtusa		WMA				EMA						9,144 (3,700)	14,870 (6,018)
Cyanea procera			MO		MO	MO						2,621 (1,060)	14,696 (5,947)
Cyanea profuga			MO		MO							1,807 (731)	13,880 (5,617)
Cyanea solanacea			MO	MO	MO	MO						2,621 (1,060)	22,814 (9,232)
Cyperus fauriei		LA	MO			MO						11,906 (4,818)	9,586 (3,879)
Cyperus pennatiformis	EMA											85 (35)	1,034 (418)
*Cyperus trachysanthos**		LA, MO										10,705 (4,332)	613 (248)
Cyrtandra ferripilosa					EMA	EMA						15,313 (6,197)	32,112 (12,995)
Cyrtandra filipes			MO	WMA, MO							WMA	17,663 (7,148)	28,244 (11,430)
Cyrtandra munroi				WMA	LA						WMA, LA	18,484 (7,480)	11,356 (4,596)
Cyrtandra oxybapha					WMA	EMA						10,408 (4,212)	12,451 (5,039)
Diplazium molokaiense			LA, MO	WMA	EMA	EMA, WMA.				EMA, WMA, LA.		37,690 (15,253)	48,427 (19,598)
Dubautia plantaginea ssp. *humilis*											WMA	9,211 (3,728)	7,886 (3,192)

*Eugenia koolauensis**		MO										0 (0)	613 (248)
Festuca molokaiensis			MO									388 (157)	8,770 (3,549)
Flueggea neowawraea		EMA	MO									9,074 (3,672)	25,612 (10,365)
Geranium arboreum						EMA	EMA	EMA				11,989 (4,852)	40,358 (16,332)
Geranium hanaense					EMA							8,044 (3,255)	21,141 (8,555)
Geranium hillebrandii					WMA	WMA						3,654 (1,479)	2,019 (817)
Geranium multiflorum					EMA	EMA		EMA		EMA		18,926 (7,659)	59,931 (24,253)
Gouania hillebrandii		WMA, KAH.	MO									2,263 (916)	17,094 (6,918)
*Gouania vitifolia**											WMA	9,211 (3,728)	7,886 (3,192)
Hesperomannia arborescens				WMA	MO						WMA, LA, MO.	19,667 (7,959)	20,703 (8,378)
Hesperomannia arbuscula		WMA		WMA						WMA	WMA	20,196 (8,173)	16,831 (6,812)
Hibiscus arnottianus ssp. *immaculatus.*	MO										MO	937 (379)	8,088 (3,272)
Hibiscus brackenridgei	LA, MO	EMA, WMA, LA, MO, KAH.										23,075 (9,338)	29,629 (11,990)
Huperzia mannii			EMA	EMA, WMA.	EMA, WMA.	EMA, WMA.						27,839 11,266)	55,562 (22,485)
Ischaemum byrone	EMA, MO											1,010 (409)	4,885 (1,976)
*Isodendrion pyrifolium**			MO	WMA						WMA	WMA	18,710 (7,571)	21,703 (8,783)
Kadua cordata ssp. *remyi*			LA	LA								11,778 (4,767)	0 (0)
*Kadua coriacea**		WMA										1,874 (759)	3,898 (1,578)
Kadua laxiflora			LA, MO	WMA, LA	LA	MO				WMA	WMA, LA	32,511 (13,157)	22,519 (9,114)
Kanaloa kahoolawensis	KAH	KAH										0 (0)	6,142 (2,486)
*Kokia cookei**		MO										0 (0)	613(248)
Labordia tinifolia var. *lanaiensis*			LA	LA	LA						LA	12,988 (5,256)	0 (0)
Labordia triflora			MO									0 (0)	8,770 (3,549)
Lysimachia lydgatei		WMA				WMA					WMA	11,600 (4,695)	12,324 (4,988)ROW≤
Lysimachia maxima				MO	MO							1,419 (574)	13,228 (5,353)
Marsilea villosa	MO											924 (374)	3,851 (1,558)
Melanthera kamolensis		EMA										8,685 (3,515)	16,841 (6,816)
Melicope adscendens		EMA				EMA						14,322 (5,796)	24,509 (9,918)
Melicope balloui				EMA	EMA							8,846 (3,580)	37,219 (15,062)
Melicope knudsenii							EMA					1,464 (592)	3,524 (1,426)
Melicope mucronulata		EMA	MO			MO	EMA					11,351 (4,593)	29,952 (12,121)
Melicope munroi			MO		LA						LA	1,598(647)	8,770 (3,549)
Melicope ovalis				EMA	EMA						EMA	9,017 (3,649)	39,538 (16,001)
Melicope reflexa			MO	MO	MO							1,807 (731)	21,998 (8,902)
Mucuna sloanei var. *persericea*				EMA								802 (325)	16,079 (6,507)
Myrsine vaccinioides					WMA							3,139 (1,270)	1,479 (599)

TABLE 8A—PLANT SPECIES FOR WHICH CRITICAL HABITAT IS DESIGNATED IN EACH ECOSYSTEM, AND AREAS EXCLUDED UNDER SECTION 4(b)(2) OF THE ACT—Continued

Species	Ecosystem											Excluded from critical habitat ac (ha)	Total critical habitat designated ac (ha)
	Coastal	Lowland dry	Lowland mesic	Lowland wet	Montane wet	Montane mesic	Montane dry	Sub-alpine	Alpine	Dry cliff	Wet cliff		
Neraudia sericea		EMA, WMA, LA, KAH.	MO			EMA, MO				WMA, LA		31,616 (12,795)	58,282 (19,142)
*Nototrichium humile**		EMA										8,685 (3,515)	16,841 (6,816)
Peperomia subpetiolata					EMA							8,044 (3,255)	21,141 (8,555)
Peucedanum sandwicense	EMA, MO			WMA, MO								9,074 (3,672)	16,472 (6,665)
*Phyllostegia bracteata**				WMA	EMA, WMA.	EMA		EMA			EMA	29,943 (12,117)	65,241 (26,402)
*Phyllostegia haliakalae**			MO	EMA	EMA					LA	EMA, LA	11,200 (4,533)	48,308 (19,550)
Phyllostegia hispida				MO	MO						MO	1,431 (579)	17,465 (7,068)
Phyllostegia mannii			MO	MO	EMA, MO	EMA						17,120 (6,928)	54,111 (21,897)
Phyllostegia pilosa			MO		EMA, MO							9,851 (3,986)	35,021 (14,172)
Pittosporum halophilum	MO											924 (374)	3,851 (1,558)
Plantago princeps				MO		MO				EMA	EMA, WMA.	10,551 (4,270)	21,096 (8,538)
Platanthera holochila					EMA, WMA, MO.						WMA	21,813 (8,827)	35,616 (14,413)
Pleomele fernaldii		LA	LA	LA						LA	LA	24,279 (9,825)	0 (0)
Portulaca sclerocarpa	LA											886 (359)	0 (0)
Pteris lidgatei				WMA	MO						WMA, MO	18,706 (7,570)	20,703 (8,378)
Remya mauiensis		WMA	WMA	WMA		WMA					WMA	21,393 (8,657)	17,418 (7,049)
Sanicula purpurea					WMA							3,139 (1,270)	1,479 (599)
Santalum haleakalae var. *lanaiense.*		EMA, WMA.	WMA, LA, MO.	WMA, LA	LA	EMA, WMA, MO.	EMA				WMA, LA	53,000 (21,449)	58,342 (23,611)
Schenkia sebaeoides	WMA, MO	LA										11,834 (4,789)	4,200 (1,699)
Schiedea haleakalensis								EMA		EMA		3,613 (1,462)	27,819 (11,258)
*Schiedea jacobii**					EMA							8,044 (3,255)	21,141 (8,555)
Schiedea laui					MO							1,419 (574)	5,110 (2,068)
Schiedea lydgatei			MO									388 (157)	8,770 (3,549)
Schiedea salicaria		WMA										1,874 (759)	3,898 (1,578)
Schiedea sarmentosa			MO									388 (157)	8,770 (3,549)
Sesbania tomentosa	WMA, LA, MO, KAH.	EMA, WMA, LA, MO, KAH.	MO									23,668 (9,578)	51,447 (16,375)
Silene alexandri			MO									388 (157)	8,770 (3,549)
Silene lanceolata		LA	MO									11,093 (4,489)	8,770 (3,549)

*Solanum incompletum**		EMA, LA	EMA, LA							LA		31,402 (12,708)	18,723 (7,577)
Spermolepis hawaiiensis		EMA, WMA, LA.	LA, MO			MO						33,638 (13,613)	30,326 (12,272)
Stenogyne bifida			MO	MO	MO	MO					MO	2,633 (1,065)	27,051 (10,947)
Stenogyne kauaulaensis						WMA						515 (209)	540 (219)
*Tetramolopium capillare**		WMA								WMA	WMA	12,132 (4,909)	13,361 (5,407)
Tetramolopium lepidotum ssp. *lepidotum**.		LA										10,705 (4,332)	0 (0)
Tetramolopium remyi		WMA, LA										12,579 (5,091)	3,898 (1,578)
Tetramolopium rockii	MO											924 (374)	3,851(1,558)
Vigna o-wahuensis	EMA, KAH	LA, KAH	LA, MO									22,351 (9,045)	26,928 (6,453)
Viola lanaiensis					LA					LA	LA	2,044 (827)	0 (0)
Wikstroemia villosa				EMA, WMA.	EMA	EMA						24,179 (9,785)	51,661 (20,906)
Zanthoxylum hawaiiense		EMA	WMA, MO	LA, MO	MO	EMA, WMA.	EMA	EMA				25,331 (10,251)	81,362 (32,926)
Areas Excluded by Ecosystem, ac (ha).	2,101 (850).	21,265 (8,605).	13,294 (5,380).	9,472 (3,834).	12,850 (5,200).	8,598 (3,480).	1,464 (592).	3,256 (1,318).	15 (6)	2,238 (906).	10,354 (4,190).		
Total Area Designated CH, ac (ha).	6,950 (2,812).	25,778 (10,432).	12,277 (4,968).	27,666 (11,197).	27,730 (11,222).	12,328 (4,989).	3,524 (1,426).	25,861 (10,466).	1,797 (727).	3,535 (1,431).	9,560 (3,869).		

EMA = East Maui, WMA = West Maui, LA = Lanai, MO = Molokai, KAH = Kahoolawe.

The area known to be occupied by species for which the unit is designated also provides area essential to the conservation of all of the species that occur in that particular ecosystem, even if the area is currently unoccupied by those species. Those areas provide the space and appropriate environmental conditions for activities such as seed dispersal and reproduction that will serve to expand the existing populations.

* This species may no longer occur in the wild on Molokai, Lanai, Maui, or Kahoolawe.

TABLE 8B—FOREST BIRD SPECIES FOR WHICH CRITICAL HABITAT IS DESIGNATED IN EACH ECOSYSTEM, AND AREAS EXCLUDED UNDER SECTION 4(b)(2)

Species	Ecosystem											Excluded from critical habitat ac (ha)	Total critical habitat designated ac (ha)
	Coastal	Lowland dry	Lowland mesic	Lowland wet	Montane wet	Montane mesic	Montane dry	Subalpine	Alpine	Dry cliff	Wet cliff		
FOREST BIRD													
Akohekohe			WMA, MO	EMA, WMA, MO.	EMA, WMA, MO.	EMA, WMA, MO.		EMA		EMA, WMA.	EMA, WMA, MO.	43,699 (17,684)	109,238 (44,207)
Kiwikiu			WMA, MO	EMA, WMA, MO.	EMA, WMA, MO.	EMA, WMA, MO.		EMA		EMA, WMA.	EMA, WMA, MO.	43,699 (17,684)	109,238 (44,207)
Area, Excluded ac (ha)			388 (157)	8,866 (3,588)	12,602 (5,100)	8,598 (3,480)		3,256 (1,318)		595 (241)	9,394 (3,801).		
Total Area Designated Critical Habitat			9,247 (3,742)	24,447 (9,894)	26,927 (10,897)	12,328 (4,989)		25,861 (10,466)		2,566 (1,039)	7,860 (3,181).		

EMA = East Maui.
WMA = West Maui.
MO = Molokai.

The area known to be occupied by species for which the unit is designated also provides area essential to the conservation of all of the species that occur in that particular ecosystem, even if the area is currently unoccupied by those species. Those areas provide the space and appropriate environmental conditions for activities such as food gathering and reproduction that will serve to expand the existing populations.

TABLE 8C—TREE SNAIL SPECIES FOR WHICH CRITICAL HABITAT IS DESIGNATED IN EACH ECOSYSTEM, AND AREAS EXCLUDED UNDER 4(B)(2)

Species	Ecosystem											Excluded from critical habitat ac (ha)	Total critical habitat designated ac (ha)
	Coastal	Lowland dry	Lowland mesic	Lowland wet	Montane wet	Montane mesic	Montane dry	Subalpine	Alpine	Dry cliff	Wet cliff		
TREE SNAIL													
Newcombia cumingi				WMA								534 (216)	65 (26)
Partulina semicarinata				LA	LA						LA	1,815 (735)	0 (0)
Partulina variabilis				LA	LA						LA	1,815 (735)	0 (0)

WMA = West Maui.
LA = Lanai.
The area known to be occupied by species for which the unit is designated also provides area essential to the conservation of all of the species that occur in that particular ecosystem, even if the area is currently unoccupied by those species. Those areas provide the space and appropriate environmental conditions for activities such as food gathering and reproduction that will serve to expand the existing populations.

VIII. Final Critical Habitat Designation

We are designating 157,002 ac (63,537 ha) as critical habitat in 11 ecosystem types for 125 species. The critical habitat is composed of 82 critical habitat units for the plant species, 41 critical habitat units for each of the 2 forest birds (82 total), and one critical habitat unit for the Newcomb's tree snail (see Tables 7A–7F, above, for details). The critical habitat includes land under State, County of Maui, Federal (Haleakala National Park; Kalaupapa National Historical Park (NHP), Department of Homeland Security—Coast Guard), and private ownership. The critical habitat units we describe below constitute our current best assessment of those areas that meet the definition of critical habitat for 125 of the 135 Maui Nui species of plants and animals. Critical habitat was proposed but is not designated for 10 species that occur on Lanai (the plants *Abutilon eremitopetalum, Cyanea gibsonii, Kadua cordata* ssp. *remyi, Labordia tinifolia* var. *lanaiensis, Pleomele fernaldii, Portulaca sclerocarpa, Tetramolopium lepidotum* ssp. *lepidotum,* and *Viola lanaiensis;* and the tree snails *Partulina semicarinata* and *P. variabilis*). Although the areas proposed are still considered essential for the conservation of these species, we have determined under section 4(b)(2) of the Act that the benefit of excluding these areas outweighs the benefit of including them in critical habitat, for the reasons discussed below (see the Exclusions section of this document).

Descriptions of Critical Habitat Units

Critical habitat for the 125 plant species, the 2 forest birds, and the Newcomb's tree snail *Newcombia cumingi* are published in separate sections of the Code of Federal Regulations (CFR). Critical habitat is set forth at 50 CFR 17.99(c) and (d) for plants on Molokai, 50 CFR 17.99(e)(1) and (f) for plants on Maui, and 50 CFR 17.99(e)(2) and (f) for plants on Kahoolawe; at 50 CFR 17.95(b) for the two forest birds; and at 50 CFR 17.95(f) for the tree snail species. However, the designated critical habitat for plants, birds, and tree snail overlap each other in many areas of Molokai and Maui. For example, ''Maui-Lowland Wet—Unit 1'' and the forest bird units ''*Palmeria dolei*—Unit 2—Lowland Wet'' and ''*Pseudonestor xanthophrys*—Unit 2—Lowland Wet'' correspond to the same geographic area. Therefore, because the unit boundaries are the same, we are describing them only once to avoid redundancy and reduce publication costs for this final rule, as indicated by ''(and)'' following the unit name.

Maui—UCoastal—Unit 1 consists of 2 ac (1 ha) on Keopuka Rock on the northern coast of east Maui. This unit is State-owned, and is classified as a State Seabird Sanctuary. It is occupied by the plant *Peucedanum sandwicense* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui-Coastal—Unit 1 is not known to be occupied by *Brighamia rockii, Cyperus pennatiformis, Ischaemum byrone,* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Coastal—Unit 2 consists of 16 ac (6 ha) of State land, and 9 ac (4 ha) of privately owned land, from Wahinepee Stream to Moiki Point on the northern coast of east Maui. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). Although Maui—Coastal—Unit 2 is not currently occupied by *Brighamia rockii, Cyperus pennatiformis, Ischaemum byrone, Peucedanum sandwicense,* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the physical or biological features necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, these species require suitable habitat and space for expansion or reintroduction to achieve population levels that could achieve recovery.

Maui—Coastal—Unit 3 consists of 10 ac (4 ha) of privately owned land at Pauwalu Point on the northern coast of east Maui. This unit is occupied by the plant *Ischaemum byrone* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Coastal—Unit 3 is not known to be occupied by *Brighamia rockii, Cyperus pennatiformis, Peucedanum sandwicense,* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Coastal—Unit 4 consists of 40 ac (16 ha) of State land, and 35 ac (14 ha) of privately owned land, from Papiha Point to Honolulu Nui Bay on the northeastern coast of east Maui. This unit is occupied by the plant *Cyperus pennatiformis* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Coastal—Unit 4 is not known to be occupied by *Brighamia rockii, Ischaemum byrone, Peucedanum sandwicense,* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Coastal—Unit 5 consists of 26 ac (11 ha) of State land from Keakulikuli Point to Pailoa Bay on the northeastern coast of east Maui. This unit is occupied by the plant *Ischaemum byrone* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This

unit also contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Coastal—Unit 5 is not known to be occupied by *Brighamia rockii, Cyperus pennatiformis, Peucedanum sandwicense,* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Coastal—Unit 6 consists of 356 ac (144 ha) of State land at Kamanamana on the southern coast of East Maui. This unit is occupied by the plant *Vigna o-wahuensis* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Coastal—Unit 6 is not known to be occupied by *Brighamia rockii, Cyperus pennatiformis, Ischaemum byrone,* or *Peucedanum sandwicense,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Coastal—Unit 7 consists of 30 ac (12 ha) of State land, and 15 ac (6 ha) of privately owned land, from Kailio Point to Waiuha Bay, on the southern coast of east Maui. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). Although Maui—Coastal—Unit 7 is not currently occupied by *Brighamia rockii, Cyperus pennatiformis, Ischaemum byrone, Peucedanum sandwicense,* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Coastal—Unit 8 consists of 493 ac (199 ha) of State land from Kiakeana Point to Manawainui on the southern coast of east Maui. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). Although Maui—Coastal—Unit 8 is not currently occupied by *Brighamia rockii, Cyperus pennatiformis, Ischaemum byrone, Peucedanum sandwicense,* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Coastal—Unit 9 consists of 170 ac (69 ha) of State land and 0.3 ac (0.1 ha) of privately owned land, from Poelua Bay to Mokolea Point on the northwestern coast of west Maui. This unit is occupied by the plants *Schenkia sebaeoides* and *Sesbania tomentosa,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Coastal—Unit 9 is not known to be occupied by *Brighamia rockii,* we have determined this area to be essential for the conservation and recovery of this coastal species because it provides the PCEs necessary for the reestablishment of wild populations within its historical range. Due to the small numbers of individuals or low population sizes, this species requires suitable habitat and space for expansion or reintroduction to achieve population levels that could approach recovery.

Maui—Coastal—Unit 10 consists of 147 ac (60 ha) of State land and 26 ac (10 ha) of privately owned land, from Kahakuloa Head to Waihee Point on the northeastern coast of west Maui. This unit is occupied by the plant *Schenkia sebaeoides,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Coastal—Unit 10 is not known to be occupied by *Brighamia rockii* or *Sesbania tomentosa,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within its historical range. Due to the small numbers of individuals or low population sizes, this species requires suitable habitat and space for expansion or reintroduction to achieve population levels that could approach recovery.

Maui—Coastal—Unit 11 consists of 6 ac (3 ha) of State land on Mokeehia Island on the northeastern coast of west Maui. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). Although Maui—Coastal—Unit 11 is not currently occupied by *Brighamia rockii, Schenkia sebaeoides,* or *Sesbania tomentosa,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Dry—Unit 1 consists of 11,465 ac (4,640 ha) of State land, 2,069 ac (837 ha) of federally owned land, and 3 ac (1 ha) of privately owned land, from Kanaio to Kahualau Gulch on the southern slopes of east Maui. This unit is occupied by the plants *Bonamia menziesii, Cenchrus agrimonioides, Flueggea neowawraea, Melicope adscendens, Santalum haleakalae* var. *lanaiense,* and *Spermolepis hawaiiensis,* and includes the mixed herbland and

shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland dry ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Dry—Unit 1 is not known to be occupied by *Alectryon macrococcus, Bidens micrantha* ssp. *kalealaha, Canavalia pubescens, Colubrina oppositifolia, Ctenitis squamigera, Hibiscus brackenridgei, Melanthera kamolensis, Melicope mucronulata, Neraudia sericea, Nototrichium humile, Sesbania tomentosa, Solanum incompletum,* or *Zanthoxylum hawaiiense,* we have determined this area to be essential for the conservation and recovery of these lowland dry species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Dry—Unit 2 consists of 1,851 ac (749 ha) of State land at Keokea on the southern slopes of east Maui. This unit is occupied by the plants *Bonamia menziesii, Canavalia pubescens,* and *Hibiscus brackenridgei,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland dry ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Dry—Unit 2 is not known to be occupied by *Alectryon macrococcus, Bidens micrantha* ssp. *kalealaha, Cenchrus agrimonioides, Colubrina oppositifolia, Ctenitis squamigera, Flueggea neowawraea, Melanthera kamolensis, Melicope mucronulata, Neraudia sericea, Nototrichium humile, Santalum haleakalae* var. *lanaiense, Sesbania tomentosa, Solanum incompletum, Spermolepis hawaiiensis,* or *Zanthoxylum hawaiiense,* we have determined this area to be essential for the conservation and recovery of these lowland dry species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Dry—Unit 3 consists of 188 ac (76 ha) of privately owned land, at Keauhou on the southern slopes of east Maui. This unit is occupied by the plant *Canavalia pubescens,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland dry ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Dry—Unit 3 is not known to be occupied by *Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Cenchrus agrimonioides, Colubrina oppositifolia, Ctenitis squamigera, Flueggea neowawraea, Hibiscus brackenridgei, Melanthera kamolensis, Melicope mucronulata, Neraudia sericea, Nototrichium humile, Santalum haleakalae* var. *lanaiense, Sesbania tomentosa, Solanum incompletum, Spermolepis hawaiiensis,* or *Zanthoxylum hawaiiense,* we have determined this area to be essential for the conservation and recovery of these lowland dry species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Dry—Unit 4 consists of 1,266 ac (512 ha) of State land (including the Department of Land and Natural Resources) at Ahihi-Kinau Natural Area Reserve on the southern slopes of east Maui. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland dry ecosystem (see Table 5). Although Maui—Lowland Dry—Unit 4 is not currently occupied by *Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Canavalia pubescens, Cenchrus agrimonioides, Colubrina oppositifolia, Ctenitis squamigera, Flueggea neowawraea, Hibiscus brackenridgei, Melanthera kamolensis, Melicope mucronulata, Neraudia sericea, Nototrichium humile, Santalum haleakalae* var. *lanaiense, Sesbania tomentosa, Solanum incompletum, Spermolepis hawaiiensis,* or *Zanthoxylum hawaiiense,* we have determined this area to be essential for the conservation and recovery of these lowland dry species because it provides the PCEs necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Dry—Unit 5 consists of 3,615 ac (1,463 ha) of State land, and 43 ac (17 ha) of privately owned land, from Panaewa to Manawainui on the western and southern slopes of west Maui. This unit is occupied by the plants *Asplenium dielerectum, Bidens campylotheca* ssp. *pentamera, Cenchrus agrimonioides, Gouania hillebrandii, Kadua coriacea, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* and *Spermolepis hawaiiensis,* and *Tetramolopium capillare,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland dry ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Dry—Unit 5 is not known to be occupied by *Ctenitis squamigera, Cyanea obtusa, Hesperomannia arbuscula, Hibiscus brackenridgei, Lysimachia lydgatei, Neraudia sericea, Schiedea salicaria, Sesbania tomentosa,* or *T. remyi,* we have determined this area to be essential for the conservation and recovery of these lowland dry species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Dry—Unit 6 consists of 3 ac (1 ha) of State land, and 237 ac (96 ha) of privately owned land, from Paleaahu Gulch to Puu Hona on the southern slopes of west Maui. This unit is occupied by the plants *Hibiscus brackenridgei* and *Schiedea salicaria,* and includes the mixed herbland and shrubland, the moisture regime, and

canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland dry ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Dry—Unit 6 is not known to be occupied by *Asplenium dielerectum, Bidens campylotheca* ssp. *pentamera, Cenchrus agrimonioides, Ctenitis squamigera, Cyanea obtusa, Gouania hillebrandii, Hesperomannia arbuscula, Kadua coriacea, Lysimachia lydgatei, Neraudia sericea, Remya mauiensis, Santalum haleakalae* var. *lanaiense, Sesbania tomentosa, Spermolepis hawaiiensis, Tetramolopium capillare,* or *T. remyi,* we have determined this area to be essential for the conservation and recovery of these lowland dry species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Mesic—Unit 1 consists of 1,147 ac (464 ha) of State land, 241 ac (97 ha) of privately owned land, and 494 ac (200 ha) of federally owned land (Haleakala National Park), from Manawainui Valley to Kukuiula on the eastern slopes of east Maui. This unit is occupied by the plants *Cyanea asplenifolia, C. copelandii* ssp. *haleakalaensis,* and *Huperzia mannii,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland mesic ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Mesic—Unit 1 is not known to be occupied by *Ctenitis squamigera* or *Solanum incompletum,* we have determined this area to be essential for the conservation and recovery of these lowland mesic species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Mesic—Unit 2 consists of 1,034 ac (419 ha) of State land, and 113 ac (46 ha) of privately owned land, from Honokohau to Launiupoko on the western slopes of west Maui. This unit is occupied by the plants *Ctenitis squamigera, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* and *Zanthoxylum hawaiiense,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland mesic ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Mesic—Unit 2 is not known to be occupied by *Asplenium dielerectum, Bidens campylotheca* ssp. *pentamera,* or *Colubrina oppositifolia,* we have determined this area to be essential for the conservation and recovery of these lowland mesic species because it provides the PCEs necessary for the reestablishment of wild populations within its historical range. Due to its small numbers of individuals or low population sizes, this species requires suitable habitat and space for expansion or reintroduction to achieve population levels that could approach recovery.

Maui—Lowland Mesic—Unit 3 (and)

Palmeria dolei—Unit 1—Lowland Mesic (and)

Pseudonestor xanthophrys—Unit 1—Lowland Mesic

This area consists of 477 ac (193 ha) of State land at Ukumehame on the southern slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland mesic ecosystem (see Table 5). Although Maui—Lowland Mesic—Unit 3 is not currently occupied by the plants *Asplenium dielerectum, Bidens campylotheca* ssp. *pentamera, Colubrina oppositifolia, Ctenitis squamigera, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* or *Zanthoxylum hawaiiense,* or by the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these lowland mesic species because it provides the PCEs for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Wet—Unit 1 (and)

Palmeria dolei—Unit 2—Lowland Wet (and)

Pseudonestor xanthophrys—Unit 2—Lowland Wet

This area consists of 6,616 ac (2,677 ha) of State land, 7,425 ac (3,005 ha) of privately owned land, and 2,038 ac (825 ha) of federally owned land (Haleakala National Park), from Haiku Uka to Kipahulu Valley on the northern and eastern slopes of east Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland wet ecosystem (see Table 5). These units are occupied by the plants *Bidens campylotheca* ssp. *waihoiensis, Clermontia samuelii, Cyanea asplenifolia, C. copelandii* ssp. *haleakalaensis, C. duvalliorum, C. hamatiflora* ssp. *hamatiflora, C. kunthiana, C. maritae, C. mceldowneyi, Huperzia mannii, Melicope balloui,* and *M. ovalis.* These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Wet—Unit 1 is not known to be occupied by the plants *Clermontia oblongifolia* ssp. *mauiensis, C. peleana, Mucuna sloanei* var. *persericea, Phyllostegia haliakalae,* or *Wikstroemia villosa,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these lowland wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Wet—Unit 2 (and)

Palmeria dolei—Unit 3—Lowland Wet (and)

Pseudonestor xanthophrys—Unit 3—Lowland Wet (and)

Newcombia cumingi—Unit 1—Lowland Wet

This area consists of 65 ac (26 ha) of State land at Moomoku, on the northwestern slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland wet ecosystem (see Table 5). These units are occupied by the plant *Santalum haleakalae* var. *lanaiense.* Although Maui—Lowland Wet—Unit 2 is not currently occupied by the plants *Alectryon macrococcus, Asplenium dielerectum, Bidens conjuncta, B. micrantha* ssp. *kalealaha, Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyanea asplenifolia, C. glabra, C. kunthiana, C. lobata, C. magnicalyx, Cyrtandra filipes, C. munroi, Diplazium molokaiense, Hesperomannia arborescens, H. arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Peucedanum sandwicense, Phyllostegia bracteata, Pteris lidgatei, Remya mauiensis,* or *Wikstroemia villosa,* by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), or by the Newcomb's tree snail (*Newcombia cumingi*), we have determined this area to be essential for the conservation and recovery of these lowland wet species because it provides the PCEs necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Wet—Unit 3 (and)

Palmeria dolei—Unit 4—Lowland Wet (and)

Pseudonestor xanthophrys—Unit 4—Lowland Wet

This area consists of 1,247 ac (505 ha) of State land at Honanana Gulch on the northeastern slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland wet ecosystem (see Table 5). They are occupied by the plants *Bidens conjuncta, Cyanea asplenifolia,* and *Pteris lidgatei.* These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Wet—Unit 3 is not known to be occupied by the plants *Alectryon macrococcus, Asplenium dielerectum, Bidens micrantha* ssp. *kalealaha, Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyanea glabra, C. kunthiana, C. lobata, C. magnicalyx, Cyrtandra filipes, C. munroi, Diplazium molokaiense, Hesperomannia arborescens, H. arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Peucedanum sandwicense, Phyllostegia bracteata, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* or *Wikstroemia villosa,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these lowland wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Wet—Unit 4 (and)

Palmeria dolei—Unit 5—Lowland Wet (and)

Pseudonestor xanthophrys—Unit 5—Lowland Wet

This area consists of 864 ac (350 ha) of State land at Kahakuloa Valley on the northeastern slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland wet ecosystem (see Table 5). They are occupied by the plants *Bidens conjuncta* and *Cyanea asplenifolia.* These units also contain unoccupied habitat that is essential to the conservation of this these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Wet—Unit 4 is not known to be occupied by the plants *Alectryon macrococcus, Asplenium dielerectum, Bidens conjuncta, B. micrantha* ssp. *kalealaha, Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyanea glabra, C. kunthiana, C. lobata, C. magnicalyx, Cyrtandra filipes, C. munroi, Diplazium molokaiense, Hesperomannia arborescens, H. arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Peucedanum sandwicense, Phyllostegia bracteata, Pteris lidgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* or *Wikstroemia villosa,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these lowland wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Wet—Unit 5 (and)

Palmeria dolei—Unit 6—Lowland Wet (and)

Pseudonestor xanthophrys—Unit 6—Lowland Wet

This area consists of 30 ac (12 ha) of State land at Iao Valley on the eastern side of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland wet ecosystem (see Table 5). Although Maui—Lowland Wet—Unit 5 is not known to be occupied by the plants *Alectryon macrococcus, Asplenium dielerectum, Bidens conjuncta, B. micrantha* ssp. *kalealaha, Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyanea asplenifolia, C. glabra, C. kunthiana, C. lobata, C. magnicalyx, Cyrtandra filipes, C. munroi, Diplazium molokaiense, Hesperomannia arborescens, H. arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Peucedanum sandwicense, Phyllostegia bracteata, Pteris lidgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* or *Wikstroemia villosa,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these lowland wet species because it provides the PCEs necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to

achieving population levels necessary for recovery.

Maui—Lowland Wet—Unit 6 (and)

Palmeria dolei—Unit 7—Lowland Wet (and)

Pseudonestor xanthophrys—Unit 7—Lowland Wet

This area consists of 136 ac (55 ha) of State land at Honokowai and Wahikuli valleys on the western slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland wet ecosystem (see Table 5). These units are occupied by the plant *Santalum haleakalae* var. *lanaiense.* These units also contain unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Wet—Unit 6 is not currently occupied by the plants *Alectryon macrococcus, Asplenium dielerectum, Bidens conjuncta, Bidens micrantha* ssp. *kalealaha, Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyanea asplenifolia, C. glabra, C. kunthiana, C. lobata, C. magnicalyx, Cyrtandra filipes, C. munroi, Diplazium molokaiense, Hesperomannia arborescens, H. arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Peucedanum sandwicense, Phyllostegia bracteata, Pteris lidgatei, Remya mauiensis,* or *Wikstroemia villosa,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these lowland wet species because it provides the PCEs necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Wet—Unit 7 (and)

Palmeria dolei—Unit 8—Lowland Wet (and)

Pseudonestor xanthophrys—Unit 8—Lowland Wet

This area consists of 898 ac (364 ha) of State land at Olowalu Valley, on the southern slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland wet ecosystem (see Table 5). These units are occupied by the plant *Alectryon macrococcus.* These units also contain unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Lowland Wet—Unit 7 is not currently occupied by the plants *Asplenium dielerectum, Bidens conjuncta, B. micrantha* ssp. *kalealaha, Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyanea asplenifolia, C. glabra, C. kunthiana, C. lobata, C. magnicalyx, Cyrtandra filipes, C. munroi, Diplazium molokaiense, Hesperomannia arborescens, H. arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Peucedanum sandwicense, Phyllostegia bracteata, Pteris lidgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* or *Wikstroemia villosa,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these lowland wet species because it provides the PCEs necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Lowland Wet—Unit 8 (and)

Palmeria dolei—Unit 9—Lowland Wet (and)

Pseudonestor xanthophrys—Unit 9—Lowland Wet

This area consists of 230 ac (93 ha) of State land at upper Ukumehame Gulch, on the southern slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland wet ecosystem (see Table 5). Although Maui—Lowland Wet—Unit 8 is not currently occupied by the plants *Alectryon macrococcus, Asplenium dielerectum, Bidens conjuncta, B. micrantha* ssp. *kalealaha, Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyanea asplenifolia, C. glabra, C. kunthiana, C. lobata, C. magnicalyx, Cyrtandra filipes, C. munroi, Diplazium molokaiense, Hesperomannia arborescens, H. arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Peucedanum sandwicense, Phyllostegia bracteata, Pteris lidgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* or *Wikstroemia villosa,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these lowland wet species because it provides the PCEs necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Wet—Unit 1 (and)

Palmeria dolei—Unit 10—Montane Wet (and)

Pseudonestor xanthophrys—Unit 10—Montane Wet

This area consists of 1,313 ac (531 ha) of State land and 798 ac (323 ha) of privately owned land, at Haiku Uka on the northern slopes of east Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane wet ecosystem (see Table 5). These units are occupied by the plants *Cyanea duvalliorum, C. maritae, C. mceldowneyi, Huperzia mannii, Melicope balloui,* and *Phyllostegia pilosa,* and by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*). These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Montane Wet—Unit 1 is not known to be occupied by the plants *Adenophorus periens, Asplenium peruvianum* var. *insulare, Bidens campylotheca* ssp. *pentamera, B. campylotheca* ssp. *waihoiensis, Clermontia oblongifolia* ssp. *mauiensis, C. samuelii, Cyanea copelandii* ssp. *haleakalaensis, C. glabra, C. hamatiflora* ssp. *hamatiflora, C. horrida, C. kunthiana, Cyrtandra ferripilosa, Diplazium molokaiense, Geranium hanaense, G. multiflorum, Melicope ovalis, Peperomia subpetiolata, Phyllostegia bracteata, P. haliakalae, P. mannii, Platanthera holochila, Schiedea jacobii,* or *Wikstroemia villosa,* we have determined this area to be essential for the conservation and recovery of these montane wet species because it provides the PCEs necessary for the

reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Wet—Unit 2 (and)

Palmeria dolei—Unit 11—Montane Wet (and)

Pseudonestor xanthophrys—Unit 11—Montane Wet

This area consists of 4,075 ac (1,649 ha) of State land, 9,633 ac (3,898 ha) of privately owned land, and 875 ac (354 ha) of federally owned land (Haleakala National Park), from Haiku Uka to Puukaukanu and upper Waihoi Valley, on the northern and northeastern slopes of east Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane wet ecosystem (see Table 5). These units are occupied by the plants *Bidens campylotheca* ssp. *pentamera, Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, C. duvalliorum, C. hamatiflora* ssp. *hamatiflora, C. horrida, C. kunthiana, C. mceldowneyi, Geranium hanaense, G. multiflorum,* and *Wikstroemia villosa,* and by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*). These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Montane Wet—Unit 2 is not known to be occupied by the plants *Adenophorus periens, Asplenium peruvianum* var. *insulare, Bidens campylotheca* ssp. *waihoiensis, Clermontia oblongifolia* ssp. *mauiensis, Cyanea glabra, C. maritae, Cyrtandra ferripilosa, Diplazium molokaiense, Huperzia mannii, Melicope balloui, M. ovalis, Peperomia subpetiolata, Phyllostegia bracteata, P. haliakalae, P. mannii, P. pilosa, Platanthera holochila,* and *Schiedea jacobii,* we have determined this area to be essential for the conservation and recovery of these montane wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Wet—Unit 3 (and)

Palmeria dolei—Unit 12—Montane Wet (and)

Pseudonestor xanthophrys—Unit 12—Montane Wet

This area consists of 2,228 ac (902 ha) of federally owned land (Haleakala National Park) in Kipahulu Valley, on the northeastern slopes of east Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane wet ecosystem (see Table 5). These units are occupied by the plants *Bidens campylotheca* ssp. *pentamera, B. campylotheca* ssp. *waihoiensis, Cyanea copelandii* ssp. *haleakalaensis, C. hamatiflora* ssp. *hamatiflora, C. maritae,* and *Melicope ovalis,* and by the forest bird, kiwikiu (*Pseudonestor xanthophrys*). These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Montane Wet—Unit 3 is not known to be occupied by the plants *Adenophorus periens, Asplenium peruvianum* var. *insulare, Clermontia oblongifolia* ssp. *mauiensis, C. samuelii, Cyanea duvalliorum, C. glabra, C. horrida, C. kunthiana, C. mceldowneyi, Cyrtandra ferripilosa, Diplazium molokaiense, Geranium hanaense, G. multiflorum, Huperzia mannii, Melicope balloui, Peperomia subpetiolata, Phyllostegia bracteata, P. haliakalae, P. mannii, P. pilosa, Platanthera holochila, Schiedea jacobii,* or *Wikstroemia villosa,* or by the forest bird, the akohekohe (*Palmeria dolei*), we have determined this area to be essential for the conservation and recovery of these montane wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Wet—Unit 4 (and)

Palmeria dolei—Unit 13—Montane Wet (and)

Pseudonestor xanthophrys—Unit 13—Montane Wet

This area consists of 180 ac (73 ha) of State land and 1,653 ac (669 ha) of federally owned land (Haleakala National Park), in Kaapahu Valley on the northeastern slopes of east Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane wet ecosystem (see Table 5). These units are occupied by the plants *Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, C. hamatiflora* ssp. *hamatiflora, C. horrida, C. kunthiana, C. maritae, Cyrtandra ferripilosa,* and *Huperzia mannii.* These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Montane Wet—Unit 4 is not known to be occupied by the plants *Adenophorus periens, Asplenium peruvianum* var. *insulare, Bidens campylotheca* ssp. *pentamera, B. campylotheca* ssp. *waihoiensis, Clermontia oblongifolia* ssp. *mauiensis, Cyanea duvalliorum, C. glabra, C. mceldowneyi, Diplazium molokaiense, Geranium hanaense, G. multiflorum, Melicope balloui, M. ovalis, Peperomia subpetiolata, Phyllostegia bracteata, P. haliakalae, P. mannii, P. pilosa, Platanthera holochila, Schiedea jacobii,* or *Wikstroemia villosa,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Wet—Unit 5 (and)

Palmeria dolei—Unit 14—Montane Wet (and)

Pseudonestor xanthophrys—Unit 14—Montane Wet

This area consists of 222 ac (90 ha) of State land, and 165 ac (67 ha) of federally owned land (Haleakala National Park), near Kaumakani on the eastern slopes of east Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane wet ecosystem (see Table 5). These units area occupied by the plant *Bidens campylotheca* ssp. *pentamera.* These units also contain unoccupied

habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Montane Wet—Unit 5 is not currently occupied by the plants *Adenophorus periens, Asplenium peruvianum* var. *insulare, Bidens campylotheca* ssp. *waihoiensis, Clermontia oblongifolia* ssp. *mauiensis, C. samuelii, Cyanea copelandii* ssp. *haleakalaensis, C. duvalliorum, C. glabra, C. hamatiflora* ssp. *hamatiflora, C. horrida, C. kunthiana, C. maritae, C. mceldowneyi, Cyrtandra ferripilosa, Diplazium molokaiense, Geranium hanaense, G. multiflorum, Huperzia mannii, Melicope balloui, M. ovalis, Peperomia subpetiolata, Phyllostegia bracteata, P. haliakalae, P. mannii, P. pilosa, Platanthera holochila, Schiedea jacobii,* or *Wikstroemia villosa,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane wet species because it provides the PCEs necessary for the reestablishment of wild populations within the historical ranges of the species. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Wet—Unit 6 (and)

Palmeria dolei—Unit 15—Montane Wet (and)

Pseudonestor xanthophrys—Unit 15—Montane Wet

This area consists of 1,113 ac (451 ha) of State land, and 286 ac (116 ha) of privately owned land, at the summit and surrounding areas on west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane wet ecosystem (see Table 5). They are occupied by the plants *Bidens conjuncta, Calamagrostis hillebrandii, Cyanea kunthiana, Geranium hillebrandii, Myrsine vaccinioides,* and *Sanicula purpurea.* These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Montane Wet—Unit 6 is not known to be occupied by the plants *Acaena exigua, Cyrtandra oxybapha, Huperzia mannii, Phyllostegia bracteata,* or *Platanthera holochila,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Wet—Unit 7 (and)

Palmeria dolei—Unit 16—Montane Wet (and)

Pseudonestor xanthophrys—Unit 16—Montane Wet

This area consists of 80 ac (32 ha) of State land near Hanaula and Pohakea Gulch on the southeastern slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane wet ecosystem (see Table 5). They are occupied by the plants *Cyrtandra oxybapha* and *Platanthera holochila,* and contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Montane Wet—Unit 7 is not known to be occupied by the plants *Acaena exigua, Bidens conjuncta, Calamagrostis hillebrandii, Cyanea kunthiana, Geranium hillebrandii, Huperzia mannii, Myrsine vaccinioides, Phyllostegia bracteata,* or *Sanicula purpurea,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Mesic—Unit 1 (and)

Palmeria dolei—Unit 18—Montane Mesic (and)

Pseudonestor xanthophrys—Unit 18—Montane Mesic

This area consists of 6,593 ac (2,668 ha) of State land, 707 ac (286 ha) of privately owned land, and 3,672 ac (1,486 ha) of federally owned land (Haleakala National Park), from Kealahou to Puualae, nearly circumscribing the summit of Haleakala on east Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane mesic ecosystem (see Table 5). They are occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium dielerectum, A. peruvianum* var. *insulare, Clermontia lindseyana, Cyanea horrida, C. obtusa, Cyrtandra ferripilosa, C. oxybapha, Diplazium molokaiense, Geranium arboreum, G. multiflorum, Huperzia mannii, Melicope adscendens,* and *Neraudia sericea.* These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Montane Mesic—Unit 1 is not known to be occupied by the plants *Alectryon macrococcus, Bidens campylotheca* ssp. *pentamera, B. micrantha* ssp. *kalealaha, Cyanea glabra, C. hamatiflora* ssp. *hamatiflora, C. kunthiana, C. mceldowneyi, Phyllostegia bracteata, P. mannii, Santalum haleakalae* var. *lanaiense, Wikstroemia villosa,* or *Zanthoxylum hawaiiense,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane mesic species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Mesic—Unit 2 (and)

Palmeria dolei—Unit 19—Montane Mesic (and)

Pseudonestor xanthophrys—Unit 19—Montane Mesic

This area consists of 124 ac (50 ha) of State land at Helu and the upper reaches of Puehuehunui on the southern slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane mesic ecosystem (see Table 5). They are occupied by the plants *Ctenitis squamigera, Cyanea magnicalyx,*

Diplazium molokaiense, Lysimachia lydgatei, Remya mauiensis, and *Santalum haleakalae* var. *lanaiense.* These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Montane Mesic—Unit 2 is not known to be occupied by the plants *Geranium hillebrandii, Huperzia mannii, Stenogyne kauaulaensis,* or *Zanthoxylum hawaiiense,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane mesic species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Mesic—Unit 3 (and)

Palmeria dolei—Unit 20—Montane Mesic (and)

Pseudonestor xanthophrys—Unit 20—Montane Mesic

This area consists of 174 ac (70 ha) of State land at Lihau on the southwestern slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane mesic ecosystem (see Table 5). They are occupied by the plant *Geranium hillebrandii,* and contain unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Montane Mesic—Unit 3 is not known to be occupied by the plants *Ctenitis squamigera, Cyanea magnicalyx, Diplazium molokaiense, Huperzia mannii, Lysimachia lydgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense, Stenogyne kauaulaensis,* or *Zanthoxylum hawaiiense,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane mesic species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Mesic—Unit 4 (and)

Palmeria dolei—Unit 21—Montane Mesic (and)

Pseudonestor xanthophrys—Unit 21—Montane Mesic

This area consists of 72 ac (29 ha) of State land at Halepohaku on the southern slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane mesic ecosystem (see Table 5). Although Maui—Montane Mesic—Unit 4 is not known to be occupied by the plants *Ctenitis squamigera, Cyanea magnicalyx, Diplazium molokaiense, Geranium hillebrandii, Huperzia mannii, Lysimachia lydgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense, Stenogyne kauaulaensis,* or *Zanthoxylum hawaiiense,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane mesic species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Mesic—Unit 5 (and)

Palmeria dolei—Unit 22—Montane Mesic (and)

Pseudonestor xanthophrys—Unit 22—Montane Mesic

This area consists of 170 ac (69 ha) of State land at the upper reaches of Manawainui Gulch on the southeastern slopes of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane mesic ecosystem (see Table 5). They are occupied by the plants *Remya mauiensis* and *Santalum haleakalae* var. *lanaiense,* and contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Montane Mesic—Unit 5 is not known to be occupied by the plants *Ctenitis squamigera, Cyanea magnicalyx, Diplazium molokaiense, Geranium hillebrandii, Huperzia mannii, Lysimachia lydgatei, Stenogyne kauaulaensis,* or *Zanthoxylum hawaiiense,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane mesic species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Montane Dry—Unit 1 consists of 2,962 ac (1,199 ha) of State land, and 563 ac (228 ha) of federally owned land (Haleakala National Park), from Kanaio to Naholoku and Kaupo Gap along the southern slopes of east Maui. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane dry ecosystem (see Table 5). Although Maui—Montane Dry—Unit 1 is not known to be occupied by the plants *Alectryon macrococcus, Geranium arboreum, Melicope knudsenii, M. mucronulata, Santalum haleakalae* var. *lanaiense,* or *Zanthoxylum hawaiiense,* we have determined this area to be essential for the conservation and recovery of these montane dry species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Subalpine—Unit 1 (and)

Palmeria dolei—Unit 24—Subalpine (and)

Pseudonestor xanthophrys—Unit 24—Subalpine

This area consists of 10,785 ac (4,365 ha) of State land, 1,622 ac (656 ha) of privately owned land, and 3,568 ac (1,444 ha) of federally owned land (Haleakala National Park), from Kanaio north to Puu Nianiau on east Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as

physical or biological features in the subalpine ecosystem (see Table 5). They are occupied by the plants *Bidens micrantha* ssp. *kalealaha* and *Geranium arboreum,* and contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Subalpine—Unit 1 is not known to be occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium peruvianum* var. *insulare, Geranium multiflorum, Phyllostegia bracteata, Schiedea haleakalensis,* or *Zanthoxylum hawaiiense,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these subalpine species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Subalpine—Unit 2 (and)

Palmeria dolei—Unit 25—Subalpine (and)

Pseudonestor xanthophrys—Unit 25—Subalpine

This area consists of 50 ac (20 ha) of privately owned land, and 9,836 ac (3,981 ha) of federally owned land (Haleakala National Park), from the summit north to Koolau Gap and east to Kalapawili Ridge on east Maui. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the subalpine ecosystem (see Table 5). They are occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Geranium multiflorum,* and *Schiedea haleakalensis,* and by the forest bird, the akohekohe (*Palmeria dolei*). These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Subalpine—Unit 2 is not known to be occupied by the plants *Asplenium peruvianum* var. *insulare, Bidens micrantha* ssp. *kalealaha, Geranium arboreum, Phyllostegia bracteata,* or *Zanthoxylum hawaiiense,* or by the forest bird, the kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these subalpine species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Alpine—Unit 1 consists of 475 ac (192 ha) of State land, 411 ac (166 ha) of privately owned land, and 911 ac (369 ha) of federally owned land (Haleakala National Park), at the summit of Haleakala on east Maui. This unit includes the mixed herbland and shrubland, the moisture regime, and the subcanopy native plant species identified as physical or biological features in the alpine ecosystem (see Table 5). This unit is occupied by the plant *Argyroxiphium sandwicense* ssp. *macrocephalum,* and contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Due to its small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Dry Cliff—Unit 1 (and)

Palmeria dolei—Unit 26—Dry Cliff (and)

Pseudonestor xanthophrys—Unit 26—Dry Cliff

This area consists of 755 ac (305 ha) of federally owned land (Haleakala National Park), from Pakaoao to Koolau Gap on east Maui. These units include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the dry cliff ecosystem (see Table 5). Although Maui—Dry Cliff—Unit 1 is not known to be occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Bidens campylotheca* ssp. *pentamera, B. micrantha* ssp. *kalealaha, Diplazium molokaiense, Geranium multiflorum, Plantago princeps,* or *Schiedea haleakalensis,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these dry cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Dry Cliff—Unit 2 consists of 688 ac (279 ha) of federally owned land (Haleakala National Park) from Haupaakea Peak to Kaupo Gap on east Maui. This unit includes the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the dry cliff ecosystem (see Table 5). It is occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Geranium multiflorum, Plantago princeps,* and *Schiedea haleakalensis,* and contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Dry Cliff—Unit 2 is not known to be occupied by the plants *Bidens campylotheca* ssp. *pentamera, B. micrantha* ssp. *kalealaha,* or *Diplazium molokaiense,* we have determined this area to be essential for the conservation and recovery of these dry cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Dry Cliff—Unit 3 (and)

Palmeria dolei—Unit 27—Dry Cliff (and)

Pseudonestor xanthophrys—Unit 27—Dry Cliff

This area consists of 200 ac (81 ha) of federally owned land (Haleakala National Park) near Papaanui on east Maui. These units include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the dry cliff ecosystem (see Table 5). It is occupied by the plant *Plantago princeps,* and contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Dry Cliff—Unit 3 is not currently occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Bidens campylotheca* ssp. *pentamera, B. micrantha* ssp. *kalealaha, Diplazium molokaiense, Geranium multiflorum,* or

Schiedea haleakalensis, or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these dry cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Dry Cliff—Unit 4 (and)

Palmeria dolei—Unit 28—Dry Cliff (and)

Pseudonestor xanthophrys—Unit 28—Dry Cliff

This area consists of 315 ac (127 ha) federally owned land (Haleakala National Park), along Kalapawili Ridge on east Maui. These units include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the dry cliff ecosystem (see Table 5). Although Maui—Dry Cliff—Unit 4 is not currently occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Bidens campylotheca* ssp. *pentamera, B. micrantha* ssp. *kalealaha, Diplazium molokaiense, Geranium multiflorum, Plantago princeps,* or *Schiedea haleakalensis,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these dry cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Dry Cliff—Unit 5 (and)

Palmeria dolei—Unit 29—Dry Cliff (and)

Pseudonestor xanthophrys—Unit 29—Dry Cliff

This area consists of 1,298 ac (525 ha) of State land, from Helu and across Olowalu to Ukumehame Gulch, on west Maui. These units include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the dry cliff ecosystem (see Table 5). They are occupied by the plant *Tetramolopium capillare,* and contain unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Dry Cliff—Unit 5 is not currently occupied by the plants *Bonamia menziesii, Diplazium molokaiense, Hesperomannia arbuscula, Isodendrion pyrifolium, Kadua laxiflora,* or *Neraudia sericea,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these dry cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Dry Cliff—Unit 6 consists of 279 ac (113 ha) of State land along the east wall of Ukumehame Gulch on west Maui. This unit includes the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the dry cliff ecosystem (see Table 5). Although Maui—Dry Cliff—Unit 6 is not currently occupied by the plants *Bonamia menziesii, Diplazium molokaiense, Hesperomannia arbuscula, Isodendrion pyrifolium, Kadua laxiflora, Neraudia sericea,* or *Tetramolopium capillare,* we have determined this area to be essential for the conservation and recovery of these dry cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Wet Cliff—Unit 1 (and)

Palmeria dolei—Unit 30—Wet Cliff (and)

Pseudonestor xanthophrys—Unit 30—Wet Cliff

This area consists of 290 ac (117 ha) of privately owned land along the wall of Keanae Valley on the northern slopes of east Maui. These units include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the wet cliff ecosystem (see Table 5). Although Maui—Wet Cliff—Unit 1 is not currently occupied by the plants *Bidens campylotheca* ssp. *pentamera, B. campylotheca* ssp. *waihoiensis, Cyanea copelandii* ssp. *haleakalaensis, Cyanea horrida, Melicope ovalis, Phyllostegia bracteata, P. haliakalae,* or *Plantago princeps,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these wet cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Wet Cliff—Unit 2 (and)

Palmeria dolei—Unit 31—Wet Cliff (and)

Pseudonestor xanthophrys—Unit 31—Wet Cliff

This area consists of 475 ac (192 ha) of State land, 20 ac (8 ha) of privately owned land, and 912 ac (369 ha) of federally owned land (Haleakala National Park), from Kalapawili Ridge along Kipahulu Valley and north to Puuhoolio, on the northeastern slopes of east Maui. These units include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the wet cliff ecosystem (see Table 5). They are occupied by the plants *Bidens campylotheca* ssp. *waihoiensis, Cyanea copelandii* ssp. *haleakalaensis, Melicope ovalis, Phyllostegia bracteata,* and *Plantago princeps.* These units also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Wet Cliff—Unit 2 is not known to be occupied by the plants *Bidens campylotheca* ssp. *pentamera, Cyanea horrida,* or *Phyllostegia haliakalae,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these wet cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction

are essential to achieving population levels necessary for recovery.

Maui—Wet Cliff—Unit 3 (and)

Palmeria dolei—Unit 32—Wet Cliff (and)

Pseudonestor xanthophrys—Unit 32—Wet Cliff

This area consists of 5 ac (2 ha) of State land and 433 ac (175 ha) federally owned land (Haleakala National Park) along the south rim of Kipahulu Valley on east Maui. These units include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the wet cliff ecosystem (see Table 5). Although Maui—Wet Cliff—Unit 3 is not currently occupied by the plants *Bidens campylotheca* ssp. *pentamera, B. campylotheca* ssp. *waihoiensis, Cyanea copelandii* ssp. *haleakalaensis, C. horrida, Melicope ovalis, Phyllostegia bracteata, P. haliakalae,* or *Plantago princeps,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these wet cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Wet Cliff—Unit 4 (and)

Palmeria dolei—Unit 33—Wet Cliff (and)

Pseudonestor xanthophrys—Unit 33—Wet Cliff

This area consists of 184 ac (75 ha) of State land along the north wall of Waihoi Valley, on the northeastern slopes of east Maui. These units include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the wet cliff ecosystem (see Table 5). They are occupied by the plant *Bidens campylotheca* ssp. *pentamera* and *B. campylotheca* ssp. *waihoiensis,* and contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Wet Cliff—Unit 4 is not known to be occupied by the plants *Cyanea copelandii* ssp. *haleakalaensis, C. horrida, Melicope ovalis, Phyllostegia bracteata, P. haliakalae,* or *Plantago princeps,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these wet cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Wet Cliff—Unit 6 (and)

Palmeria dolei—Unit 35—Wet Cliff (and)

Pseudonestor xanthophrys—Unit 35—Wet Cliff

This area consists of 1,858 ac (752 ha) of State land, and 253 ac (102 ha) of privately owned land, at the summit ridges of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the wet cliff ecosystem (see Table 5). They are occupied by the plants *Alectryon macrococcus, B. conjuncta, Ctenitis squamigera, Cyrtandra munroi, Remya mauiensis,* and *Santalum haleakalae* var. *lanaiense.* These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Wet Cliff—Unit 6 is not known to be occupied by the plants *Bidens campylotheca* ssp. *pentamera, Bonamia menziesii,* Cyanea *glabra, C. lobata, C. magnicalyx, Cyrtandra filipes, Dubautia plantaginea* ssp. *humilis, Gouania vitifolia, Hesperomannia arborescens, H. arbuscula, Isodendrion pyrifolium, Kadua laxiflora, Lysimachia lydgatei, Plantago princeps, Platanthera holochila, Pteris lidgatei,* or *Tetramolopium capillare,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these wet cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Wet Cliff—Unit 7 (and)

Palmeria dolei—Unit 36—Wet Cliff (and)

Pseudonestor xanthophrys—Unit 36—Wet Cliff

This area consists of 556 ac (225 ha) of State land along Honokowai ridge on the northwestern side of west Maui. These units include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the wet cliff ecosystem (see Table 5). These units are occupied by the plants *Cyrtandra filipes* and *C. munroi,* and contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Maui—Wet Cliff—Unit 7 is not known to be occupied by the plants *Alectryon macrococcus, Bidens campylotheca* ssp. *pentamera, B. conjuncta, Bonamia menziesii, Ctenitis squamigera, Cyanea glabra, C. lobata, C. magnicalyx, Dubautia plantaginea* ssp. *humilis, Gouania vitifolia, Hesperomannia arborescens, H. arbuscula, Isodendrion pyrifolium, Kadua laxiflora, Lysimachia lydgatei, Plantago princeps, Platanthera holochila, Pteris lidgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* or *Tetramolopium capillare,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these wet cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Maui—Wet Cliff—Unit 8 consists of 337 ac (137 ha) of State land along Kahakuloa ridge on the north side of west Maui. This unit includes the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the wet cliff ecosystem (see Table 5). Although Maui—Wet Cliff—Unit 8 is not known to be occupied by the plants *Alectryon macrococcus, Bidens campylotheca* ssp. *pentamera, B. conjuncta, Bonamia menziesii, Ctenitis squamigera, Cyanea glabra, C. lobata, C. magnicalyx, Cyrtandra filipes, C. munroi, Dubautia plantaginea* ssp. *humilis, Gouania vitifolia,*

Hesperomannia arborescens, H. arbuscula, Isodendrion pyrifolium, Kadua laxiflora, Lysimachia lydgatei, Plantago princeps, Platanthera holochila, Pteris lidgatei, Remya mauiensis, Santalum haleakalae var. *lanaiense,* or *Tetramolopium capillare,* we have determined this area to be essential for the conservation and recovery of these wet cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Kahoolawe—Coastal—Unit 1 consists of 1,516 ac (613 ha) of State land from Kaneloa to Lae o Kaule, including Aleale, along the southern and eastern coast of Kahoolawe. It is occupied by the plant *Kanaloa kahoolawensis* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Kahoolawe—Coastal—Unit 1 is not known to be occupied by the plants *Sesbania tomentosa* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the physical or biological features necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Kahoolawe—Coastal—Unit 2 consists of 12 ac (5 ha) of State land on Puukoae, an islet off the southern coast of Kahoolawe. It is occupied by the plant *Sesbania tomentosa* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Kahoolawe—Coastal—Unit 2 is not known to be occupied by *Kanaloa kahoolawensis* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Kahoolawe—Coastal—Unit 3 consists of 189 ac (76 ha) of State land from Laepaki to Honokanaia along the western coast of Kahoolawe. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). Although Kahoolawe—Coastal—Unit 3 is not known to be occupied by *Kanaloa kahoolawensis, Sesbania tomentosa,* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Kahoolawe—Lowland Dry—Unit 1 consists of 1,220 ac (494 ha) of State land, north of Waihonu Gulch on west Kahoolawe. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland dry ecosystem (see Table 5). Although Kahoolawe—Lowland Dry—Unit 1 is not known to be occupied by *Gouania hillebrandii, Hibiscus brackenridgei, Kanaloa kahoolawensis, Neraudia sericea, Sesbania tomentosa,* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these lowland dry species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Kahoolawe—Lowland Dry—Unit 2 consists of 3,205 ac (1,297 ha) of State land from Lua o Kealialuna to Puu o Moaulaiki and Luamakika on the eastern side of Kahoolawe. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland dry ecosystem (see Table 5). Although Kahoolawe—Lowland Dry—Unit 2 is not known to be occupied by *Gouania hillebrandii, Hibiscus brackenridgei, Kanaloa kahoolawensis, Neraudia sericea, Sesbania tomentosa,* or *Vigna o-wahuensis,* we have determined this area to be essential for the conservation and recovery of these lowland dry species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Coastal—Unit 1 consists of 70 ac (28 ha) of privately owned land, and 54 ac (22 ha) of federally owned land (U.S. Coast Guard) at Laau Point, from Kahaiawa to Keawakalani, along the western coast of Molokai. This unit is occupied by the plant *Marsilea villosa,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Coastal—Unit 1 is not known to be occupied by *Bidens wiebkei, Brighamia rockii, Canavalia molokaiensis, Hibiscus arnottianus* ssp. *immaculatus, H. brackenridgei, Ischaemum byrone, Peucedanum sandwicense, Pittosporum halophilum, Schenkia sebaeoides, Sesbania tomentosa,* or *Tetramolopium rockii,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Coastal—Unit 2 consists of 263 ac (106 ha) of State land, and 710 ac (287 ha) of privately owned land, from Ilio Point to Kaa Gulch, along the northwestern coast of Molokai. This

unit is occupied by the plant *Marsilea villosa* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Coastal—Unit 2 is not known to be occupied by *Bidens wiebkei, Brighamia rockii, Canavalia molokaiensis, Hibiscus arnottianus* ssp. *immaculatus, H. brackenridgei, Ischaemum byrone, Peucedanum sandwicense, Pittosporum halophilum, Schenkia sebaeoides, Sesbania tomentosa,* or *Tetramolopium rockii,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Coastal—Unit 3 consists of 794 ac (321 ha) of State land, and 3 ac (1 ha) of federally owned land (Kalaupapa National Historical Park), from Kahiu Point to Wainene, along the north-central coast of Molokai. This unit is occupied by the plants *Pittosporum halophilum, Schenkia sebaeoides,* and *Tetramolopium rockii,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Coastal—Unit 3 is not known to be occupied by *Bidens wiebkei, Brighamia rockii, Canavalia molokaiensis, Hibiscus arnottianus* ssp. *immaculatus, H. brackenridgei, Ischaemum byrone, Marsilea villosa, Peucedanum sandwicense,* or *Sesbania tomentosa,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Coastal—Unit 4 consists of 10 ac (4 ha) on Mokapu Island on the northern coast of Molokai. This area is State-owned, and is classified as a State Seabird Sanctuary. This unit is occupied by the plants *Peucedanum sandwicense* and *Pittosporum halophilum,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Coastal—Unit 4 is not known to be occupied by *Bidens wiebkei, Brighamia rockii, Canavalia molokaiensis, Hibiscus arnottianus* ssp. *immaculatus, H. brackenridgei, Ischaemum byrone, Marsilea villosa, Schenkia sebaeoides, Sesbania tomentosa,* or *Tetramolopium rockii,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Coastal—Unit 5 consists of 1 ac (0.5 ha) on Huelo islet on the northern coast of Molokai. This area is State-owned, and is classified as a State Seabird Sanctuary. This unit is occupied by the plants *Brighamia rockii, Peucedanum sandwicense,* and *Pittosporum halophilum,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Coastal—Unit 5 is not known to be occupied by *Bidens wiebkei, Canavalia molokaiensis, Hibiscus arnottianus* ssp. *immaculatus, H. brackenridgei, Ischaemum byrone, Marsilea villosa, Schenkia sebaeoides, Sesbania tomentosa,* or *Tetramolopium rockii,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Coastal—Unit 6 consists of 190 ac (77 ha) of State land, and 1,685 ac (682 ha) of privately owned land, from Kaholaiki Bay to Halawa Bay, on the northeastern coast of Molokai. This unit is occupied by the plants *Bidens wiebkei, Canavalia molokaiensis, Hibiscus arnottianus* ssp. *immaculatus,* and *Ischaemum byrone,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Coastal—Unit 6 is not known to be occupied by *Brighamia rockii, Hibiscus brackenridgei, Marsilea villosa, Peucedanum sandwicense, Pittosporum halophilum, Schenkia sebaeoides, Sesbania tomentosa,* or *Tetramolopium rockii,* we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Coastal—Unit 7 consists of 49 ac (20 ha) of privately owned land from Alanuipuhipaka Ridge to Kalanikaula, on the northeastern coast of Molokai. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the coastal ecosystem (see Table 5). Although Molokai—Coastal—Unit 7 is not known to be occupied by *Bidens wiebkei, Brighamia rockii, Canavalia molokaiensis, Hibiscus arnottianus* ssp. *immaculatus, H. brackenridgei, Ischaemum byrone, Marsilea villosa, Peucedanum sandwicense, Pittosporum halophilum, Schenkia sebaeoides, Sesbania tomentosa,* or *Tetramolopium*

rockii, we have determined this area to be essential for the conservation and recovery of these coastal species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Lowland Dry—Unit 1 consists of 24 ac (10 ha) of privately owned land, in a small gulch northwest of Mahana, in west-central Molokai. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland dry ecosystem (see Table 5). Although Molokai—Lowland Dry—Unit 1 is not known to be occupied by *Bonamia menziesii, Cyperus trachysanthos, Eugenia koolauensis, Hibiscus brackenridgei, Kokia cookei,* or *Sesbania tomentosa,* we have determined this area to be essential for the conservation and recovery of these lowland dry species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Lowland Dry—Unit 2 consists of 589 ac (238 ha) of State land at Kamiloloa on the southern slopes of Molokai. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland dry ecosystem (see Table 5). Although Molokai—Lowland Dry—Unit 2 is not known to be occupied by *Bonamia menziesii, Cyperus trachysanthos, Eugenia koolauensis, Hibiscus brackenridgei, Kokia cookei,* or *Sesbania tomentosa,* we have determined this area to be essential for the conservation and recovery of these lowland dry species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Lowland Mesic—Unit 1 (and)

Palmeria dolei—Unit 37—Lowland Mesic (and)

Pseudonestor xanthophrys—Unit 37—Lowland Mesic

This area consists of 3,489 ac (1,412 ha) of State land, and 5,281 ac (2,137 ha) of privately owned land, from Waianui Gulch to Mapulehu, in central Molokai. These units are occupied by the plants *Alectryon macrococcus, Ctenitis squamigera, Cyanea dunbariae, C. mannii, C. profuga, Cyperus fauriei, Cyrtandra filipes, Gouania hillebrandii, Labordia triflora, Neraudia sericea, Santalum haleakalae* var. *lanaiense, Schiedea lydgatei, S. sarmentosa, Silene alexandri, S. lanceolata, Spermolepis hawaiiensis,* and *Zanthoxylum hawaiiense,* and include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland mesic ecosystem (see Table 5). These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Lowland Mesic—Unit 1 is not known to be occupied by *Asplenium dielerectum, Bonamia menziesii, Canavalia molokaiensis, Clermontia oblongifolia* ssp. *brevipes, Cyanea procera, C. solanacea, Diplazium molokaiense, Festuca molokaiensis, Flueggea neowawraea, Isodendrion pyrifolium, Kadua laxiflora, Melicope mucronulata, M. munroi, M. reflexa, Phyllostegia haliakalae, P. mannii, P. pilosa, Sesbania tomentosa, Stenogyne bifida,* or *Vigna o-wahuensis,* or the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these lowland mesic species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Lowland Wet—Unit 1 (and)

Palmeria dolei—Unit 38—Lowland Wet (and)

Pseudonestor xanthophrys—Unit 38—Lowland Wet

This area consists of 2,195 ac (888 ha) of State land, and 754 ac (305 ha) of privately owned land (partly within The Nature Conservancy's Pelekunu Preserve), from Pelekunu Valley to Wailau Valley, in north-central Molokai. These units are occupied by the plant *Cyrtandra filipes,* and include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland wet ecosystem (see Table 5). These units also contain unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Lowland Wet—Unit 1 is not known to be occupied by *Asplenium dielerectum, Bidens wiebkei, Canavalia molokaiensis, Clermontia oblongifolia* ssp. *brevipes, Cyanea dunbariae, C. grimesiana* ssp. *grimesiana, C. solanacea, Lysimachia maxima, Melicope reflexa, Peucedanum sandwicense, Phyllostegia hispida, P. mannii, Plantago princeps, Stenogyne bifida,* or *Zanthoxylum hawaiiense,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these lowland wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Lowland Wet—Unit 2 (and)

Palmeria dolei—Unit 39—Lowland Wet (and)

Pseudonestor xanthophrys—Unit 39—Lowland Wet

This area consists of 1,356 ac (549 ha) of State land and 594 ac (241 ha) of privately owned land, from Kahanui to Pelekunu Valley, in north-central Molokai. These units are occupied by the plant *Lysimachia maxima,* and include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland wet ecosystem (see Table 5). These units also contain unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Lowland Wet—Unit 2 is not known to be occupied by *Asplenium dielerectum,*

Bidens wiebkei, Canavalia molokaiensis, Clermontia oblongifolia ssp. *brevipes, Cyanea dunbariae, C. grimesiana* ssp. *grimesiana, C. solanacea, Cyrtandra filipes, Melicope reflexa, Peucedanum sandwicense, Phyllostegia hispida, P. mannii, Plantago princeps, Stenogyne bifida,* or *Zanthoxylum hawaiiense,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these lowland wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Lowland Wet—Unit 3 consists of 94 ac (38 ha) of State land, and 3,125 ac (1,265 ha) of privately owned land, from Waiahookalo gulch to Moaula stream and Puniuohua, on eastern Molokai. This unit includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the lowland wet ecosystem (see Table 5). Although Molokai—Lowland Wet—Unit 3 is not known to be occupied by *Asplenium dielerectum, Bidens wiebkei, Canavalia molokaiensis, Clermontia oblongifolia* ssp. *brevipes, Cyanea dunbariae, C. grimesiana* ssp. *grimesiana, C. solanacea, Cyrtandra filipes, Lysimachia maxima, Melicope reflexa, Peucedanum sandwicense, Phyllostegia hispida, P. mannii, Plantago princeps, Stenogyne bifida,* or *Zanthoxylum hawaiiense,* we have determined this area to be essential for the conservation and recovery of these lowland wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Montane Wet—Unit 1 (and)

Palmeria dolei—Unit 40—Montane Wet (and)

Pseudonestor xanthophrys—Unit 40—Montane Wet

This area consists of 1,545 ac (625 ha) of State land, and 1,851 ac (749 ha) of privately owned land, from the headwaters of Waialelia Stream and above Pelekunu Valley, eastward along the summit area to Mapulehu, in north-central Molokai. These units are occupied by the plants *Bidens wiebkei, Clermontia oblongifolia* ssp. *brevipes, Cyanea mannii, C. profuga, Phyllostegia hispida,* and *Pteris lidgatei,* and include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane wet ecosystem (see Table 5). These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Montane Wet—Unit 1 is not known to be occupied by *Adenophorus periens, Cyanea procera, C. solanacea, Hesperomannia arborescens, Lysimachia maxima, Melicope reflexa, Phyllostegia mannii, P. pilosa, Platanthera holochila, Schiedea laui, Stenogyne bifida,* or *Zanthoxylum hawaiiense,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Montane Wet—Unit 2 (and)

Palmeria dolei—Unit 41—Montane Wet (and)

Pseudonestor xanthophrys—Unit 41—Montane Wet

This area consists of 871 ac (353 ha) of State land, and 39 ac (16 ha) of privately owned land, from Honukaupu to Olokui (between Pelekunu and Wailau valleys), in north-central Molokai. These units include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane wet ecosystem (see Table 5). Although Molokai—Montane Wet—Unit 2 is not known to be occupied by *Adenophorus periens, Bidens wiebkei, Clermontia oblongifolia* ssp. *brevipes, Cyanea mannii, C. procera, C. profuga, C. solanacea, Hesperomannia arborescens, Lysimachia maxima, Melicope reflexa, Phyllostegia hispida, P. mannii, P. pilosa, Platanthera holochila, Pteris lidgatei, Schiedea laui, Stenogyne bifida,* or *Zanthoxylum hawaiiense,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Montane Wet—Unit 3 consists of 77 ac (31 ha) of State land, and 726 ac (294 ha) of privately owned land, above the east rim of Wailau Valley on eastern Molokai. This unit is occupied by the plant *Melicope reflexa,* and includes the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane wet ecosystem (see Table 5). This unit also contains unoccupied habitat that is essential to the conservation of this species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Montane Wet—Unit 3 is not known to be occupied by *Adenophorus periens, Bidens wiebkei, Clermontia oblongifolia* ssp. *brevipes, Cyanea mannii, C. procera, C. profuga, C. solanacea, Hesperomannia arborescens, Lysimachia maxima, Phyllostegia hispida, P. mannii, P. pilosa, Platanthera holochila, Pteris lidgatei, Schiedea laui, Stenogyne bifida,* or *Zanthoxylum hawaiiense,* we have determined this area to be essential for the conservation and recovery of these montane wet species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Montane Mesic—Unit 1 (and)

Palmeria dolei—Unit 42—Montane Mesic (and)

Pseudonestor xanthophrys—Unit 42—Montane Mesic

This area consists of 257 ac (104 ha) of State land, and 559 ac (226 ha) of privately owned land from Kamiloloa to Makolelau in central Molokai. These

units are occupied by the plants *Alectryon macrococcus, Bidens wiebkei, Santalum haleakalae* var. *lanaiense,* and *Spermolepis hawaiiensis,* and include the mixed herbland and shrubland, the moisture regime, and canopy, subcanopy, and understory native plant species identified as physical or biological features in the montane mesic ecosystem (see Table 5). These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Montane Mesic—Unit 1 is not known to be occupied by *Asplenium dielerectum, Cyanea dunbariae, C. mannii, C. procera, C. solanacea, Cyperus fauriei, Kadua laxiflora, Melicope mucronulata, Neraudia sericea, Plantago princeps,* or *Stenogyne bifida,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these montane mesic species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Wet Cliff—Unit 1 (and)

Palmeria dolei—Unit 43—Wet Cliff (and)

Pseudonestor xanthophrys—Unit 43—Wet Cliff

This area consists of 1,395 ac (565 ha) of State land, and 212 ac (86 ha) of privately owned land, and encircles the plateau between Pelekunu and Wailau valleys, in north-central Molokai. These units are occupied by the plants *Brighamia rockii, Canavalia molokaiensis, Clermontia oblongifolia* ssp. *brevipes, Cyanea munroi,* and *Hibiscus arnottianus* ssp. *immaculatus,* and include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the wet cliff ecosystem (see Table 5). These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations Although Molokai—Wet Cliff—Unit 1 is not known to be occupied by *Cyanea grimesiana* ssp. *grimesiana, Hesperomannia arborescens, Phyllostegia hispida, Pteris lidgatei,* or *Stenogyne bifida,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these wet cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Wet Cliff—Unit 2 (and)

Palmeria dolei—Unit 44—Wet Cliff (and)

Pseudonestor xanthophrys—Unit 44—Wet Cliff

This area consists of 462 ac (187 ha) of State land, and 806 ac (326 ha) of privately owned land (partly within The Nature Conservancy's Pelekunu Preserve), along the rim of Pelekunu Valley from Kipapa Ridge to Mapulehu, in central Molokai. These units are occupied by the plants *Clermontia oblongifolia* ssp. *brevipes* and *Phyllostegia hispida,* and include the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the wet cliff ecosystem (see Table 5). These units also contain unoccupied habitat that is essential to the conservation of these species by providing the PCEs necessary for the expansion of the existing wild populations. Although Molokai—Wet Cliff—Unit 2 is not known to be occupied by *Brighamia rockii, Canavalia molokaiensis, Cyanea grimesiana* ssp. *grimesiana, C. munroi, Hesperomannia arborescens, Hibiscus arnottianus* ssp. *immaculatus, Pteris lidgatei,* or *Stenogyne bifida,* or by the forest birds, the akohekohe (*Palmeria dolei*) and kiwikiu (*Pseudonestor xanthophrys*), we have determined this area to be essential for the conservation and recovery of these wet cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

Molokai—Wet Cliff—Unit 3 consists of 1,137 ac (460 ha) of State land, and 225 ac (91 ha) of privately owned land, along the rim of Wailau Valley from Mapulehu to Kahiwa Gulch, in eastern Molokai. This unit includes the mixed herbland and shrubland, the moisture regime, and the subcanopy and understory native plant species identified as physical or biological features in the wet cliff ecosystem (see Table 5). Although Molokai—Wet Cliff—Unit 3 is not known to be occupied by *Brighamia rockii, Canavalia molokaiensis, Clermontia oblongifolia* ssp. *brevipes, Cyanea grimesiana* ssp. *grimesiana, C. munroi, Hesperomannia arborescens, Hibiscus arnottianus* ssp. *immaculatus, Phyllostegia hispida, Pteris lidgatei,* or *Stenogyne bifida,* we have determined this area to be essential for the conservation and recovery of these wet cliff species because it provides the PCEs necessary for the reestablishment of wild populations within their historical range. Due to their small numbers of individuals or low population sizes, suitable habitat and space for expansion or reintroduction are essential to achieving population levels necessary for recovery.

IX. Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

Decisions by the 5th and 9th Circuit Courts of Appeals have invalidated our regulatory definition of ''destruction or adverse modification'' (50 CFR 402.02) (see *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service,* 378 F. 3d 1059 (9th Cir. 2004) and *Sierra Club* v. *U.S. Fish and Wildlife Service,* 245 F.3d 434, 442F (5th Cir. 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, local, or private lands that are not federally funded or authorized, do not require section 7 consultation.

As a result of section 7 consultation, we may issue:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect and are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define ''reasonable and prudent alternatives'' (at 50 CFR 402.02) as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action,

(2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction,

(3) Are economically and technologically feasible, and

(4) Would, in the Director's opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate formal consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

Application of the ''Adverse Modification'' Standard

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species, or retain those physical or biological features that relate to the ability of the area to periodically support the species. Activities that may destroy or adversely modify critical habitat are those that alter the physical or biological features to an extent that appreciably reduces the conservation value of the critical habitat network for the 135 species identified in this final rule. As discussed above, the role of critical habitat is to support the life history needs of the species and provide for the conservation of the species.

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

Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for the 125 species. These activities include, but are not limited to:

(1) Federal actions that would appreciably degrade or destroy the physical or biological features for the species including, but not limited to, the following: Overgrazing; maintaining or increasing feral ungulate levels; clearing or cutting native live trees and shrubs (*e.g.,* woodcutting, bulldozing, construction, road building, mining, herbicide application); and taking actions that pose a risk of fire.

(2) Federal actions that would alter watershed characteristics in ways that would appreciably reduce groundwater recharge or alter natural, wetland, aquatic, or vegetative communities. Such actions include new water diversion or impoundment, excess groundwater pumping, and manipulation of vegetation through activities such as the ones mentioned in (1), above.

(3) Recreational activities that may appreciably degrade vegetation.

(4) Mining sand or other minerals.

(5) Introducing or encouraging the spread of nonnative plant species.

(6) Importing nonnative species for research, agriculture, and aquaculture, and releasing biological control agents.

X. Exemptions

Application of Section 4(a)(3) of the Act

Section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) provides that: ''The Secretary shall not designate as critical habitat any lands or other geographic areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan [INRMP] prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.'' There are no Department of Defense (DOD) lands with a completed INRMP within the critical habitat designation.

XI. Exclusions

Application of Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that the Secretary shall designate or make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impacts of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if she determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless she determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species.

In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the

Secretary may exercise her discretion to exclude the area only if such exclusion would not result in the extinction of the species.

When identifying the benefits of inclusion for an area, we consider factors such as the additional regulatory benefits that area would receive from the protection from adverse modification or destruction as a result of actions with a Federal nexus; the educational benefits of mapping essential habitat for recovery of the listed species; and any benefits that may result from a designation due to State or Federal laws that may apply to critical habitat.

When identifying the benefits of exclusion, we consider, among other things, whether exclusion of a specific area is likely to result in the continuation, strengthening, or encouragement of partnerships that will result in future conservation. The Secretary places great weight on demonstrated partnerships, as in many cases they can lead to the implementation of conservation actions that provide benefits to the species and their habitat beyond those that are achievable through the designation of critical habitat and section 7 consultations, particularly on private lands. As most endangered or threatened species in Hawaii occur on private and other non-Federal lands, such conservation partnerships are of heightened importance on the islands of Hawaii.

In the case of the 125 Maui Nui species, the benefits of designating critical habitat include educational benefits resulting from identification of the features essential to the conservation these species and the delineation of areas important for their recovery. Further, there may be additional benefits realized by providing landowners, stakeholders, and project proponents greater certainty about which specific areas are important for the Maui Nui species. Thus, critical habitat designation increases public awareness of the presence the Maui Nui species and the importance of habitat protection and, in cases where a Federal nexus exists, increases habitat protection for these species due to the protection from adverse modification or destruction of critical habitat.

When we evaluate whether to include or exclude lands from critical habitat where there is a voluntary conservation partnership, we evaluate the evidence of a cooperative relationship, the likelihood that it will result in meaningful conservation for the species at issue, and the possibility it will encourage others to enter into similar partnerships. Other factors we may consider include, but are not limited to, whether any management plan that may be under consideration is finalized; how it provides for the conservation of the essential physical or biological features; whether there is a reasonable expectation that the conservation management strategies and actions contained in a management plan will be implemented into the future; whether the conservation strategies in the plan are likely to be effective; and whether the plan contains a monitoring program or adaptive management to ensure that the conservation measures are effective and can be adapted in the future in response to new information. Management plans or agreements, which may maintain the level of protection for the species or provide greater conservation benefits than would be realized due solely to the regulatory effect of critical habitat, may serve to reduce or eliminate the benefits of designating an area as critical habitat.

After identifying the benefits of inclusion and the benefits of exclusion, we carefully weigh the two sides to evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If our analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, we then determine whether exclusion of the particular area would result in the extinction of the species. If exclusion of an area from critical habitat will result in extinction, it will not be excluded from the designation.

Based on the information provided by entities seeking exclusion, as well as any additional public comments received, we evaluated whether certain lands in the proposed critical habitat were appropriate for exclusion from this final designation pursuant to section 4(b)(2) of the Act. We are excluding a total of 84,891 ac (34,355 ha) of lands on Maui, Molokai, and Lanai that meet the definition of critical habitat from the final critical habitat rule under section 4(b)(2) of the Act, based on conservation partnerships, land and resource management plans, or ''other relevant factors.'' On the islands of Maui and Molokai, approximately 59,478 ac (24,070 ha) are excluded under section 4(b)(2) of the Act. All lands within proposed critical habitat on Lanai (14 proposed plant units and 10 proposed tree snail units; 25,413 ac (10,284 ha)) are excluded from final designation pursuant to section 4(b)(2) of the Act for the reasons described below. No lands on Kahoolawe are excluded from the final critical habitat designation. The Secretary has excluded lands under section 4(b)(2) of the Act upon a determination that the benefits of excluding such areas outweigh the benefits of including them in critical habitat, and that the exclusion will not result in the extinction of the species.

Exclusions Based on Economic Impacts

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. In order to consider economic impacts, we prepared a draft economic analysis of the proposed critical habitat designation and related factors (IEc 2013). The draft analysis, dated January 14, 2013, was made available for public review from January 31, 2013, through March 4, 2013 (78 FR 6785; January 31, 2013), and was also available during the final comment period, which ran from June 10, 2015, through June 25, 2015 (80 FR 32922). Following the close of the comment period, a final analysis of the potential economic effects of the designation was developed taking into consideration the public comments and any new information received (Final Economic Analysis (FEA) 2015).

The intent of the FEA is to quantify the economic impacts of all potential conservation efforts for the Maui Nui species; some of these costs will likely be incurred regardless of whether we designate critical habitat (such costs are considered ''baseline'' costs). The economic impact of the final critical habitat designation is analyzed by comparing scenarios both ''with critical habitat'' and ''without critical habitat.'' The ''without critical habitat'' scenario represents the baseline for the analysis, considering protections already in place for the species (*e.g.,* under the Federal listing and other Federal, State, and local regulations). The baseline, therefore, represents the costs incurred regardless of whether critical habitat is designated. The ''with critical habitat'' scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts are those not expected to occur absent the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat above and beyond the baseline costs; these are the costs we consider in the final designation of critical habitat. The economic analysis uses the historical record to inform its assessment of potential future impacts of critical habitat and forecasts both baseline and incremental impacts likely to occur during the 10-year period following the designation of critical habitat. This period was determined to be the

appropriate period for analysis because limited planning information was available for most activities to forecast activity levels for projects beyond a 10-year timeframe.

The FEA also addresses how potential economic impacts are likely to be distributed, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation activities on government agencies, private businesses, and individuals. The FEA measures lost economic efficiency associated with residential and commercial development projects and activities, such as economic impacts on small entities and the energy industry. Decision-makers can use this information to assess whether the effects of the designation might unduly burden a particular group or economic sector.

The primary purpose of the economic analysis is to estimate the potential incremental economic impacts associated with the designation of critical habitat for the Maui Nui species. This information is intended to assist the Service in considering whether to exclude any particular areas from critical habitat designation under section 4(b)(2) of the Act. The FEA analyzes economic impacts of the conservation efforts for the Maui Nui species associated with the following categories of activity: Residential and commercial development projects, energy projects, and grazing and farming activities. The FEA estimates approximately $100,000 in present value incremental impacts over a period of 10 years associated with development and energy projects, or roughly $20,000 in annualized impacts. A further $5,000 in total potential impacts were estimated for energy projects in areas considered for exclusion, or roughly $600 in annualized impacts (IEc 2015, p. ES–7). However, the FEA concluded that the direct effect of designation of critical habitat on any of these activities (*i.e.,* the regulation of these activities through section 7 consultation to avoid adverse modification of critical habitat) is likely to be limited. The costs estimated reflect the cost of additional effort under section 7 consultation and the potential costs of project modifications as a result of critical habitat.

The FEA additionally considered the potential indirect effects of the designation, including, for example, perceptional effects on land values, or the potential for third-party lawsuits. Given the uncertainties surrounding the probability of any such effects occurring, and if so, the magnitude of any such effects, quantification of the potential indirect effects of the designation was not possible. The FEA acknowledges, however, that these uncertainties result in an underestimate of the quantified impacts of the designation (IEc 2015, p. 5–23).

After reviewing the economic analysis the Secretary is not exercising her discretion to exclude any areas from this designation of critical habitat for the Maui Nui species based on economic impacts.

A copy of the FEA with supporting documents may be obtained by contacting the Pacific Islands Fish and Wildlife Office (see **ADDRESSES**) or by downloading from the Internet at *http://www.regulations.gov*.

Exclusions Based on National Security Impacts

Under section 4(b)(2) of the Act, we consider whether there are lands owned or managed by the DOD where a national security impact might exist. In preparing this final rule, we have determined that the lands within the designation of critical habitat for the Maui Nui species are not owned or managed by the DOD, therefore we anticipate no impact on national security. Consequently, the Secretary is not exercising her discretion to exclude any areas from this final designation based on impacts on national security.

Exclusions Based on Other Relevant Factors

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts to national security. We consider a number of factors, including whether the landowners have developed any HCPs or other management plans for the area, or whether there are conservation partnerships that would be encouraged by designation of, or exclusion from, critical habitat.

The establishment and encouragement of strong conservation partnerships with non-Federal landowners is especially important in the State of Hawaii, where there are relatively few lands under Federal ownership; we cannot achieve the conservation and recovery of listed species in Hawaii without the help and cooperation of non-Federal landowners. In some cases we are excluding areas where landowners are already actively participating in the restoration or management of habitats essential to listed species, or taking steps to protect and increase numbers of individuals or populations of listed species that occur on their properties. In other cases, we are excluding areas to support existing partnerships and encourage new ones that will provide important conservation benefits to the Maui Nui species.

More than 60 percent of the United States is privately owned (Lubowski *et al.* 2006, p. 35), and at least 80 percent of endangered or threatened species occur either partially or solely on private lands (Crouse *et al.* 2002, p. 720). In the State of Hawaii, 84 percent of landownership is non-Federal (U.S. General Services Administration, in Western States Tourism Policy Council, 2009). Stein *et al.* (2008, p. 340) found that only about 12 percent of listed species were found almost exclusively on Federal lands (90 to 100 percent of their known occurrences restricted to Federal lands) and that 50 percent of listed species are not known to occur on Federal lands at all. Given the distribution of listed species with respect to landownership, conservation of listed species in many parts of the United States is dependent upon working partnerships with a wide variety of entities and the voluntary cooperation of many non-Federal landowners (Wilcove and Chen 1998, p. 1,407; Crouse *et al.* 2002, p. 720; James 2002, p. 271). Building partnerships and promoting voluntary cooperation of landowners is essential to understanding the status of species on non-Federal lands and necessary to implement recovery actions, such as the reintroduction of listed species, habitat restoration, and habitat protection.

Many non-Federal landowners derive satisfaction from contributing to endangered species recovery. Conservation agreements with non-Federal landowners, safe harbor agreements, other conservation agreements, easements, and State and local regulations enhance species conservation by extending species protections beyond those available through section 7 consultations. We encourage non-Federal landowners to enter into conservation agreements based on a view that we can achieve greater species conservation on non-Federal lands through such partnerships than we can through regulatory methods alone (USFWS and NOAA 1996c (61 FR 63854, December 2, 1996)).

Many private landowners, however, are wary of the possible consequences of attracting endangered species to their property. Mounting evidence suggests that some regulatory actions by the government, while well intentioned and required by law, can (under certain circumstances) have unintended negative consequences for the conservation of species on private lands (Wilcove *et al.* 1996, pp. 5–6; Bean 2002, pp. 2–3; James 2002, pp. 270–271;

Koch 2002, pp. 2–3). Many landowners fear a decline in their property value due to real or perceived restrictions on land-use options where endangered or threatened species are found. Consequently, harboring endangered species is viewed by many landowners as a liability. This perception results in anti-conservation incentives because maintaining habitats that harbor endangered species represents a risk to future economic opportunities (Main *et al.* 1999, pp. 1,264–1,265; Brook *et al.* 2003, pp. 1,644–1,648).

Because so many important conservation areas for the Maui Nui species occur on lands managed by non-Federal entities, collaborative relationships are essential for their recovery. The Maui Nui species and their habitat are expected to benefit substantially from voluntary land management actions that implement appropriate and effective conservation strategies, or that add to our bank of knowledge about the species and their ecological needs. The conservation benefits of critical habitat, on the other hand, are primarily regulatory or prohibitive in nature. Where consistent with the discretion provided by the Act, the Service believes it is both desirable and necessary to implement policies that provide positive incentives to non-Federal landowners and land managers to voluntarily conserve natural resources and to remove or reduce disincentives to conservation (Wilcove *et al.* 1996, pp. 1–14; Bean 2002, p. 2). Thus, we believe it is imperative for the recovery of the Maui Nui species to support ongoing positive management efforts with non-Federal conservation partners, and to provide positive incentives for other non-Federal land managers who might be considering implementing voluntary conservation activities but have concerns about incurring incidental regulatory, administrative, or economic impacts. Many landowners perceive critical habitat as an unnecessary and duplicative regulatory burden, particularly if those landowners are already developing and implementing conservation and management plans that benefit listed species on their lands. In certain cases, we believe the exclusion of non-Federal lands that are under positive conservation management is likely to strengthen the partnership between the Service and the landowner, which may encourage other conservation partnerships with that landowner in the future. As an added benefit, by modeling positive conservation partnerships that may result in exclusion from critical habitat, such exclusion may also help encourage the formation of new partnerships with other landowners, with consequent benefits to the listed species. For all of these reasons, we place great weight on the value of conservation partnerships with non-Federal landowners when considering the potential benefits of inclusion versus exclusion of areas in critical habitat.

We are excluding a total of approximately 84,891 ac (34,355 ha) of lands on Maui, Molokai, and Lanai that meet the definition of critical habitat from the final critical habitat rule under section 4(b)(2) of the Act. We are excluding these non-Federal lands because the development and implementation of management plans, and ability to access private lands necessary for surveys or monitoring designed to promote the conservation of these federally listed plant species and their habitat, as well as provide for other native species of concern, are important outcomes of these conservation partnerships which reduce the benefits of overlying a designation of critical habitat. Importantly, such exclusions also are likely to result in the continuation, strengthening, or encouragement of important conservation partnerships that will contribute to the long-term conservation of the Maui Nui species. The Secretary has determined that the benefits of excluding these areas outweigh the benefits of including them in critical habitat, and that such exclusion will not result in the extinction of the species. The specific areas excluded are detailed in Table 8. As a result of our evaluation of whether the benefits of exclusion outweigh those of inclusion in critical habitat, as detailed below, we have excluded approximately 59,479 ac (24,070 ha) on the islands of Maui and Molokai, and 25,413 ac (10,284 ha) on the island of Lanai (resulting in the exclusion of all lands proposed as critical habitat on Lanai). No lands on Kahoolawe were excluded.

TABLE 9–AREAS EXCLUDED FROM CRITICAL HABITAT DESIGNATION BY CRITICAL HABITAT UNIT AND LANDOWNER FOR THE ISLANDS OF MAUI, MOLOKAI, AND LANAI

Unit Name	**Landowner or Land Manager**	**Area Excluded from Critical Habitat, in Acres (Hectares)**	**Land Management Plan or Conservation Plan**
Maui—Coastal—Unit 7	Kaupo Ranch	71 (29)	Leeward Haleakala Watershed Restoration Partnership Management Plan, East Maui Watershed Partnership Management Plan, Southern Haleakala Forest Restoration Project
Maui—Coastal—Unit 9	Maui Land & Pineapple Company	205 (83)	Puu Kukui Watershed Preserve Management Plan, West Maui Mountains Watershed Partnership, Tree Snail Habitat Protection Agreement

Maui—Lowland Dry—Unit 1	Ulupalakua Ranch; Haleakala Ranch; Nuu Mauka Ranch; Kaupo Ranch	2,672 (1,081) 2,539 (1,028) 1,221 (494) 621 (251) 7,053 (2,854)	Leeward Haleakala Watershed Restoration Partnership Management Plan, HCP, Partners for Fish and Wildlife Agreements; East Maui Watershed Partnership Management Plan, Native Watershed Forest Restoration Conservation Plan, Southern Haleakala Forest Restoration Project
Maui—Lowland Dry—Unit 2	Haleakala Ranch	732 (296)	East Maui Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements
Maui—Lowland Dry—Unit 3	Ulupalakua Ranch	901 (365)	Leeward Haleakala Watershed Restoration Partnership Management Plan, HCP, Partners for Fish and Wildlife Agreements
Maui—Lowland Dry—Unit 5	Wailuku Water Company;	704 (285) 75 (31)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and

	Kamehameha Schools; Makila Land Company; Kahoma Land Company	911 (369) 0.1 (0.05) 1,690 (685)	Wildlife Agreements
Maui—Lowland Dry—Unit 6	Wailuku Water Company	184 (74)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements
Maui—Lowland Mesic—Unit 1	Kaupo Ranch	6 (2)	Leeward Haleakala Watershed Restoration Partnership Management Plan, East Maui Watershed Partnership Management Plan, Southern Haleakala Forest Restoration Project
Maui—Lowland Mesic—Unit 2	TNC; Maui Land & Pineapple Company; Kamehameha	255 (103) 548 (222) 193 (78)	Kapunakea Preserve Operational Plan; Puu Kukui Watershed Preserve Management Plan, West Maui Mountains Watershed Partnership,

	Schools; Makila Land Company; Kahoma Land Company	689 (279) 44 (18) 1,729 (700)	Tree Snail Habitat Protection Agreement; Partners for Fish and Wildlife Agreements
Maui—Lowland Wet—Unit 1 (and) *Palmeria dolei*—Unit 2—Lowland Wet (and) *Pseudonestor xanthophrys*—Unit 2—Lowland Wet	East Maui Irrigation Company	802 (325)	East Maui Watershed Partnership Management Plan & Haiku Uka Watershed Protection Project
Maui—Lowland Wet—Unit 2 (and) *Palmeria dolei*—Unit 3—Lowland Wet (and)	Maui Land & Pineapple Company	4,997 (2,022)	Puu Kukui Watershed Preserve Management Plan, West Maui Mountains Watershed Partnership, Tree Snail Habitat Protection Agreement

Pseudonestor xanthophrys—Unit 3—Lowland Wet (and) *Newcombia cumingi*—Unit 1—Lowland Wet			
Maui—Lowland Wet—Unit 3 (and) *Palmeria dolei*—Unit 4—Lowland Wet (and) *Pseudonestor xanthophrys*—Unit 4—Lowland Wet	Maui Land & Pineapple Company	180 (73)	Puu Kukui Watershed Preserve Management Plan, West Maui Mountains Watershed Partnership, Tree Snail Habitat Protection Agreement
Maui—Lowland Wet—Unit 4 (and) *Palmeria dolei*—Unit 5—	County, Department of Water Supply	301 (122)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements

Lowland Wet (and) *Pseudonestor xanthophrys*—Unit 5—Lowland Wet			
Maui—Lowland Wet—Unit 5 (and) *Palmeria dolei*—Unit 6—Lowland Wet (and) *Pseudonestor xanthophrys*—Unit 6—Lowland Wet	Wailuku Water Company	2,082 (843)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements
Maui—Lowland Wet—Unit 6 (and) *Palmeria dolei*—Unit 7—Lowland Wet (and)	TNC	503 (204)	Kapunakea Preserve Operational Plan

Pseudonestor xanthophrys—Unit 7—Lowland Wet			
Maui—Montane Wet—Unit 1 (and) *Palmeria dolei*—Unit 10—Montane Wet (and) *Pseudonestor xanthophrys*—Unit 10—Montane Wet	TNC; Haleakala Ranch; East Maui Irrigation Company	1,463 (592) 204 (82) 4,273 (1,729) 5,940 (2,403)	Kapunakea Preserve Operational Plan; East Maui Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements
Maui—Montane Wet—Unit 2 (and) *Palmeria dolei*—Unit 11—Montane Wet (and) *Pseudonestor xanthophrys*—Unit	TNC; East Maui Irrigation Company	766 (310) 1,338 (541) 2,104 (851)	Kapunakea Preserve Operational Plan; East Maui Watershed Partnership Management Plan & Haiku Uka Watershed Protection Project

11—Montane Wet			
Maui—Montane Wet—Unit 6 (and) *Palmeria dolei*—Unit 15—Montane Wet (and) *Pseudonestor xanthophrys*—Unit 15—Montane Wet	Maui Land & Pineapple Company; TNC; Wailuku Water Company; County, Department of Water Supply; Kamehameha Schools; Makila Land Company	1,005 (407) 359 (145) 39 (16) 471 (191) 656 (265) 35 (14) 2,565 (1,038)	Kapunakea Preserve Operational Plan, Puu Kukui Watershed Preserve Management Plan, West Maui Mountains Watershed Partnership, Tree Snail Habitat Protection Agreement, West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements
Maui—Montane Wet—Unit 7 (and) *Palmeria dolei*—Unit 16—Montane Wet (and)	Wailuku Water Company	528 (214)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements

Pseudonestor xanthophrys—Unit 16—Montane Wet			
Maui—Montane Wet—Unit 8 (and) *Palmeria dolei*—Unit 17—Montane Wet (and) *Pseudonestor xanthophrys*—Unit 17—Montane Wet	Wailuku Water Company	46 (19)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements
Maui—Montane Mesic—Unit 1 (and) *Palmeria dolei*—Unit 18—Montane Mesic (and) *Pseudonestor xanthophrys*—Unit	TNC; Ulupalakua Ranch; Haleakala Ranch; East Maui Irrigation Company; Nuu Mauka Ranch	1,372 (555) 2,183 (883) 3,232 (1,308) 164 (67) 318 (129)	Kapunakea Preserve Operational Plan; Leeward Haleakala Watershed Restoration Partnership Management Plan, HCP, Partners for Fish and Wildlife Agreements; East Maui Watershed Partnership Management Plan,

18—Montane Mesic		7,269 (2,942)	Native Watershed Forest Restoration Conservation Plan, Southern Haleakala Forest Restoration Project
Maui—Montane Mesic—Unit 2 (and) *Palmeria dolei*—Unit 19—Montane Mesic (and) *Pseudonestor xanthophrys*—Unit 19—Montane Mesic	Makila Land Company	242 (98)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements
Maui—Montane Mesic—Unit 3 (and) *Palmeria dolei*—Unit 20—Montane Mesic (and) *Pseudonestor xanthophrys*—Unit	Makila Land Company	44 (18)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements

20—Montane Mesic			
Maui—Montane Mesic—Unit 5 (and) *Palmeria dolei*—Unit 22—Montane Mesic (and) *Pseudonestor xanthophrys*—Unit 22—Montane Mesic	Wailuku Water Company	134 (54)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements
Maui—Montane Mesic—Unit 6 (and) *Palmeria dolei*—Unit 23—Montane Mesic (and) *Pseudonestor xanthophrys*—Unit 23—Montane Mesic	Wailuku Water Company	94 (38)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements

Maui—Montane Dry—Unit 1	Ulupalakua Ranch; Haleakala Ranch; Nuu Mauka Ranch; Kaupo Ranch	571 (231) 177 (72) 482 (195) 233 (94) 1,463 (592)	Leeward Haleakala Watershed Restoration Partnership Management Plan, HCP, Partners for Fish and Wildlife Agreements; East Maui Watershed Partnership Management Plan, Native Watershed Forest Restoration Conservation Plan, Southern Haleakala Forest Restoration Project
Maui—Subalpine—Unit 1 (and) *Palmeria dolei*—Unit 24—Subalpine (and) *Pseudonestor xanthophrys*—Unit 24—Subalpine	TNC; Ulupalakua Ranch; Haleakala Ranch; Nuu Mauka Ranch	111 (45) 210 (85) 1,817 (736) 73 (29) 2,211 (895)	Kapunakea Preserve Operational Plan; Leeward Haleakala Watershed Restoration Partnership Management Plan, HCP, Partners for Fish and Wildlife Agreements; East Maui Watershed Partnership Management Plan, Native Watershed Forest Restoration Conservation Plan, Southern Haleakala Forest

			Restoration Project
Maui—Subalpine—Unit 2 (and) *Palmeria dolei*—Unit 25—Subalpine (and) *Pseudonestor xanthophrys*—Unit 25—Subalpine	TNC; East Maui Irrigation Company	975 (394) 70 (28) 1,045 (422)	Waikamoi Preserve Long-Range Management Plan; East Maui Watershed Partnership Management Plan & Haiku Uka Watershed Protection Project
Maui—Alpine—Unit 1	Haleakala Ranch	15 (6)	East Maui Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements
Maui—Dry Cliff—Unit 1 (and) *Palmeria dolei*—Unit 26—Dry Cliff (and) *Pseudonestor xanthophrys*—Unit 26—Dry Cliff	TNC	264 (107)	Waikamoi Preserve Long-Range Management Plan

Maui—Dry Cliff—Unit 3 (and) *Palmeria dolei*—Unit 27—Dry Cliff (and) *Pseudonestor xanthophrys*—Unit 27—Dry Cliff	TNC	93 (38)	Waikamoi Preserve Long-Range Management Plan
Maui—Dry Cliff—Unit 5 (and) *Palmeria dolei*—Unit 29—Dry Cliff (and) *Pseudonestor xanthophrys*—Unit 29—Dry Cliff	Makila Land Company	238 (96)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and Wildlife Agreements
Maui—Dry Cliff—Unit 7	Wailuku Water Company	808 (327)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and

			Wildlife Agreements
Maui—Wet Cliff—Unit 1 (and) *Palmeria dolei*—Unit 30—Wet Cliff (and) *Pseudonestor xanthophrys*—Unit 30—Wet Cliff	TNC; East Maui Irrigation Company	96 (39) 74 (30) 170 (69)	Waikamoi Preserve Long-Range Management Plan; East Maui Watershed Partnership Management Plan & Haiku Uka Watershed Protection Project
Maui—Wet Cliff—Unit 5 (and) *Palmeria dolei*—Unit 34—Lowland Wet (and) *Pseudonestor xanthophrys*—Unit 34—Lowland Wet	Maui Land & Pineapple Company	1,996 (808)	Puu Kukui Watershed Preserve Management Plan, Tree Snail Habitat Protection Agreement
Maui—Wet Cliff—Unit 6 (and) *Palmeria dolei*—Unit 35—	Wailuku Water Company; County,	2,791 (1,129) 2,917 (1,181)	West Maui Mountains Watershed Partnership Management Plan, Partners for Fish and

Lowland Wet (and) *Pseudonestor xanthophrys*—Unit 35—Lowland Wet	Department of Water Supply; Kamehameha Schools; Kahoma Land Company; Makila Land Company	293 (119) 2 (1) 990 (401) 6,993 (2,831)	Wildlife Agreements
Maui—Wet Cliff—Unit 7 (and) *Palmeria dolei*—Unit 36—Wet Cliff (and) *Pseudonestor xanthophrys*—Unit 36—Wet Cliff	TNC	222 (90)	Kapunakea Preserve Operational Plan

Molokai—Coastal—Unit 2	TNC	924 (374)	Moomomi Preserve Long-Range Management Plan
Molokai—Lowland Mesic—Unit 1 (and) *Palmeria dolei*—Unit 37—Lowland Mesic (and) *Pseudonestor xanthophrys*—Unit 37—Lowland Mesic	TNC	388 (157)	Kamakou Preserve Management Plan
Molokai—Montane Wet—Unit 1 (and) *Palmeria dolei*—Unit 40—Montane Wet (and) *Pseudonestor xanthophrys*—Unit 40—Montane Wet	TNC	1,419 (574)	Kamakou Preserve Management Plan

Molokai—Montane Mesic—Unit 1 (and) *Palmeria dolei*—Unit 42—Montane Mesic (and) *Pseudonestor xanthophrys*—Unit 42—Montane Mesic	TNC	813 (329)	Kamakou Preserve Management Plan
Molokai—Wet Cliff—Unit 2 (and) *Palmeria dolei*—Unit 44—Wet Cliff (and) *Pseudonestor xanthophrys*—Unit 44—Wet Cliff	TNC	12 (5)	Kamakou Preserve Management Plan

Lanai—Coastal—Unit 1	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	374 (151)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement
Lanai—Coastal—Unit 2	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	2 (1)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement
Lanai—Coastal—Unit 3	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	510 (206)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement
Lanai—Lowland Dry—Unit 1	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	9,766 (3,952)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement
Lanai—Lowland Dry—Unit 2	Lanai Resorts, LLC and Castle & Cooke	939 (380)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan,

	Properties, Inc.		Lanai Conservation Agreement
Lanai—Lowland Mesic—Unit 1	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	11,172 (4,521)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement
Lanai—Lowland Wet—Unit 1	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	374 (152)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement
Lanai—Lowland Wet—Unit 2	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	232 (94)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement
Lanai—Montane Wet—Unit 1	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	248 (101)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement
Lanai—Dry Cliff—Unit 1	Lanai Resorts, LLC and Castle & Cooke	83 (34)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan,

	Properties, Inc.		Lanai Conservation Agreement
Lanai—Dry Cliff—Unit 2	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	354 (143)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement
Lanai—Dry Cliff—Unit 3	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	398 (161)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement
Lanai—Wet Cliff—Unit 1	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	731 (296)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement
Lanai—Wet Cliff—Unit 2	Lanai Resorts, LLC and Castle & Cooke Properties, Inc.	230 (93)	Lanai Forest and Watershed Partnership, Lanai MOU, Lanai Natural Resources Plan, Lanai Conservation Agreement

Here we present an overview of each of the areas considered for exclusion, followed by a summary of our analysis of the benefits of inclusion versus exclusion in each case. Maps of each area excluded are provided in our

supporting document ''Supplemental Information for the Designation and Nondesignation of Critical Habitat on Molokai, Lanai, Maui, and Kahoolawe for 135 Species,'' available at *http://www.regulations.gov* (see **ADDRESSES**).

The Nature Conservancy

Kapunakea Preserve Operational Plan, Waikamoi Preserve Long-Range Management Plan, Kamakou Preserve Management Plan, and Moomomi Preserve Long-Range Management Plan

In this final designation, the Secretary has exercised her authority to exclude from critical habitat lands owned or managed by The Nature Conservancy, totaling 10,056 ac (4,062 ha) on the islands of Maui and Molokai. The Nature Conservancy (TNC) is a proven conservation partner, as demonstrated, in part, by their ongoing management programs, documented in long-range management plans and yearly operational plans for TNC's Kapunakea Preserve on west Maui and Waikamoi Preserve on east Maui, and Kamakou Preserve and Moomomi Preserve on Molokai. These preserves were established by grants of perpetual conservation easements from the private landowners to TNC, or are owned by TNC, and are permanently dedicated to conservation. The Nature Conservancy's management and protection of these areas currently provide significant conservation benefits to 36 plant and 2 forest bird species that are reported from one or more of the preserves and their habitat. These areas also provide for the conservation and recovery of 69 other plant species. For the reasons described below, we have determined that the benefits of excluding these lands owned or managed by The Nature Conservancy outweigh the benefits of including them in critical habitat. The land is distributed among several critical habitat units, as discussed below.

Maui

Kapunakea Preserve encompasses 1,340 ac (542 ha) on west Maui. This preserve was established through a perpetual conservation easement with Pioneer Mill Company, Ltd. (succeeded by Kaanapali Land Management Corp.), in 1992, to protect the natural, ecological, and wildlife features of one of the highest quality native areas on west Maui (TNCH 2008, p. 5). Eleven plant species included in this rule (*Alectryon macrococcus, Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Colubrina oppositifolia, Ctenitis squamigera, Cyanea glabra, C. lobata, Cyrtandra filipes, C. munroi, Platanthera holochila,* and *Santalum haleakalae* var. *lanaiense*) are reported from the preserve. Kapunakea Preserve falls within four critical habitat units for plants (Maui—Lowland Mesic—Unit 2, Maui—Lowland Wet—Unit 6, Maui—Montane Wet—Unit 6, and Maui—Wet Cliff—Unit 7), and six units for the akohekohe and kiwikiu (*Palmeria dolei*—Unit 7—Lowland Wet, *Pseudonestor xanthophrys*—Unit 7—Lowland Wet, *Palmeria dolei*—Unit 15—Montane Wet, *Pseudonestor xanthophrys*—Unit 15—Montane Wet, *Palmeria dolei*—Unit 36—Wet Cliff, *Pseudonestor xanthophrys*—Unit 36—Wet Cliff). These units are occupied by the plants *Bidens. conjuncta, Calamagrostis hillebrandii, Ctenitis squamigera, Cyanea. kunthiana, Cyrtandra filipes, C. munroi, Geranium hillebrandii, Myrsine vaccinioides, Remya mauiensis, Sanicula purpurea, Santalum haleakalae* var. *lanaiense,* and *Zanthoxylum hawaiiense.* This area contains unoccupied habitat that is essential to the conservation of 29 plant species, including *Acaena exigua, Alectryon macrococcus, Asplenium dielerectum, Bidens campylotheca* ssp. *pentamera, B. micrantha* ssp. *kalealaha, Bonamia menziesii, Clermontia oblongifolia* ssp. *mauiensis, Colubrina oppositifolia, Cyanea asplenifolia, C. glabra, C. lobata, C. magnicalyx, Cyrtandra oxybapha, Diplazium molokaiense, Dubautia plantaginea* ssp. *humilis, Gouania vitifolia, Hesperomannia arborescens, H. arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Lysimachia lydgatei, Peucedanum sandwicense, Phyllostegia bracteata, Plantago princeps, Platanthera holochila, Pteris lidgatei, Tetramolopium capillare,* and *Wikstroemia villosa,* as well as the birds akohekohe and kiwikiu.

Waikamoi Preserve encompasses 5,141 ac (2,080 ha) along the northern boundary of Haleakala National Park on east Maui. The preserve was established in 1983, through a perpetual conservation easement with Haleakala Ranch Company, to protect one of the largest intact native rain forests in Hawaii (TNCH 2006a, p. 3). Eight plant species included in this rule (*Asplenium peruvianum* var. *insulare, Bidens campylotheca* ssp. *pentamera, Cyanea horrida, C. kunthiana, Diplazium molokaiense, Geranium arboreum, G. multiflorum,* and *Phyllostegia pilosa*), and the akohekohe and kiwikiu, are reported from the preserve. Waikamoi Preserve falls within 8 critical habitat units for plants (Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Mesic—Unit 1, Maui—Subalpine—Unit 1, Maui—Subalpine—Unit 2, Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 3, and Maui—Wet Cliff—Unit 1), and 16 units for the akohekohe and kiwikiu (*Palmeria dolei*—Unit 10—Montane Wet, *Pseudonestor xanthophrys*—Unit 10—Montane Wet, *Palmeria dolei*—Unit 11—Montane Wet, *Pseudonestor xanthophrys*—Unit 11—Montane Wet, *Palmeria dolei*—Unit 18—Montane Mesic, *Pseudonestor xanthophrys*—Unit 18—Montane Mesic, *Palmeria dolei*—Unit 24—Subalpine, *Pseudonestor xanthophrys*—Unit 24—Subalpine, *Palmeria dolei*—Unit 25—Subalpine, *Pseudonestor xanthophrys*—Unit 25—Subalpine, *Palmeria dolei*—Unit 26—Dry Cliff, *Pseudonestor xanthophrys*—Unit 26—Dry Cliff, *Palmeria dolei*—Unit 27—Dry Cliff, *Pseudonestor xanthophrys*—Unit 27—Dry Cliff, *Palmeria dolei*—Unit 30—Wet Cliff, and *Pseudonestor xanthophrys*—Unit 30—Wet Cliff). These units are occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium dielerectum, A. peruvianum* var. *insulare, Bidens campylotheca* ssp. *pentamera, B. micrantha* ssp. *kalealaha, Clermontia lindseyana, C. samuelii, Cyanea copelandii* ssp. *haleakalensis, C. duvalliorum, C. hamatiflora* ssp. *hamatiflora, C. horrida, C. kunthiana, C. maritae, C. mceldowneyi, C. obtusa, Cyrtandra ferripilosa, C. oxybapha, Diplazium molokaiense, Geranium arboreum, G. hanaense, G. multiflorum, Huperzia mannii, Melicope adscendens, M. balloui, Neraudia sericea, Phyllostegia pilosa, Schiedea haleakalensis,* and *Wikstroemia villosa,* and the akohekohe and kiwikiu. This area contains unoccupied habitat that is essential to the conservation of 16 other plant species (*Adenophorus periens, Alectryon macrococcus, Bidens campylotheca* ssp. *waihoiensis, Clermontia oblongifolia* ssp. *mauiensis, Cyanea glabra, Melicope ovalis, Peperomia subpetiolata, Phyllostegia bracteata, P. haliakalae, P. mannii, Plantago princeps, Platanthera holochila, Santalum haleakalae* var. *lanaiense, Schiedea jacobii, Solanum incompletum,* and *Zanthoxylum hawaiiense*).

Molokai

Kamakou Preserve is located in the east Molokai mountains and encompasses 2,633 ac (1,066 ha). This preserve was established in 1982, through a perpetual conservation easement with Molokai Ranch, to protect endemic forest bird habitat and is the primary source area for ground and surface water on the island (TNCH 2006b, p. 2). Nineteen plant species

included in this rule (*Adenophorus periens, Asplenium dielerectum, Bidens wiebkei, Canavalia molokaiensis, Clermontia oblongifolia* ssp. *brevipes, Cyanea mannii, C. procera, C. solanacea, Cyperus fauriei, Lysimachia maxima, Melicope mucronulata, Phyllostegia hispida, P. mannii, Platanthera holochila, Santalum haleakalae* var. *lanaiense, Schiedea laui, Stenogyne bifida, Vigna o-wahuensis,* and *Zanthoxylum hawaiiense*) are reported from the preserve. Kamakou Preserve falls within four critical habitat units for plants (Molokai—Lowland Mesic—Unit 1, Molokai—Montane Wet—Unit 1, Molokai—Montane Mesic—Unit 1, and Molokai—Wet Cliff—Unit 2) and eight units for the akohekohe and kiwikiu (*Palmeria dolei*—Unit 37—Lowland Mesic, *Pseudonestor xanthophrys*—Unit 37—Lowland Mesic, *Palmeria dolei*—Unit 40—Montane Wet, *Pseudonestor xanthophrys*—Unit 40—Montane Wet, *Palmeria dolei*—Unit 42—Montane Mesic, *Pseudonestor xanthophrys*—Unit 42—Montane Mesic, *Palmeria dolei*—Unit 44—Wet Cliff, and *Pseudonestor xanthophrys*—Unit 44—Wet Cliff). These units are occupied by the plants *Alectryon macrococcus, Bidens wiebkei, Clermontia oblongifolia* ssp. *brevipes, Ctenitis squamigera, Cyanea dunbariae, C. mannii, C. profuga, Cyperus fauriei, Cyrtandra filipes, Gouania hillebrandii, Labordia triflora, Neraudia sericea, Phyllostegia hispida, Pteris lidgatei, Santalum haleakalae* var. *lanaiense, S. lydgatei, S. sarmentosa, Silene alexandri, S. lanceolata, Spermolepis hawaiiensis,* and *Zanthoxylum hawaiiense.* This area contains unoccupied habitat that is essential for the conservation of 29 other plant species (*Adenophorus periens, Asplenium dielerectum, Bonamia menziesii, Brighamia rockii, Canavalia molokaiensis, Cyanea grimesiana* ssp. *grimesiana, C. munroi, C. procera, C. solanacea, Diplazium molokaiense, Eugenia koolauensis, Festuca molokaiensis, Flueggea neowawraea, Hesperomannia arborescens, Hibiscus arnottianus* ssp. *immaculatus, Isodendrion pyrifolium, Kadua laxiflora, Lysimachia maxima, Melicope mucronulata, M. reflexa, Phyllostegia haliakalae, P. mannii, P. pilosa, Plantago princeps, Platanthera holochila, Schiedea laui,* and *Sesbania tomentosa, Stenogyne bifida,* and *Vigna o-wahuensis*), as well as the birds akohekohe and kiwikiu.

Moomomi Preserve encompasses 924 ac (374 ha) along the northwest shore of Molokai that are owned by TNC. This preserve was established in 1988, to protect the most intact coastal ecosystem in Hawaii, with nesting seabirds, nesting green sea turtles, and a variety of native coastal plants (TNCH 2005, pp. 2–3). One plant species included in this rule, *Tetramolopium rockii,* is reported from the preserve. Moomomi Preserve falls within one critical habitat unit, Molokai—Coastal—Unit 2. This unit is occupied by *Marsilea villosa.* This area contains unoccupied habitat that is essential to the conservation of 11 other plant species (*Bidens wiebkei, Brighamia rockii, Canavalia molokaiensis, Hibiscus arnottianus* ssp. *immaculatus, H. brackenridgei, Ischaemum byrone, Peucedanum sandwicense, Pittosporum halophilum Schenkia sebaeoides,* and *Sesbania tomentosa*).

All four preserves were established by grants of perpetual conservation easements from the private landowners to TNC, or are owned by TNC, and are included in the State's Natural Area Partnership (NAP) programs, which provide matching funds for the management of private lands dedicated to conservation (TNCH 2005, pp. 2–3; TNCH 2006a, p. 3; TNCH 2006b, p. 2; TNCH 2008, p. 50). These partnerships with the State began in 1983 (with Haleakala Ranch) for Waikamoi, and were followed in 1992 (with Kaanapali Land Management Corporation) for Kapunakea, in 1995 (with Molokai Ranch) for Kamakou, and in 1995 for Moomomi (TNC-owned). Under the NAP program, the State of Hawaii provides matching funds on a two-for-one basis for management of private lands dedicated to conservation. In order to qualify for this program, the land must be dedicated in perpetuity through transfer of fee title or a conservation easement to the State or a cooperating entity. The land must be managed by the cooperating entity or a qualified landowner according to a detailed management plan approved by the Board of Land and Natural Resources. Once approved, the 6-year partnership agreement between the State and the managing entity is automatically renewed each year so that there are always 6 years remaining in the term, although the management plan is updated and funding amounts are reauthorized by the board at least every 6 years. By April 1 of any year, the managing partner may notify the State that it does not intend to renew the agreement; however, in such case, the partnership agreement remains in effect for the balance of the existing 6-year term, and the conservation easement remains in full effect in perpetuity. The conservation easement may be revoked by the landowner only if State funding is terminated without the concurrence of the landowner and cooperating entity. Prior to terminating funding, the State must conduct one or more public hearings. The NAP program is funded through real estate conveyance taxes placed in a Natural Area Reserve Fund. Participants in the NAP program must provide annual reports to the DLNR, and the DLNR makes annual inspections of the work in the reserve areas (see State of Hawaii 1999, H.R.S. 195–D; State of Hawaii 1996, H.A.R. 13–210).

Management programs within the preserves are documented in long-range management plans and yearly operational plans. These plans detail management measures that protect, restore, and enhance rare plants and animals and their habitats within the preserves and in adjacent areas. These management measures address factors that pose threats to the Maui Nui species in this final rule, including control of nonnative species of ungulates, rodents, and weeds. In addition, habitat restoration and monitoring are also included in these plans.

The primary management goals for each of the four TNC preserves are to: (1) Prevent degradation of native forest and shrubland by reducing feral ungulate damage; (2) improve or maintain the integrity of native ecosystems in selected areas of the preserve by reducing the effects of nonnative plants; (3) conduct small mammal control and reduce their negative impacts where possible; (4) monitor and track the biological and physical resources in the preserve and evaluate changes in these resources over time, and encourage biological and environmental research; (5) prevent extinction of rare species in the preserve; (6) build public understanding and support for the preservation of natural areas, and enlist volunteer assistance for preserve management; and (7) protect the resources from fires in and around the preserve (applicable to preserves in high fire-risk areas) (TNCH 2005, 148 pp. + appendices; TNCH 2006a, 23 pp. + appendices; TNCH 2006b, 21 pp. + appendices; TNCH 2008, 30 pp.).

The goal of TNC's ungulate program (see (1), above) is to bring feral ungulate populations to zero within the preserves as rapidly as possible, and to prevent domestic livestock from entering a preserve. Specific management actions to address feral ungulate impacts include the construction of fences, including strategic fences (fences placed in proximity to natural barriers such as cliffs); annual monitoring of ungulate

presence in transects; monthly boundary fence inspections; and trained staff and volunteer hunting. As axis deer also pose a threat to the preserves, TNC is a member of the Maui Axis Deer Group (MADG), and TNC meets regularly with MADG to seek management solutions. Ungulate management actions also include working with community hunters in conjunction with watershed partnerships for each island. By monitoring ungulate activity within each of the preserves, the staff is able to assess the success of the hunting program. If increased hunting pressure does not reduce feral ungulate activity in a preserve, preserve staff work with the hunting group to identify and implement alternative methods (TNCH 2005, pp. 7–8; TNCH 2006a, pp. 7–10; TNCH 2006b, pp. 8–9; TNCH 2008, pp. 9–10).

The nonnative plant control program (see (2), above) for each of the four TNC preserves focuses on controlling habitat-modifying nonnative plants (weeds) in intact native communities and preventing the introduction of additional nonnative plants. Based on the degree of threat to native ecosystems, weed priority lists have been compiled for each of the preserves, and control and monitoring of the highest priority species are ongoing. Weeds are controlled manually, chemically, or through a combination of both. Preventive measures (prevention protocol) are required by all who enter each of the preserves. This protocol includes such things as brushing footgear before entering the preserve to remove seeds of nonnative plants. Weeds are monitored along transects annually. Weed priority maps are maintained semi-annually. Staff participate as members of the Melastome Action Committee and the Maui and Molokai Invasive Species committees (MISC and MoMISC), and cooperate with the State Division of Conservation and Resources Enforcement (DOCARE) in marijuana control, as needed (TNCH 2005, pp. 8–9; TNCH 2006a, pp. 11–13; TNCH 2006b, pp. 10–12; TNCH 2008, pp. 11–13).

The Nature Conservancy controls or prevents entry of nonnative mammals such as rats (*Rattus* spp.), cats (*Felis catus*), mongoose (*Herpestes auropunctatus*), and dogs (*Canis familiaris*), on their preserves (see (3), above). These mammals have negative impacts on reproduction and persistence of native plants and animals. Independent studies and research regarding the effects of small nonnative mammals on native ecosystems on all four preserves is encouraged by TNC. Small mammal trapping is conducted in Moomomi Preserve to protect ground-nesting native seabirds from predation (TNCH 2005, p. 6). While the most effective control methods for rats on TNC preserves are still under investigation, an intensive rat baiting program is in place at Kamakou Preserve to control rats, which prey upon native snails and plants (TNCH 2006a, pp. 2, 6; TNCH 2009b, p. 21). The Nature Conservancy's predator control program is directed by adaptive management (TNCH 2010a, pp. 3–5).

Natural resource monitoring and research address the need to track the biological and physical resources of the preserves and evaluate changes in these resources to guide management programs, and contribute to prevention of extinction of rare species (see (4) and (5), above). Vegetation is monitored throughout each preserve to document long-term ecological changes, and rare plant species are monitored to assess population status. The Nature Conservancy provides logistical and other support to PEPP, including implementing threat abatement measures on their preserves (TNCH 2010a, p. 13). Bird surveys are conducted every 5 years to document the relative abundance of all bird species in the preserves (TNCH 2010b, p. 16). Portions of the four preserves are adjacent to other areas managed to protect natural resources. Agreements with those land managers are used to coordinate management efforts, and to share staff, equipment, and expertise to maximize management efficiency. The Nature Conservancy takes an active part in planning and coordinating conservation actions with, and is a member of, the East Maui Watershed Partnership (EMWP), the West Maui Mountains Watershed Partnership (WMMWP), and the East Molokai Watershed Partnership (EMOWP) (TNCH 2006a, p. 3; TNCH 2008, p. 21; TNCH 2010a, p. 2).

The Nature Conservancy's goal to increase conservation and advocacy for native ecosystems in Hawaii is also implemented through their public outreach program (see (6), above). The Nature Conservancy provides sites and volunteer work for youth groups such as Ho'ikaika and AmeriCorps, and summer internships for youth and young adults (Alu Like, State Summer Youth Employment Program, Molokai Environmental Preservation Organization, and the Natural Resources Academy), providing students with hands-on experience in natural resource conservation. Other community groups, such as the Molokai Advisory Council, Molokai Hunting Working Group, and Kamalo Conservation Advisors, are encouraged to participate in the decision-making process for TNC's natural resources programs. The Nature Conservancy staff present slide shows and talks as requested by community and school groups, and lead guided hikes in their preserves for public schools and targeted community members. The Nature Conservancy produces a quarterly newsletter distributed on Molokai to inform the local community regarding conservation activities and opportunities (TNCH 2006b, pp. 18–19; TNCH 2008, p. 20).

Fire management is an important goal for two Molokai preserves: Kamakou Preserve on Molokai and Kapunakea Preserve on west Maui (TNCH 2006b, p. 15; TNCH 2008, p. 22) (see (7), above). Wildfire management plans are updated annually. Staff is provided with fire suppression training, roads are maintained for access and as fire breaks, and equipment is supplied as needed to allow immediate response to fire threats (TNCH 2005, p. 13).

Our records indicate that between 2010 until 2015 there were no consultations conducted regarding projects receiving Federal funding on these TNC preserves. We believe that there is a low likelihood of a Federal nexus to provide a benefit to the species from designation of critical habitat. In addition, all of the management actions detailed above will either lead to maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 105 plant and 2 forest bird species and their habitat.

Maui Land and Pineapple Company, Inc.

Puu Kukui Watershed Preserve Management Plan, West Maui Mountains Watershed Partnership, and Tree Snail Habitat Protection Agreement

In this final designation, the Secretary has exercised her authority to exclude 8,931 ac (3,614 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned and managed by Maui Land and Pineapple Company (ML & P). Maui Land and Pineapple Company is a proven conservation partner with an established track record of voluntary protection and management of listed species as demonstrated, in part, by their ongoing management program for the Puu Kukui Watershed Preserve (Puu Kukui WP), their participation in the WMMWP, and the tree snail habitat protection agreement for ML & P's Puu

Kukui WP on west Maui. Puu Kukui WP, established in 1988, is permanently dedicated to conservation. The actions of ML & P provide for the conservation of 44 plants, 2 forest birds, and Newcomb's tree snail that occur on their lands and their habitat. For the reasons described below, we have determined that the benefits of excluding lands owned by Maui Land and Pineapple Company outweigh the benefits of including them in critical habitat.

Puu Kukui WP is the largest privately owned watershed preserve in the State, and encompasses over 8,600 ac (3,480 ha) of ML & P's lands on west Maui. The forest, shrubland, and bogs within the preserve serve as a significant water source for west Maui residents and industries. Fourteen plant species (*Bidens conjuncta, Ctenitis squamigera, Cyanea asplenifolia, C. kunthiana, C. lobata, C. magnicalyx, Cyrtandra filipes, C. munroi, Hesperomannia arborescens, H. arbuscula, Myrsine vaccinioides, Sanicula purpurea, Santalum haleakalae* var. *lanaiense,* and *Sesbania tomentosa*), and the Newcomb's tree snail, occur in this area. The area falls within seven critical habitat units for plants (Maui—Coastal—9, Maui—Lowland Mesic—2, Maui—Lowland Wet—2, Maui—Lowland Wet—3, Maui—Montane Wet—6, Maui—Wet Cliff—5, and Maui—Wet Cliff—7), eight critical habitat units for birds (*Palmeria dolei*—Unit 3—Lowland Wet, *Pseudonestor xanthophrys*—Unit 3—Lowland Wet, *Palmeria dolei*—Unit 4—Lowland Wet, *Pseudonestor xanthophrys*—Unit 4—Lowland Wet, *Palmeria dolei*—Unit 15—Montane Wet, *Pseudonestor xanthophrys*—Unit 15—Montane Wet, *Palmeria dolei*—Unit 34—Wet Cliff, and *Pseudonestor xanthophrys*—Unit 34—Wet Cliff), and one critical habitat for the Newcomb's tree snail (*Newcombia cumingi*—Unit 1—Lowland Wet). These units are occupied by the plants *Alectryon macrococcus, Bidens. conjuncta, Calamagrostis hillebrandii, Ctenitis squamigera, Cyanea asplenifolia, C. kunthiana, Cyrtandra munroi, Geranium hillebrandii, Myrsine vaccinioides, Pteris lidgatei, Remya mauiensis, Sanicula purpurea, Santalum haleakalae* var. *lanaiense, Schenkia sebaeoides, Sesbania tomentosa,* and *Zanthoxylum hawaiiense,* and by the Newcomb's tree snail. This area contains habitat that is unoccupied but essential to the conservation of 28 other plant species (*Acaena exigua, Asplenium dielerectum, Bidens campylotheca* ssp. *pentamera, B. micrantha* ssp. *kalealaha, Bonamia menziesii, Brighamia rockii, Clermontia oblongifolia* ssp. *mauiensis, Colubrina oppositifolia, Cyanea glabra, C. lobata, C. magnicalyx, Cyrtandra filipes, C. oxybapha, Diplazium molokaiense, Dubautia plantaginea* ssp. *humilis, Gouania vitifolia, Hesperomannia arborescens, H. arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Lysimachia lydgatei, Peucedanum sandwicense, Phyllostegia bracteata, Plantago princeps, Platanthera holochila, Tetramolopium capillare,* and *Wikstroemia villosa*), and to the akohekohe and kiwikiu.

Maui Land and Pineapple Company understands the importance of this water resource to the community, and recognizes that active management is needed for its protection and conservation, as evidenced by their implementation of an ongoing management program to preserve and protect the Puu Kukui WP. The ML & P Company has proactively managed the Puu Kukui WP since 1988, and joined the State of Hawaii's NAP program in July 1992. The NAP program contract has been continually renewed since that time, and has recently been authorized to continue through Fiscal Year 2018 (ML & P 2010, p. 5; DLNR 2011, in litt.). The primary management goals as outlined in the current Puu Kukui WP management plan for the NAP program, fiscal years 2012–2018 are to: (1) Eliminate ungulate activity in all Puu Kukui WP management units; (2) reduce the range of habitat-modifying weeds and prevent introduction of nonnative plants; (3) track biological and physical resources in the watershed and evaluate changes in these resources over time, including the identification of new threats to the watershed, and provide logistical support to approved research projects that will improve management understanding of the watershed's resources; (4) prevent the extinction of rare species in the watershed; (5) expose the community to projects focusing on preserving and enhancing native plant and animal communities; (6) assist the long-term management of the native ecosystems of west Maui by the WMMWP; and (7) provide adequate manpower and equipment to meet the goals and objectives of the plan. Over 20 years of feral ungulate management has shown that the use of snares and fences has been an effective means of ungulate control, with 60 percent of the preserve not seeing pig activity for 5 or more years. Accessible fences and those with direct ungulate pressure are maintained quarterly. The nonnative plant control program focuses on areas with rare native species, and the maintenance of the most pristine areas, keeping them as weed-free as possible with manual and mechanical control. The ML & P Company also supports rare plant monitoring and propagule collection by the PEPP. Natural resource monitoring and research address the need to track biological and physical resources in order to guide management programs. Vegetation is monitored through permanent photo points; nonnative species are monitored along permanent transects; and rare, endemic, and indigenous species are also monitored.

The ML & P Company has received funding in eight separate agreements (over $400,000) with the Service to survey for rare plants on their lands and to build feral ungulate control fences for the protection of listed plants. Additionally, logistical and other support for native bird and invertebrate studies by independent researchers and interagency cooperative agreements is provided.

In our June 11, 2012, proposed rule, we proposed critical habitat in a portion of Puu Kukui WP (534 ac (236 ha)), where the remaining nine wild individuals of Newcomb's tree snail occur (*Newcombia cumingi*—Unit 1—Lowland Wet). This area is overlapped by critical habitat plant unit Maui—Lowland Wet—Unit 2 for plant species. The remaining 65 ac (26 ha) of this unit overlaps State lands. Puu Kukui WP is permanently dedicated to conservation, and the positive management by ML & P of this area has demonstrated their understanding of the important of this resource to the community, as well as recognition that active management is needed for its protection and conservation. The Service has worked closely with ML & P, and recently established a cooperative agreement for fencing and management for the conservation of this tree snail species; the agreement is in place for 5 years (Service 2012, in litt.). The scope of work for this agreement includes snail surveys; design, placement, and construction of an exclosure fence (to exclude rats and mice) based on fences used to protect Oahu tree snails (*Achatinella* spp.) on Oahu; periodic monitoring; predator control (rats and mice) within the fenced area; and habitat restoration. ML & P has been actively working to develop a solid fence design and plan for installation; the construction of the fence is scheduled to begin in September 2015. Based on our past experience with ML & P and positive conservation partnership to date, we expect the conservation measures provided in this agreement will be continued into the foreseeable future. The Service

anticipates continuing to work with ML & P for the protection and conservation of Newcomb's tree snail on Puu Kukui WP.

The ML & P Company is a member and participant of the WMMWP, established in 1998. Management priorities for the watershed partnership on west Maui include feral animal control, weed control, human activities management, public education and awareness, water and watershed monitoring, and management coordination improvements. The partnership's management actions benefit habitat conservation by: (1) Enabling land managers to construct fences and remove feral ungulates across land ownership boundaries; (2) allowing for more comprehensive conservation planning; (3) expanding the partners' ability to protect forest lands quickly and efficiently; (4) making more efficient use of resources and staff; (5) allowing for greater unity in attaining public funding; and (6) providing greater access to other funding opportunities. The WMMWP provides annual progress reports regarding the success of management actions and benefits provided to species and watershed habitat.

Our records indicate that between 2010 until 2015 there were no consultations conducted regarding projects receiving Federal funding on ML & P lands. We believe that there is a low likelihood of a Federal nexus to provide a benefit to the species from designation of critical habitat. In addition, all of the management actions detailed above will either lead to maintenance or enhancement of habitat for the Maui Nui species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 44 plants, the 2 forest bird species, the tree snail, and their habitat.

Ulupalakua Ranch

Leeward Haleakala Watershed Restoration Partnership Management Plan, Habitat Conservation Plan, and Partners for Fish and Wildlife Agreements

In this final designation, the Secretary has exercised her authority to exclude 6,535 ac (2,645 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are under management by Ulupalakua Ranch. Ulupalakua Ranch is a proven partner, as evidenced, in part, by their history of conservation actions including the Auwahi and Puu Makua restoration agreements and ongoing management of Ulupalakua Ranch lands on east Maui, which provide for the conservation of 46 plants and the 2 forest birds and their habitat. For the reasons described below, we conclude that the benefits of excluding the lands owned by Ulupalakua Ranch outweigh the benefits of designating them as critical habitat.

Eight plant species included in this rule (*Alectryon macrococcus, Cenchrus agrimonioides, Flueggea neowawraea, Hibiscus brackenridgei, Melicope adscendens, M. knudsenii, Santalum haleakalae* var. *lanaiensis,* and *Zanthoxylum hawaiiense*) are reported from Ulupalakua Ranch lands. The area falls within six critical habitat units for plants (Maui—Coastal—Unit 6, Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 3, Maui—Montane Mesic—Unit 1, Maui—Montane Dry—Unit 1, and Maui—Subalpine—Unit 1), and four units for the akohekohe and kiwikiu (*Palmeria dolei*—Unit 18—Montane Mesic, *Pseudonestor xanthophrys*—Unit 18—Montane Mesic, *Palmeria dolei*—Unit 24—Subalpine, and *Pseudonestor xanthophrys*—Unit 24—Subalpine). These units are occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium dielerectum, A. peruvianum* var. *insulare, Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Canavalia pubescens, Cenchrus agrimonioides, Clermontia lindseyana, Cyanea horrida, C. obtusa, Cyrtandra ferripilosa, C. oxybapha, Diplazium molokaiense, Flueggea neowawraea, Geranium arboreum, G. multiflorum, Huperzia mannii, Melicope adscendens, Neraudia sericea, Santalum haleakalae* var. *lanaiense, Spermolepis hawaiiensis,* and *Vigna o-wahuensis.* This area contains unoccupied habitat that is essential to the conservation of 23 other endangered plant species (*Alectryon macrococcus, Bidens campylotheca* ssp. *pentamera, Brighamia rockii, Colubrina oppositifolia, Ctenitis squamigera, Cyanea glabra, C. hamatiflora* ssp. *hamatiflora, C. kunthiana, C. mceldowneyi, Cyperus pennatiformis, Hibiscus brackenridgei, Ischaemum byrone, Melanthera kamolensis, Melicope mucronulata, Nototrichium humile, Peucedanum sandwicense, Phyllostegia bracteata, P. mannii, Schiedea haleakalensis, Sesbania tomentosa, Solanum incompletum,* and *Wikstroemia villosa,* and *Zanthoxylum hawaiiense*), and to the akohekohe and kiwikiu.

Ulupalakua Ranch is involved in several important voluntary conservation agreements with the Service and is currently carrying out activities on their lands for the conservation of rare and endangered species and their habitats. In 1997 and 1998, respectively, Ulupalakua Ranch entered into the Partners for Fish and Wildlife Auwahi and Puu Makua agreements to protect and restore dryland forest, including construction of ungulate exclosure fences, a greenhouse to propagate rare plants for outplanting, an access road, and propagation and outplanting of native plants. Preservation of habitat in Auwahi and Puu Makua benefits the 48 listed plant and animal species discussed above. Over the last 14 years, the Service has provided funding for 3 projects in the Auwahi area (Auwahi I, II, and III). Labor, material, and technical assistance is provided by Ulupalakua Ranch, U.S. Geological Survey-Biological Resources Division (USGS–BRD), and volunteers. The Auwahi I project area encompasses 10 ac (4 ha) on the southwest slope of Haleakala. Ulupalakua Ranch and its partners built an ungulate exclosure fence; outplanted native plants, including the listed endangered plants *Alectryon macrococcus* var. *auwahiensis* and *Zanthoxylum hawaiiense;* and removed all nonnative plants and feral ungulates within the fenced exclosure. The Auwahi II project area encompasses 23 ac (9 ha) adjacent to Auwahi I, and the Auwahi III project area encompasses an additional 181 ac (73 ha) (Van Dyke 2011, in litt.). Ulupalakua Ranch and its partners built additional ungulate exclosure fences, propagated and outplanted native plants, and removed nonnative plants and feral ungulates within the fenced exclosures (Van Dyke 2011, in litt.). Within 5 years of fence construction and nonnative species management activities, these three areas have been transformed from nonnative grasslands to a native species-dominated, self-sustaining, dryland forest.

Community volunteer participation is a key element to the success of these projects, and monthly volunteer trips often exceed 50 participants from a pool of 700 interested Maui residents, including school groups, Hawaiian native dance groups, canoe clubs, and other special interest groups.

In 1998, Ulupalakua Ranch entered a 10-year partnership with Ducks Unlimited (a private conservation organization) and the Natural Resources Conservation Service's (NRCS) Wetland Reserve Program (WRP) to create four wetland complexes (completed in 2001) suitable for two endangered birds, the Hawaiian goose or nene and Hawaiian duck or koloa (*Anas wyvilliana*) (NRCS 2001, pp. 1–2). While the endangered nene and koloa are not addressed in this rule, the establishment of wetland complexes for these endangered birds

demonstrates the willingness of Ulupalakua Ranch to protect and conserve native plants and animals on their lands, and their value as a conservation partner.

Ulupalakua Ranch is an active member of the LHWRP, a coalition formed in 2003 by 11 private and public landowners and supporting agencies (LHWRP 2011, in litt). The partnership oversees and manages more than 43,000 ac (17,400 ha) of land on the leeward slopes of Haleakala crater, from Makawao to Kaupo, between 3,500 and 6,500 ft (1,067 and 1,980 m) elevation. The partnership's goals are to: (1) Restore native koa forests to provide increased water quantity and quality, (2) conserve unique endemic plants and animals, (3) protect important Hawaiian cultural resources, and (4) allow diversification of Maui's rural economy. The reestablishment of native koa forest will restore habitat for the 46 plants and 2 forest birds. The LHWRP also provides public outreach regarding the importance of watershed and other natural resources protection by supporting volunteers who participate in tree planting, nonnative plant removal, and seed collection activities.

Between 1999 and 2007, the Service and the DOFAW Natural Area Reserves Fund provided funding for habitat restoration at Puu Makua. Ulupalakua Ranch and its partners, which include USGS–BRD, the LHWRP, and volunteers, built a 100-ac (40-ha) ungulate exclosure, removed feral ungulates and controlled nonnative plants within the fenced exclosure, and outplanted native plants. This project provides public outreach through ongoing volunteer participation to control nonnative plants and outplant native plants.

Our records indicate that between 2010 until 2015 there were three informal section 7 consultations conducted regarding projects on Ulupalakua Ranch lands receiving Federal funding. One project, funded through NRCS, was for the development of a riparian conservation plan and riparian restoration, and we concurred that this project was not likely adversely affect the listed Hawaiian hoary bat (*Lasiurus cinereus semotus*), and would not affect any plant critical habitat that was adjacent to the project area. One project, funded through the Emergency Conservation Program, FSA, included actions for restoration of fences, and we concurred that the project was not likely adversely affect the listed Hawaiian hoary bat or the listed Blackburn's sphinx moth (*Manduca blackburni*). The last project, funded through NRCS, was for a second riparian conservation plan, and we concurred it was not likely to adversely affect any listed species. We did conduct one formal consultation in 2008 on Ulupalakua Ranch lands on the construction of a communications tower funded by the Federal Communications Commission (FCC). The consultation resulted in recommended mitigation measures for the listed Hawaiian hoary bat and Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*), and determined the project was not likely to adversely affect the Maui silversword. The project was not within critical habitat for the Maui silversword.

Because all three of the informal consultations resulted in a not likely to adversely affect determination, we believe that, although there is a likelihood of a Federal nexus, little if any conservation benefit to the species would result from designation of critical habitat. With regard to the one formal consultation, we have no information to suggest that any similar project is likely to occur in this area again, thus we anticipate little if any additional conservation benefit as a result of future section 7 consultation as a result of critical habitat on these lands. In addition, all of the agreements and partnerships discussed above will either lead to maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 46 plants and the 2 forest bird species, and their habitat.

Haleakala Ranch Company

East Maui Watershed Partnership Management Plan and Partners for Fish and Wildlife Agreements

In this final designation, the Secretary has exercised her authority to exclude 8,716 ac (3,527 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are under management by Haleakala Ranch. Haleakala Ranch is a proven conservation partner, as evidenced, in part, by a history of voluntary management actions and agreements that provide for the conservation of 55 plants and the 2 forest birds and their habitat. For the reasons described below, we conclude that the benefits of excluding Haleakala Ranch lands on east Maui outweigh the benefits of including these lands in critical habitat.

Four plant species included in this rule (*Argyroxiphium sandwicense* ssp. *macrocephalum, Canavalia pubescens, Geranium arboreum,* and *Hibiscus brackenridgei*) and the akohekohe and kiwikiu are reported from this area. The area falls within seven critical habitat units for plants (Maui—Lowland Dry—Unit 1, Maui—Lowland Dry— Unit 2, Maui—Montane Wet— Unit 1, Maui—Montane Mesic— Unit 1, Maui—Montane Dry— Unit 1, Maui—Subalpine— Unit 1, and Maui—Alpine— Unit 1), and six units for the akohekohe and kiwikiu (*Palmeria dolei*—Unit 10—Montane Wet, *Pseudonestor xanthophrys*—Unit 10—Montane Wet, *Palmeria dolei*—Unit 18—Montane Mesic, *Pseudonestor xanthophrys*—Unit 18—Montane Mesic, *Palmeria dolei*—Unit 24—Subalpine, and *Pseudonestor xanthophrys*—Unit 24—Subalpine). These units are occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium dielerectum, A. peruvianum* var. *insulare, Bidens. micrantha* ssp. *kalealaha, Bonamia menziesii, Canavalia pubescens, Cenchrus agrimonioides, Clermontia lindseyana, Cyanea. duvalliorum, C. horrida, C. maritae, C. mceldowneyi, C. obtusa, Cyrtandra ferripilosa, C. oxybapha, Diplazium molokaiense, Flueggea neowawraea, Geranium arboreum, G. multiflorum, Hibiscus brackenridgei, Huperzia mannii, Melicope adscendens, M. balloui, Neraudia sericea, Phyllostegia pilosa, Santalum haleakalae* var. *lanaiense,* and *Spermolepis hawaiiensis,,* and by the birds akohekohe and kiwikiu. This area contains unoccupied habitat that is essential to *Adenophorus periens, Alectryon macrococcus, Bidens campylotheca* ssp. *pentamera, B. campylotheca* ssp. *waihoiensis, Clermontia oblongifolia* ssp. *mauiensis, C. samuelii, Colubrina oppositifolia, Ctenitis squamigera, Cyanea copelandii* ssp. *haleakalaensis, C. glabra, C. hamatiflora* ssp. *hamatiflora, C. kunthiana, Geranium hanaense, Melanthera kamolensis, Melicope knudsenii, M. mucronulata, M. ovalis, Nototrichium humile, Peperomia subpetiolata, Phyllostegia bracteata, P. mannii, Platanthera holochila, Schiedea haleakalensis, S. jacobii, Sesbania tomentosa, Solanum incompletum, Wikstroemia villosa,* and *Zanthoxylum hawaiiense.*

Haleakala Ranch is involved in several important voluntary conservation agreements with the Service and is currently carrying out activities on its lands for the conservation of rare and endangered species and their habitats. Haleakala Ranch is a member of the EMWP, which was formed in 1991, as a model for large-scale forest protection in Hawaii. The members agree to pool resources and implement a watershed management program to protect 100,000 ac (40,469 ha) of forest across east Maui

(EMWP 2009). The management program includes: (1) Control of feral pigs by public hunting in the privately owned lower watershed areas; (2) control of the invasive plant *Miconia;* and (3) construction of ungulate exclosure fences to protect 12,000 ac (4,856 ha) of lowland and montane wet forest (Tri-Isle Resource Conservation and Development Council, Inc. 2011). In partnership with the Division of Forestry and Wildlife (DOFAW), Haleakala Ranch controls feral ungulates (*e.g.,* axis deer and goats) on their lands in lowland dry habitat at Waiopae, on the south coast of east Maui. In addition to feral ungulate control, Haleakala Ranch and DOFAW control invasive plants that threaten wild populations of two endangered plants, *Alectryon macrococcus* and *Melanthera kamolensis.*

In 1999, Haleakala Ranch entered into an agreement with the Partners for Fish and Wildlife, USGS–BRD, and DHHL, for habitat protection at Puu o Kali, on the west slope of Haleakala. This agreement funded management actions to conserve and protect native dryland forest, including construction of a fence to exclude nonnative axis deer and feral goats, nonnative plant control, and propagation and outplanting of native plants. The project area was accessed through cooperation of the landowner, Haleakala Ranch. Currently, 236 ac (96 ha) are protected within the fenced area, and all axis deer and goats were removed from the fenced area. The continued protection of this area and maintenance of the fenced area is assured into the foreseeable future through the combined efforts of multiple partners, including the State, DHHL, and private landowners.

In 2001, the Service and NRCS provided funding for management actions to conserve and protect the endangered plant *Geranium arboreum* and subalpine habitat on Puu Pahu on the northwestern slopes of Haleakala (USFWS 2007b). These management actions include construction of ungulate exclosure fences and removal of ungulates within the fenced area. The first increment of the fence is completed and encloses approximately 670 ac (271 ha) (Higashino 2011, in litt.). Upon project completion, the fenced area will adjoin the fenced area of Haleakala National Park at 7,500 ft (2,290 m), and will exclude ungulates and allow for their removal from an area larger than 670 ac (271 ha) (USFWS 2007b).

In 1983, Haleakala Ranch granted a permanent conservation easement on 5,140 ac (2,080 ha) of ranch lands to TNC for Waikamoi Preserve. The establishment of this preserve demonstrates the willingness of Haleakala Ranch to protect and conserve native plants and animals on their lands. In addition, in 2009, Haleakala Ranch entered into a safe harbor agreement (SHA) with the Hawaii DLNR and the Service, to establish a population of the endangered Hawaiian goose on their lands at Waiopae. While the endangered nene is not a species addressed in this final rule, the establishment of a SHA for this endangered bird demonstrates the willingness of Haleakala Ranch to protect and conserve native plants and animals on their lands, and is further evidence of their value as a proven conservation partner.

Our records indicate that between 2010 until 2015 there was one informal section 7 consultation conducted regarding a project on Haleakala Ranch lands receiving Federal funding through the East Maui Watershed Partnership, for ungulate and weed control within a fenced area at Puu Pahu. We concurred that their actions would not have any adverse effects to any listed species within the project area. Because there was only one informal consultation, which resulted in a not likely to adversely affect determination, we believe that there is a likelihood of a Federal nexus; however, there would be little conservation benefit resulting from designation of critical habitat. All of these agreements, partnerships, and management actions will either lead to maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 55 plants and the 2 forest bird species, and their habitat.

East Maui Irrigation Company, Ltd.

East Maui Watershed Partnership Management Plan, Haiku Uka Watershed Protection Project

In this final designation, the Secretary has exercised her authority to exclude 6,721 ac (2,720 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are managed by East Maui Irrigation Company, Ltd. (EMI). East Maui Irrigation Company is a proven conservation partner, as demonstrated, in part, by their ongoing management and restoration agreements for EMI lands at Haiku Uka on east Maui, and their participation in the EMWP, which provide for the conservation of 47 plants and the 2 forest birds and their habitat. For the reasons discussed below, we have determined that the benefits of excluding EMI lands outweigh the benefits of including them in critical habitat.

Nine plant species included in this rule (*Asplenium peruvianum* var. *insulare, Cyanea copelandii* ssp. *haleakalensis, C. hamatiflora* ssp. *hamatiflora, C. horrida, C. kunthiana, C. mceldowneyi, Diplazium molokaiense, Geranium multiflorum,* and *Santalum haleakalae* var. *lanaiense*), and the akohekohe and kiwikiu are reported from EMI lands. The area falls within 6 critical habitat units for plants (Maui—Lowland Wet— Unit 1, Maui—Montane Wet— Unit 1, Maui—Montane Wet— Unit 2, Maui—Montane Mesic— Unit 1, Maui—Subalpine— Unit 2, and Maui—Wet Cliff— Unit 1), and 12 critical habitat units for the akohekohe and kiwikiu (*Palmeria dolei*—Unit 2—Lowland Wet, *Pseudonestor xanthophrys*—Unit 2–Lowland Wet, *Palmeria dolei*—Unit 10—Montane Wet, *Pseudonestor xanthophrys*—Unit 10—Montane Wet, *Palmeria dolei*—Unit 11—Montane Wet, *Pseudonestor xanthophrys*—Unit 11—Montane Wet, *Palmeria dolei*—Unit 18—Montane Mesic, *Pseudonestor xanthophrys*—Unit 18—Montane Mesic, *Palmeria dolei*—Unit 25—Subalpine, *Pseudonestor xanthophrys*—Unit 25—Subalpine, *Palmeria dolei*—Unit 30—Wet Cliff, and *Pseudonestor xanthophrys*—Unit 30—Wet Cliff). These units are occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium dielerectum, A. peruvianum* var. *insulare, Bidens campylotheca* ssp. *waihoiensis, Clermontia lindseyana,, C. samuelii, Cyanea asplenifolia, C. copelandii* ssp. *haleakalensis, C. duvalliorum, C. hamatiflora* ssp. *hamatiflora, C. horrida, C. kunthiana, C. maritae, C. mceldowneyi, C. obtusa, Cyrtandra ferripilosa, C. oxybapha, Diplazium molokaiense, Geranium arboreum, G. multiflorum, Huperzia mannii, Melicope adscendens, M. balloui, M. ovalis, Neraudia sericea, Phyllostegia pilosa,* and *Schiedea haleakalensis,* and by the birds akohekohe and kiwikiu. This area contains unoccupied habitat that is essential to the conservation of 20 other plant species (*Adenophorus periens, Alectryon macrococcus, Bidens campylotheca* ssp. *pentamera, B. micrantha* ssp. *kalealaha, Clermontia oblongifolia* ssp. *mauiensis, C. peleana, Cyanea glabra, Geranium hanaense, Mucuna sloanei* var. *persericea, Peperomia subpetiolata, Phyllostegia bracteata, P. haliakalae, P. mannii, Plantago princeps, Platanthera holochila, Santalum haleakalae* var. *lanaiense, Schiedea jacobii, Solanum incompletum, Wikstroemia villosa,* and *Zanthoxylum hawaiiense*).

East Maui Irrigation Company, Ltd., a subsidiary of Alexander and Baldwin, owns and operates a ditch system that diverts more than 60 billion gallons per year of surface water from east Maui to central Maui for agricultural, domestic, and other uses. In 1991, EMI, along with the major landowners and land managers (TNC, Maui County, DLNR, and private ranches) of the windward slope of east Maui (encompassing approximately 100,000 ac (40,500 ha)), formed the EMWP. The EMWP prepared a management plan in 1993, to protect the biological and water resources within the partnership lands (EMWP 2009, App. B). The plan identified five priority management activities: (1) Watershed resource monitoring, (2) feral animal control, (3) invasive weed control, (4) management infrastructure, and (5) public education and awareness programs.

In 1993, EMI and DLNR entered into a right-of-entry agreement to permit the use of EMI roads by public hunters in the area of Haiku Uka, with the intention of increasing hunting activities to control feral pigs, goats, and axis deer in the Koolau FR. In 1996, constituents of the EMWP prepared an ungulate exclusion fencing strategy to preserve and protect 12,000 ac (4,856 ha) of land (called the core area) on the east Maui slope between Hanawi NAR and Koolau Gap, including the Haiku Uka area, and TNC's Waikamoi Preserve (EMWP 2009, p. 3). Approximately 7,000 ac (2,833 ha) of the core area consists of State forest reserve and EMI lands, and approximately 5,000 ac (2,024 ha) are within TNC's Waikamoi Preserve. In 2005 and 2006, the Service and others provided funding for the construction of an ungulate exclusion fence at 3,600 ft (1,100 m) elevation and for improving hunter access to EMWP lands. The fence extends from Hanawi Natural Area Reserve west to Koolau Gap, and protects approximately 7,000 ac (2,833 ha) of native forest, including forest in Haiku Uka. The Waikamoi Preserve and Haleakala National Park fences provide the upper boundary of the fenced area (TNC 2006l). The fence was completed in 2006, and the enclosed area of 7,000 ac (2,833 ha) is divided into five units (Honomanu, Koolau Gap, Waluanui, Wailuaiki, and Kopiliua), which are managed through the cooperation of landowners, including EMI, and other partners (EMWP 2009, pp. 3–17). Fencing is one of the most effective strategies currently available to address the threat of ungulates, but it is also costly and difficult to install in the steep, mountainous terrain of Hawaii. The completion of almost 7 mi (11 km) of fencing around an area of 7,000 ac (2,833 ha) for ungulate management represents a significant contribution to the conservation of the Maui Nui species.

The 1993 EMWP management plan was revised in 2006, and included recommendations for improving threat assessment and feral pig control, and developing more cost-effective methods for natural resource assessments. In 2008 and 2009, the Service provided funding for feral pig reduction and fence monitoring on EMI lands in Haiku Uka (USFWS 2008; Van Dyke 2011, in litt.).

The 2006 EMWP management plan was revised in 2009, to provide long-term protection of the east Maui watershed resources such as ground and surface water, native plants and animals and their habitat, hunting opportunities, commercial harvests, cultural resources, and ecotourism. The 2009 EMWP management plan provides detailed management objectives for protection of the east Maui watershed resources, and recommends that the effectiveness of ongoing management actions be evaluated and modified, as needed, after 5 years (EMWP 2009, pp. 3–17, + appendices). The 2009 EMWP management plan describes specific management actions for the protection of the EMWP lands, including Haiku Uka. These management actions include ungulate (*i.e.,* feral pigs) control through hunting, fencing, fence maintenance, and research on effective feral animal control actions; weed control by controlling existing weeds, preventing the introduction of new weeds, and supporting research on weed control; development of a management program for rare and endangered species that includes surveys, species monitoring, propagation and outplanting of rare plants and release of rare birds, as well as implementing threat abatement actions; monitoring changes in vegetation (both native and nonnative), native forest birds, stream animals, stream flow, and rainfall; monitoring changes in cultural resources, and maintaining and expanding public support for the east Maui watershed; and maintaining existing and developing new funding sources (EMWP 2009, pp. 13–17).

As of 2009, the majority of feral ungulates (*i.e.,* feral pigs) were removed from the five management units (described above). In addition, there are few to no feral pigs in Haiku Uka due to their control by hunting and the construction of exclusion fences (Jokiel 2009, pers. comm.). While native forest dominates Haiku Uka, weed control is ongoing, particularly within disturbance corridors where new weed species are likely to be introduced (*e.g.,* camps, trails, and helicopter landing zones).

Our records indicate that between 2010 until 2015 there were no consultations conducted regarding projects receiving Federal funding on EMI lands. We believe that there is a low likelihood of a Federal nexus to provide a benefit to the species from designation of critical habitat. EMI has allowed access to their lands to encourage public hunting for the control of feral pigs, goats, and axis deer that pose significant threats to the Maui Nui species. They are founders and active members of the EMWP, and have made significant contributions to the protection of the 47 plants and the 2 forest birds on their lands by assisting in the maintenance of exclosure fences and participating in watershed resource monitoring and invasive weed control. EMI allowed the construction of a significant ungulate exclosure fence extending from Hanawi Natural Area Reserve west to Koolau Gap, resulting in substantial conservation benefits to the Maui Nui species and their habitat. All of these management actions will either lead to maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 47 plants and the 2 forest bird species, and their habitat.

Nuu Mauka Ranch

Native Watershed Forest Restoration at Nuu Mauka Conservation Plan, Leeward Haleakala Watershed Restoration Partnership Management Plan, and Southern Haleakala Forest Restoration Project

In this final designation, the Secretary has exercised her authority to exclude 2,094 ac (848 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned by Nuu Mauka Ranch. The ongoing management under the Native Watershed Forest Restoration Conservation Plan, LHWRP management plan, and the Southern Haleakala Forest restoration project agreement for Nuu Mauka Ranch lands on east Maui provide for the conservation of 46 plants and the 2 forest birds and their habitat, and demonstrate the positive benefits of the conservation partnership that has been established with Nuu Mauka Ranch. For the reasons described below, we have determined that the benefits of excluding these lands outweigh the benefits of including them in critical habitat.

The area falls within four critical habitat units for plants (Maui—Lowland

Dry—Unit 1, Maui—Montane Dry—Unit 1, Maui—Montane Mesic—Unit 1, and Maui—Subalpine—Unit 1), and four units for two forest birds, the akohekohe and kiwikiu (*Palmeria dolei*—Unit 18—Montane Mesic, *Pseudonestor xanthophrys*—Unit 18—Montane Mesic, *Palmeria dolei*—Unit 24—Subalpine, and *Pseudonestor xanthophrys*—Unit 24—Subalpine). These units are occupied by the plants *Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium dielerectum, A. peruvianum* var. *insulare, Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Cenchrus agrimonioides, Clermontia lindseyana, Cyanea horrida, C. obtusa, Cyrtandra ferripilosa, C. oxybapha, Diplazium molokaiense, Flueggea neowawraea, Geranium arboreum, G. multiflorum, Huperzia mannii, Melicope adscendens, Neraudia sericea, Santalum haleakalae* var. *lanaiense,* and *Spermolepis hawaiiensis.* These areas contain unoccupied habitat that is essential to the conservation of 25 other endangered plant species (*Alectryon macrococcus, Bidens campylotheca* ssp. *pentamera, Brighamia rockii, Canavalia pubescens, Colubrina oppositifolia, Ctenitis squamigera, Cyanea glabra, C. hamatiflora* ssp. *hamatiflora, C. kunthiana, C. mceldowneyi, Cyperus pennatiformis, Hibiscus brackenridgei, Ischaemum byrone, Melanthera kamolensis, Melicope mucronulata, Nototrichium humile, Peucedanum sandwicense, Phyllostegia bracteata, P. mannii, Schiedea haleakalensis, Sesbania tomentosa, Solanum incompletum, Vigna o-wahuensis, Wikstroemia villosa,* and *Zanthoxylum hawaiiense*), and to the akohekohe and kiwikiu. None of these species currently occurs on Nuu Mauka Ranch lands.

Nuu Mauka Ranch is involved in several important voluntary conservation agreements with the Service and other agencies and is currently carrying out activities on their lands for the conservation of rare and endangered species and their habitats. In 2008, the Ranch worked with the USGS-Pacific Island Ecosystem Research Center and NRCS to develop cost-effective, substrate-appropriate restoration methodologies for establishment of native koa forests in degraded pasturelands (Nuu Mauka Ranch and LHWRP 2012, p. 7). Nuu Mauka Ranch is a current partner of the LHWRP, with the main goal of protection and restoration of leeward Haleakala's upland watershed (see ''Ulupalakua Ranch,'' above, for further discussion). In 2012, Nuu Mauka Ranch obtained a conservation district use permit for a watershed protection project. The ultimate goal of this project is to improve water quality and groundwater recharge through the restoration of degraded agricultural land to a native forest community (Nuu Mauka Ranch and LHWRP 2012, 11 pp.). Nuu Mauka Ranch has contributed approximately $500,000 of their own funds, and received additional funding through the Service and NRCS, for construction of a 7.6-mile long deer-proof fence to prevent access by deer and goats into a 1,023-ac (414 ha) upper elevation watershed area on the south slopes of leeward Haleakala (Southern Haleakala Forest Restoration Project) (Nuu Mauka Ranch and LHWRP 2012, 11 pp.). Nuu Mauka Ranch has also prepared a conservation plan, ''Native Watershed Forest Restoration at Nuu Mauka'' (2012), and has appended it to the LHWRP management plan. Restoration activities outlined in the plan include mechanical and chemical control of invasive plant species including *Grevillea robusta* (silk oak), *Schinus terebinthifolius* (Christmas berry), *Tecoma stans* (yellow elder), and *Sphaeropteris cooperi* (Australian tree fern), which are known threats to the 48 species and their habitat. Currently, Nuu Mauka Ranch conducts removal of feral ungulates from all fenced areas, along with fence monitoring and follow-up monitoring to assess erosion rates. Also, with fencing and ungulate removal completed, the plan includes continued restoration activities, such as replanting and seed scattering of common native plant species.

Our records indicate that between 2010 until 2015 there were no consultations conducted regarding projects receiving Federal funding on Nuu Mauka Ranch lands, therefore in general we believe that there is a low likelihood of a Federal nexus to provide a benefit to the species from designation of critical habitat. However, as Federal funding has contributed to conservation projects on Nuu Mauka Ranch lands in the past (fence construction for exclusion of ungulates), it is possible that in the future such a conservation project may trigger consultation under Section 7. As consultation for a project designed to provide conservation benefit is most likely to result in a not likely to adversely affect determination, and the benefit accruing from the funded conservation project would be likely relatively greater than the regulatory benefit of critical habitat, the incremental benefit of critical habitat is reduced under such circumstances. Overall, these conservation actions, the Southern Haleakala Forest Restoration Project, and Nuu Mauka Ranch's conservation plan will lead to maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 46 plants and the 2 forest bird species, and their habitat.

Kaupo Ranch

Leeward Haleakala Watershed Restoration Partnership Management Plan and Southern Haleakala Forest Restoration Project

In this final designation, the Secretary has exercised her authority to exclude 931 ac (377 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned or managed by Kaupo Ranch. Kaupo Ranch has undertaken voluntary conservation measures on their lands, demonstrating their value as a partner through participation in the LHWRP management plans and the Southern Haleakala Forest Restoration Project for Kaupo Ranch lands on east Maui. These actions provide positive conservation benefits for 26 plant species and their habitat. We have determined that the benefits of excluding Kaupo Ranch lands from critical habitat outweigh the benefits of including them, for the reasons discussed below.

Kaupo Ranch lands fall within three critical habitat units for plants (Maui—Lowland Dry—Unit 1, Maui—Montane Dry—Unit 1, and Maui—Coastal—Unit 7). These units are occupied by the plants *Bonamia menziesii, Cenchrus agrimonioides, Flueggea neowawraea, Santalum haleakalae* var. *lanaiense,* and *Spermolepis hawaiiensis.* These areas contain unoccupied habitat that is essential to the conservation of 21 other endangered plant species (*Alectryon macrococcus, Bidens micrantha* ssp. *kalealaha, Brighamia rockii, Canavalia pubescens, Colubrina oppositifolia, Ctenitis squamigera, Cyperus pennatiformis, Geranium arboretum, Hibiscus brackenridgei, Ischaemum byrone, Melanthera kamolensis, Melicope adscendens, M. knudsenii, M. mucronulata, Neraudia sericea, Nototrichium humile, Peucedanum sandwicense, Sesbania tomentosa, Solanum incompletum, Vigna o-wahuensis,* and *Zanthoxylum hawaiiense*). None of these species currently occurs on Kaupo Ranch lands.

Kaupo Ranch is a current partner of the LHWRP, with the main goal of protection and restoration of leeward Haleakala's upland watershed (LHWRP 2006, 65 pp.). Kaupo Ranch has been a long time cooperator with HNP, providing access to the park's Kaupo Gap hiking trail across their private

lands (Kean 2012, pers. comm.). This trail extends from the park's boundary near the summit of Haleakala through Kaupo Ranch lands to the coast. The Ranch was also a cooperator with the Service in the creation of Nuu Makai Wetland Reserve, contributing 87 ac (35 ha) of their ranch lands in the coastal area to support landscape-scale wetland protection (The Conservation Registry and USFWS 2012, in litt.). In addition, Kaupo Ranch participated in the construction of an ungulate exclusion fence on the upper portion of their lands, bordering HNP, that protects 50 ac (20 ha) of native montane dry forest habitat (Southern Haleakala Forest Restoration Project) and acts as a buffer to the lower boundary of the montane mesic ecosystem that provides habitat for forest birds (DLNR 2012, in litt.). Additional conservation actions in this fenced area include weed control and outplanting of native plants. While these actions do not directly address the Maui Nui species in this final rule, they demonstrate the willingness of Kaupo Ranch to protect and conserve native habitat on their lands and to provide outreach and support to the neighboring national park, and their value as a partner in conservation.

Our records indicate that between 2010 until 2015 there was one informal consultation conducted regarding a project receiving Federal funding through NRCS's Environmental Quality Incentives Program (EQIP) on Kaupo Ranch lands for brush management and prescribed grazing to improve ranching operations; however, we concurred that the project would not likely adversely affect the listed Hawaiian hoary bat or the listed Hawaiian goose. We believe that there is a low likelihood of a Federal nexus that would provide a benefit to the species from designation of critical habitat, because past history indicates that any action likely to trigger consultation would likely be designed to benefit the species, and would not result in additional conservation measures. In contrast, conservation actions taken through the LHWRP management plan, cooperation with Haleakala National Park to provide additional public access, creation and protection of a wetland, and construction of an ungulate-exclusion fence to protect dry forest habitat, along with other conservation actions by Kaupo Ranch discussed above, will either lead to maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 25 plants and their habitat.

Wailuku Water Company

West Maui Mountains Watershed Partnership Management Plan, and Partners for Fish and Wildlife Agreements

In this final designation, the Secretary has exercised her authority to exclude 7,410 ac (2,999 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned or managed by Wailuku Water Company on west Maui, and under management as part of the West Maui Mountains Watershed Partnership (WMMWP). We believe that the ongoing conservation actions through the WMMWP management plan and Partners for Fish and Wildlife Agreements for Wailuku Water Company lands on west Maui provide important conservation benefits for 51 plants and 2 forest birds and their habitat. We have concluded that the benefits of excluding these lands outweigh the benefit of including them in critical habitat, for the reasons discussed below.

The Wailuku Water Company lands fall within 10 critical habitat units for plants (Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Maui—Lowland Wet—Unit 5, Maui—Montane Wet—Unit 6, Maui—Montane Wet—Unit 7, Maui—Montane Wet—Unit 8, Maui—Montane Mesic—Unit 5, Maui—Montane Mesic—Unit 6, Maui—Dry Cliff—Unit 7, and Maui—Wet Cliff—Unit 6) and 12 critical habitat units for the two forest birds, the akohekohe and kiwikiu (*Palmeria dolei*—Unit 6—Lowland Wet, *Pseudonestor xanthophrys*—Unit 6—Lowland Wet, *Palmeria dolei*—Unit 15—Montane Wet, *Pseudonestor xanthophrys*—Unit 15—Montane Wet, *Palmeria dolei*—Unit 16—Montane Wet, *Pseudonestor xanthophrys*—Unit 16—Montane Wet, *Palmeria dolei*—Unit 22—Montane Mesic, *Pseudonestor xanthophrys*—Unit 22—Montane Mesic, *Palmeria dolei*—Unit 23—Montane Mesic, *Pseudonestor xanthophrys*—Unit 23—Montane Mesic, *Palmeria dolei*—Unit 35—Wet Cliff, and *Pseudonestor xanthophrys*—Unit 35—Wet Cliff). These units are occupied by the plants *Alectryon macrococcus, Asplenium dielerectum, Bidens campylotheca* ssp. *pentamera, B. conjuncta, Calamagrostis hillebrandii, Cenchrus agrimonioides, Ctenitis squamigera, Cyanea kunthiana, Cyrtandra munroi, C. oxybapha, Geranium hillebrandii, Gouania hillebrandii, Hibiscus brackenridgei, Kadua coriacea, Myrsine vaccinioides, Platanthera holochila, Remya mauiensis, Sanicula purpurea, Santalum haleakalae* var. *lanaiense, Schiedea salicaria, Spermolepis hawaiiensis,* and *Tetramolopium capillare.* These areas contain unoccupied habitat that is essential to the conservation of 29 other endangered plant species (*Acaena exigua, B. micrantha* ssp. *kalealaha, Bonamia menziesii, Clermontia oblongifolia* ssp. *mauiensis, Cyanea asplenifolia, C. glabra, C. lobata, C. magnicalyx, C. obtusa, Cyrtandra filipes, Diplazium molokaiense, Dubautia plantaginea* ssp. *humilis, Gouania vitifolia, Hesperomannia arborescens, H. arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Lysimachia lydgatei, Neraudia sericea, Peucedanum sandwicense, Phyllostegia bracteata, Plantago princeps, Pteris lidgatei, Sesbania tomentosa, Stenogyne kauaulaensis, Tetramolopium remyi, Wikstroemia villosa,* and *Zanthoxylum hawaiiense*), and the akohekohe and kiwikiu. The plant species *Alectryon macrococcus, Cyanea kunthiana, C. magnicalyx, Cyrtandra oxybapha, Dubautia plantaginea* ssp. *humilis, Hesperomannia arborescens, Plantago princeps, Platanthera holochila, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* and *Schiedea salicaria* are reported from Wailuku Water Company lands on west Maui.

Wailuku Water Company is one of the founding members and a funder of the WMMWP, created in 1998. This partnership serves to protect over 47,000 ac (19,000 ha) of forest and watershed vegetation on the summit and slopes of the west Maui mountains (WMMWP 2013). Management priorities of the watershed partnership are: (1) Feral animal control, (2) nonnative plant control, (3) human activities management, (4) public education and awareness, (5) water and watershed monitoring, and (6) management coordination (WMMWP 2013). Four principal streams, Waihee, Waiehu, Iao, and Waikapu, are part of the watershed area owned by the Wailuku Water Company on west Maui, which primarily provide water for agricultural use (WMMWP 2013). Conservation actions described in the WMMWP management plan are partly funded by Service grants through the Partners for Fish and Wildlife Program, with at least three grants recently funding projects on Wailuku Water Company lands (WMMWP 2010, 2011, 2012). Wailuku Water Company's conservation commitments include the following conservation actions: (1) Strategic fencing and removal of ungulates, (2) regular monitoring for ungulates after fencing, (3) monitoring of habitat recovery through photopoints and vegetation succession analyses, and (4)

continued surveys for rare taxa prior to fence installations. In 2009, four strategic fences were installed in Waiehu on Wailuku Water Company lands through a Service Partnership agreement. Funding for animal control checks has been provided, and these checks follow a regular schedule. Decontamination protocols are followed for all equipment used in the field to prevent introduction of nonnative plant species (WMMWP 2010). Wailuku Water Company allows surveys for rare taxa on their lands. Additional conservation actions in this area include weed control and outplanting of native plants (WMMWP 2010).

Our records indicate that between 2010 until 2015 there was one informal consultation conducted regarding a habitat protection project receiving Federal funding through the Service's Partners for Fish and Wildlife program on Wailuku Water Company land; however, we concurred that the project would not likely adversely affect listed plant species. We thus believe there is a low likelihood of a Federal nexus to provide a benefit to the species from designation of critical habitat. The WMMWP management plan and the commitments by Wailuku Water Company to implement the conservation actions listed above will either lead to maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 51 plants, the 2 forest birds, and their habitat. Through their actions, Wailuku Water Company has enabled the implementation of important conservation activities on their lands, including fencing and removal of ungulates, and weed control and outplanting of native plants. Survey access for rare taxa on private lands allows for the collection of important data regarding these species that would otherwise not be available. These actions demonstrate the willingness of Wailuku Water Company to protect and conserve native habitat and the west Maui watershed on their lands, and their value as a partner in conservation.

County of Maui, Department of Water Supply (DWS)

West Maui Mountains Watershed Partnership Management Plan, and Partners for Fish and Wildlife Agreements

In this final designation, the Secretary has exercised her authority to exclude 3,690 ac (1,493 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned by the County of Maui DWS on west Maui, and under management as part of the WMMWP. The County of Maui DWS has demonstrated their value as a conservation partner as a founding partner and funder of the WMMWP, which provides for important conservation actions that benefit the Maui Nui species through implementation of the WMMWP management plan on west Maui. The management plans and projects supported by the County of Maui DWS provide for the conservation of 39 plants and the 2 forest birds and their habitat on their lands. For the reasons discussed below, we have determined that the benefits of excluding County of Maui DWS lands outweigh the benefits of including them in critical habitat.

The County of Maui DWS lands fall within three critical habitat units for plants (Maui—Lowland Wet—Unit 4, Maui—Montane Wet—Unit 6, and Maui—Wet Cliff—Unit 6) and six critical habitat units for the two forest birds, the akohekohe and kiwikiu (*Palmeria dolei*—Unit 5—Lowland Wet, *Pseudonestor xanthophrys*—Unit 5—Lowland Wet, *Palmeria dolei*—Unit 15—Montane Wet, *Pseudonestor xanthophrys*—Unit 15—Montane Wet, *Palmeria dolei*—Unit 35—Wet Cliff, and *Pseudonestor xanthophrys*—Unit 35—Wet Cliff). These units are occupied by the plants *Alectryon macrococcus, Bidens conjuncta, Calamagrostis hillebrandii, Ctenitis squamigera, Cyanea asplenifolia, C. kunthiana, Cyrtandra. munroi, Geranium hillebrandii, Myrsine vaccinioides, Remya mauiensis, Sanicula purpurea,* and *Santalum haleakalae* var. *lanaiense.* These areas contain unoccupied habitat that is essential to the conservation of 27 other endangered plant species (*Acaena exigua, Asplenium dielerectum, Bidens campylotheca* ssp. *pentamera, B. micrantha* ssp. *kalealaha, Bonamia menziesii, Clermontia oblongifolia* ssp. *mauiensis, Cyanea glabra, C. lobata, C. magnicalyx, Cyrtandra filipes, Cyrtandra oxybapha, Diplazium molokaiense, Dubautia plantaginea* ssp. *humilis, Gouania vitifolia, Hesperomannia arborescens, H. arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Lysimachia lydgatei, Peucedanum sandwicense, Phyllostegia bracteata, Plantago princeps, Platanthera holochila, Pteris lidgatei, Tetramolopium capillare,* and *Wikstroemia villosa*), and for the akohekohe and kiwikiu. The plant species *Bidens conjuncta, Cyrtandra filipes, Hesperomannia arborescens,* and *Platanthera holochila* are reported from Maui County lands on west Maui.

Our records indicate that between 2010 until 2015 there was one informal consultation conducted regarding a project receiving Federal funding through the Fish and Wildlife Service's Partners for Fish and Wildlife Program on Maui County lands for habitat protection; however, we concurred that the project would not likely adversely affect listed plant species. We believe that there is a low likelihood of a Federal nexus to provide a benefit to the species from designation of critical habitat. Maui County DWS provides water to approximately 35,000 customers on Maui and Molokai combined (Maui County 2012). The DWS is a founding partner and funder of the WMMWP, with the main goal of protection and restoration of west Maui's upland watershed. The Maui County DWS provides financial support to both the Maui and Molokai watershed partnerships, and to other organizations, private landowners, Federal, and State agencies (Maui County 2012). Conservation actions by Maui County DWS conducted through the WMMWP are also partly funded by Service grants through the Partners for Fish and Wildlife Program (WMMWP 2010, 2011, 2012; USFWS 2010). Maui County DWS's conservation commitments include the following conservation actions: (1) Strategic fencing and removal of ungulates and removal of invasive nonnative plants; (2) regular monitoring to detect changes in management programs; (3) reducing the threat of fire; and (4) gaining community support for conservation programs. In addition, the DWS received funding for installation of an ungulate exclusion fence on the upper portion of their lands on west Maui that protects native habitat and acts as a buffer to the lower boundary of the habitat for plants and the two forest birds. The DWS also received funding in 2010 for feral animal removal from their lands (USFWS 2010). Other conservation actions in this fenced area include weed control and outplanting of native plants. The WMMWP management plan and the commitments by Maui County DWS to implement the conservation actions listed above will either lead to maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 39 plants, the 2 forest birds, and their habitat. These actions demonstrate the willingness of Maui County DWS to protect and conserve native habitat and the west Maui watershed on their lands,

and their value as a conservation partner.

Kamehameha Schools

West Maui Mountains Watershed Partnership Management Plan, and Partners for Fish and Wildlife Agreements

In this final designation, the Secretary has exercised her authority to exclude 1,217 ac (492 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned or managed by Kamehameha Schools on west Maui, and under management as part of the WMMWP. Kamehameha Schools is an established conservation partner, and has participated in the development, implementation, and funding of management plans and projects that benefit the Maui Nui species and other listed species throughout the Hawaiian islands. In this case, the ongoing conservation actions through the WMMWP management plan for Kamehameha Schools lands on west Maui provide for the conservation of 43 plants and 2 forest birds and their habitat. We have determined that the benefits of excluding Kamehameha Schools lands outweigh the benefits of including them in critical habitat for the reasons discussed below.

The Kamehameha Schools lands fall within four critical habitat units for plants (Maui—Lowland Dry—Unit 5, Maui—Lowland Mesic—Unit 2, Maui—Montane Wet—Unit 6, and Maui—Wet Cliff—Unit 6) and four critical habitat units for the two forest birds, the akohekohe and kiwikiu (*Palmeria dolei*—Unit 15—Montane Wet, *Pseudonestor xanthophrys*—Unit 15—Montane Wet, *Palmeria dolei*—Unit 35—Wet Cliff, and *Pseudonestor xanthophrys*—Unit 35—Wet Cliff). These units are occupied by the plants *Alectryon macrococcus, Asplenium dielerectum, Bidens campylotheca ssp. pentamera, B. conjuncta, Calamagrostis hillebrandii, Cenchrus agrimonioides, Ctenitis squamigera, Cyanea kunthiana, C. munroi, Geranium hillebrandii, Gouania hillebrandii, Kadua coriacea, Myrsine vaccinioides, Remya mauiensis, Sanicula purpurea, Santalum haleakalae* var. *lanaiense, Sesbania tomentosa, Spermolepis hawaiiensis, Tetramolopium capillare,* and *Zanthoxylum hawaiiense.* These areas contain unoccupied habitat that is essential to the conservation of 24 other endangered plant species (*Acaena exigua, Bonamia menziesii, Cyanea glabra, C. lobata, C. magnicalyx, C. obtusa, Cyrtandra filipes, C. oxybapha, Dubautia plantaginea* ssp. *humilis, Hesperomannia arborescens, H. arbuscula, Hibiscus brackenridgei, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Lysimachia lydgatei, Neraudia sericea, Phyllostegia bracteata, Plantago princeps, Platanthera holochila, Pteris lidgatei, Schiedea salicaria, Sesbania tomentosa,* and *Tetramolopium remyi*), and the akohekohe and kiwikiu. *Alectryon macrococcus* is reported from Kamehameha Schools' lands on west Maui.

Kamehameha Schools was established in 1887, through the will of Princess Bernice Pauahi Paki Bishop. The trust is used primarily to operate a college preparatory program; however, part of Kamehameha School's mission is to protect Hawaii's environment through recognition of the significant cultural value of the land and its unique flora and fauna. Kamehameha Schools has established a policy to guide the sustainable stewardship of its lands including natural resources, water resources, and ancestral places (Kamehameha Schools 2013). Kamehameha Schools is a founder and funder of the WMMWP, and also participates in the watershed partnerships for Oahu, Molokai, Kauai, and the island of Hawaii (WMMWP 2013). Conservation actions conducted by the WMMWP are partly funded by Service grants through the Partners for Fish and Wildlife Program (WMMWP 2010, 2011, 2012). Kamehameha Schools' conservation commitments include the following conservation actions: (1) Strategic fencing and removal of ungulates; (2) regular monitoring for ungulates after fencing; (3) monitoring of habitat recovery; and (4) continued surveys for rare taxa prior to new fence installations. In addition, Kamehameha Schools participated in the construction of strategic ungulate exclusion fences on the upper elevations of their lands on west Maui, which protect native habitat and act as a buffer to the lower boundary of the lowland mesic, montane wet, and wet cliff ecosystems. Other conservation actions in this area include weed control and outplanting of native plants. Kamehameha Schools is also conducting voluntary actions to promote the conservation of rare and endangered species and their lowland dry ecosystem habitats on the island of Hawaii, including the installation of fencing to exclude ungulates, restoring habitat, conducting actions to reduce rodent populations, reestablishing native plant species, and conducting activities to reducing the threat of wildfire. The WMMWP management plan and the commitments by Kamehameha Schools to implement the conservation actions listed above will either lead to maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 43 plants, the 2 forest birds, and their habitat. Our records indicate that between 2010 until 2015 there were no consultations conducted regarding projects receiving Federal funding on Kamehameha Schools lands, therefore we believe that in general there is a low likelihood of a Federal nexus to provide a benefit to the species from designation of critical habitat. However, as the WMMWP has received Federal funding for conservation projects in the past, it is possible that in the future such a conservation project undertaken on Kamehameha Schools property may trigger consultation under Section 7. As consultation for a project designed to provide conservation benefit is most likely to result in a not likely to adversely affect determination, and the benefit accruing from the funded conservation project would be likely relatively greater than the regulatory benefit of critical habitat, the incremental benefit of critical habitat is reduced under such circumstances. Overall, the actions described above demonstrate the willingness of Kamehameha Schools to protect and conserve native habitat and the watershed on their west Maui lands, and their value as a partner in conservation.

Makila Land Company

West Maui Mountains Watershed Partnership Management Plan, and Partners for Fish and Wildlife Agreements

In this final designation, the Secretary has exercised her authority to exclude 3,150 ac (1,275 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned and managed by Makila Land Company on west Maui, and under management as part of the WMMWP. The Makila Land Company is an established partner in the WMMWP, and ongoing conservation actions through the WMMWP management plan for Makila Land Company lands on west Maui provide for the conservation of 47 plants and 2 forest birds and their habitat. For the reasons discussed below, we have determined that the benefits of excluding Makila Land Company lands outweigh the benefits of including them in critical habitat.

The Makila Land Company lands fall within seven critical habitat units for plants (Maui—Lowland Dry—Unit 5,

Maui—Lowland Mesic—Unit 2, Maui—Montane Wet—Unit 6, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Dry Cliff—Unit 5, and Maui—Wet Cliff—Unit 6) and 10 critical habitat units for the two forest birds, the akohekohe and kiwikiu (*Palmeria dolei*—Unit 15—Montane Wet, *Pseudonestor xanthophrys*—Unit 15—Montane Wet, *Palmeria dolei*—Unit 19—Montane Mesic, *Pseudonestor xanthophrys*—Unit 19—Montane Mesic, *Palmeria dolei*—Unit 20—Montane Mesic, *Pseudonestor xanthophrys*—Unit 20—Montane Mesic, *Palmeria dolei*—Unit 29—Dry Cliff, *Pseudonestor xanthophrys*—Unit 29—Dry Cliff, *Palmeria dolei*—Unit 35—Wet Cliff, and *Pseudonestor xanthophrys*—Unit 35—Wet Cliff). These units are occupied by the plants *Alectryon macrococcus, Asplenium dielerectum, Bidens campylotheca ssp. pentamera, B. conjuncta, Calamagrostis hillebrandii, Cenchrus agrimonioides, Ctenitis squamigera, Cyanea kunthiana, C. magnicalyx, Cyrtandra filipes, Cyrtandra. munroi, Diplazium molokaiense, Geranium hillebrandii, Gouania hillebrandii, Kadua coriacea, Lysimachia lydgatei, Myrsine vaccinioides, Remya mauiensis, Sanicula purpurea, Santalum haleakalae* var. *lanaiense, Spermolepis hawaiiensis, Tetramolopium capillare,* and *Zanthoxylum hawaiiense.* These areas contain unoccupied habitat that is essential to the conservation of 25 other endangered plant species (*Acaena exigua, Bonamia menziesii, Colubrina oppositifolia, Cyanea glabra, C. lobata, C. obtusa, Cyrtandra filipes, C. oxybapha, Dubautia plantaginea* ssp. *humilis, Gouania vitifolia, Hesperomannia arborescens, H. arbuscula, Hibiscus brackenridgei, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Neraudia sericea, Phyllostegia bracteata, Plantago princeps, Platanthera holochila, Pteris lidgatei, Schiedea salicaria, Sesbania tomentosa, Stenogyne kauaulaensis,* and *Tetramolopium remyi*), and the akohekohe and kiwikiu. The plant species *Bidens campylotheca* ssp. *pentamera, Gouania hillebrandii, Kadua laxiflora, Lysimachia lydgatei, Plantago princeps, Remya mauiensis, Stenogyne kauaulaensis, Tetramolopium capillare,* and *Zanthoxylum hawaiiense* are reported from on Makila Land Company lands on west Maui.

Makila Land Company has set aside upper elevation areas of their property at Puehuehunui and Kauaula on west Maui for conservation and protection of rare dry to mesic forest communities. Makila Land Company is a long-time cooperator with the WMMWP. Conservation actions conducted by the WMMWP are partly funded by Service grants through the Partners for Fish and Wildlife Program (WMMWP 2010, 2011, 2012). Makila Land Company's conservation commitments include the following conservation actions: (1) Strategic fencing and removal of ungulates; (2) regular monitoring for ungulates after fencing; (3) vegetation monitoring; and (4) allowing surveys for rare taxa by the State and the Service's Plant Extinction Prevention Program (PEPP) staff. Much of the area is accessible only by helicopter due to waterfalls and steep terrain. The installation of strategic ungulate exclusion fences on the higher elevation portions of its lands protect native habitat and act as a buffer to the boundaries of the montane wet and wet cliff ecosystems' habitat. Additional conservation actions in these fenced areas include weed control and outplanting of native plants. The WMMWP management plan and the commitments by Makila Land Company to implement the conservation actions listed above will either lead to maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 47 plants and 2 forest birds, and their habitat. Our records indicate that between 2010 until 2015 there were no consultations conducted regarding projects receiving Federal funding on Makila Land Company lands. We believe that there is a low likelihood of a Federal nexus to provide a benefit to the species from designation of critical habitat. The actions described above demonstrate the willingness of Makila Land Company to protect and conserve native habitat and the west Maui watershed on their lands, and their value as a partner in conservation.

Kahoma Land Company

West Maui Mountains Watershed Partnership Management Plan, and Partners for Fish and Wildlife Agreements

In this final designation, the Secretary has exercised her authority to exclude 46 ac (19 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned or managed by Kahoma Land Company on west Maui, and under management as part of the WMMWP. The ongoing conservation actions through the WMMWP management plan for Kahoma Land Company lands on west Maui provide for the conservation of 26 plants and 2 forest birds and their habitat. For the reasons discussed below, we have determined that the benefits of excluding Kahoma Land Company lands outweigh the benefits of including them in critical habitat.

Kahoma Land Company lands fall within three critical habitat units for plants (Maui—Lowland Dry—Unit 5, Maui—Lowland Mesic—Unit 2, and Maui—Wet Cliff—Unit 6) and two critical habitat units for the two forest birds, the akohekohe and kiwikiu (*Palmeria dolei*—Unit 35—Wet Cliff and *Pseudonestor xanthophrys*—Unit 35—Wet Cliff). The area owned by Kahoma Land that is overlapped by Maui—Lowland Dry—Unit 5 is so small (0.1 ac, 0.05 ha) that it will be excluded, but not included in the analysis for lowland dry species here. The two remaining units are occupied by the plants *Alectryon macrococcus, Ctenitis squamigera, Cyrtandra. munroi, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* and *Zanthoxylum hawaiiense.* These areas contain unoccupied habitat that is essential to the conservation of 20 other endangered plant species (*Asplenium dielerectum, Bidens campylotheca* ssp. *pentamera, B. conjuncta, Bonamia menziesii, Colubrina oppositifolia, Cyanea glabra, C. lobata, C. magnicalyx, Cyrtandra filipes, Dubautia plantaginea* ssp. *humilis, Gouania vitifolia, Hesperomannia arborescens, H. arbuscula, Isodendrion pyrifolium, Kadua laxiflora, Lysimachia lydgatei, Plantago princeps, Platanthera holochila, Pteris lidgatei,* and *Tetramolopium capillare*), and the akohekohe and kiwikiu. None of the plant species discussed in this rule currently occurs on Kahoma Land Company lands on west Maui.

Kahoma Land Company is a coalition of Maui residents formed in June 2000, to acquire former sugar cane land adjacent to Kahoma Valley on west Maui. Kahoma Land Company's long-term management goals for this area include development of land tracts, diversified agriculture, and ecotourism ventures. Approximately 690 ac (279 ha) of the coalition's lands are within the WMMWP boundaries between two State Natural Area Reserves, and 46 ac (19 ha) are within proposed critical habitat. Kahoma Land Company is also a current member of the WMMWP (WMMWP 2013). Kahoma Land Company's conservation actions conducted by the WMMWP are partly funded by Service grants through the Partners for Fish and Wildlife Program (WMMWP 2010, 2011, 2012). Its conservation commitments include the following conservation actions: (1) Strategic fencing and removal of ungulates; (2) regular monitoring for ungulates after fencing;

(3) monitoring of habitat recovery through vegetation succession analyses; and (4) continued surveys for rare taxa prior to new fence installations. The WMMWP management plan includes actions taken on Kahoma lands to control ungulates, including construction of strategic fencing. Ungulate control checks are currently underway on Kahoma lands, with addition of new check installations (WMMWP 2010, p. 1). Additional conservation actions in this area include weed control and outplanting of native plants. The WMMWP management plan and the commitments by Kahoma Land Company to implement the conservation actions listed above will either lead to maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of the 26 plants, the 2 forest birds, and their habitat. Our records indicate that between 2010 until 2015 there was one informal consultation conducted regarding a project receiving Federal funding through the Fish and Wildlife Service's Partners for Fish and Wildlife Program on Kahoma Land lands for habitat protection; however, we concurred that the project would not likely adversely affect listed plant species. We believe that there is a low likelihood of a Federal nexus to provide a benefit to the species from designation of critical habitat. The action described above demonstrate the willingness of Kahoma Land Company to protect and conserve native habitat and the west Maui watershed on their lands, and their value as a partner in conservation.

Lanai Resorts, LLC, and Castle & Cooke Properties, Inc.

Lanai Conservation Plan and Lanai Conservation Memorandum of Understanding Between Lanai Resorts, LLC, Castle & Cooke Properties, Inc., and U.S. Department of the Interior Fish and Wildlife Service and Lanai Natural Resources Plan

In this final designation, the Secretary has exercised her authority to exclude 25,413 ac (10,284 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned by Lanai Resorts, LLC (LR), also known as Pulama Lanai (PL.). Our partnership with PL (and Castle & Cooke Properties, Inc. (CCPI), which holds rights on PL land for the possible development of a wind farm) provides significant conservation benefits to 38 plant and 2 Lanai tree snail species on Lanai, as demonstrated by the ongoing conservation efforts on the island, the commitment to develop the Lanai Natural Resources Plan (LNRP), and a memorandum of understanding (MOU) between the Service and LR and CCPI. For the reasons discussed below, we have determined that the benefits of excluding these areas outweigh the benefits of including them in critical habitat.

The areas owned by LR and CCPI fall within 14 critical habitat units that were proposed for plants (Lanai—Coastal—Unit 1, Lanai—Coastal—Unit 2, Lanai—Coastal—Unit 3, Lanai—Lowland Dry—Unit 1, Lanai—Lowland Dry—Unit 2, Lanai—Lowland Mesic—Unit 1, Lanai—Lowland Wet—Unit 1, Lanai—Lowland Wet—Unit 2, Lanai—Montane Wet—Unit 1, Lanai—Dry Cliff—Unit 1, Lanai—Dry Cliff—Unit 2, Lanai—Dry Cliff—Unit 3, Lanai—Wet Cliff—Unit 1, and Lanai—Wet Cliff—Unit 2) and 10 critical habitat units that were proposed for 2 Lanai tree snails (*Partulina semicarinata*—Unit 1—Lowland Wet, *Partulina semicarinata*—Unit 2—Lowland Wet, *Partulina semicarinata*—Unit 3—Montane Wet, *Partulina semicarinata*—Unit 4—Wet Cliff, *Partulina semicarinata*—Unit 5—Wet Cliff, *Partulina variabilis*—Unit 1—Lowland Wet, *Partulina variabilis*—Unit 2—Lowland Wet, *Partulina variabilis*—Unit 3—Montane Wet, *Partulina variabilis*—Unit 4—Wet Cliff, and *Partulina variabilis*—Unit 5—Wet Cliff). These units are occupied by the plants *Abutilon eremitopetalum, Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Ctenitis squamigera, Cyanea gibsonii, C. lobata, C. munroi, Cyrtandra munroi, Kadua cordata* ssp. *remyi, K. laxiflora, Labordia tinifolia* var. *lanaiensis, Melicope munroi, Pleomele fernaldii, Santalum haleakalae* var. *lanaiense, Schenkia sebaeoides, Spermolepis hawaiiensis,* and *Viola lanaiensis,* and by the Lanai tree snails. These areas contain unoccupied habitat that is essential to the conservation of 21 other endangered plant species (*Adenophorus periens, Asplenium dielerectum, Brighamia rockii, Canavalia pubescens, Cenchrus agrimonioides, Clermontia oblongifolia* ssp. *mauiensis, Cyperus fauriei, C. trachysanthos, Diplazium molokaiense, Hesperomannia arborescens, Hibiscus brackenridgei, Neraudia sericea, Phyllostegia haliakalae, Portulaca sclerocarpa, Sesbania tomentosa, Silene lanceolata, Solanum incompletum, Tetramolopium lepidotum* ssp. *lepidotum, T. remyi, Vigna o-wahuensis,* and *Zanthoxylum hawaiiense.*

In 2001, the Board of Land and Natural Resources (BLNR) approved its department's (Department of Land and Natural Resources (DLNR) participation in a Lanai watershed management program that included the Service (through a private stewardship grant), the Hawaii Department of Health, and CCPI, which at the time, was the primary landowner of Lanai (Leone 2001, in litt). In 2002, the Service and CCPI entered into a memorandum of agreement (MOA) for construction of ungulate-proof fence at Lanaihale, intended to prevent entry by ungulates and to protect the watershed and the listed species within the area. The term of the MOA was through 2025. The fencing of the summit at Lanaihale was planned to be constructed in three stages or ''increments.'' In 2004, the DLNR also provided funding through the Landowner Incentive Program to the Bishop Museum to remove nonnative plants and outplant and establish a population of more than 500 individuals of *Bidens micrantha* ssp. *kalealaha* and *Pleomele fernaldii* in Waiapaa Gulch at Lanaihale. Museum staff were to also collect seed for long-term storage and provide educational experiences for local Lanai students (Bishop Museum 2009, pp. 1–2). In 2006, a fire resulted in the loss of half of the remaining wild individuals of *B. micrantha* ssp. *kalealaha,* and by 2007, none remained. Outplanting was conducted within an ungulate-free exclosure at Awehi Gulch. Also in 2007, the west side (Increment II) of the Lanaihale summit fence perimeter was completed; however, ungulates were able to access the fenced area because the gates were not completed (Service 2008, p. 12). In 2008, more wild individuals of *B. micrantha* ssp. *kalealaha* were discovered in Waiapaa Gulch, and many seedlings were grown for outplanting by a student group at the local high school, with a second outplanted population established in 2009. This population was fenced by the Lanai Institute for the Environment (LIFE) (Bishop Museum 2009, pp. 3–4).

In 2012, CCPI sold the fee interest in their lands on Lanai to Larry Ellison. Ellison subsequently developed PL to manage the island's operations and land. In the sale, CCPI retained the rights to pursue the possible development of a wind power facility in the future.

The Service and PL and CCPI signed an expansive MOU on January 26, 2015, with a term that extends through 2028. Amongst the commitments made by PL and CCPI in this MOU are the following: (1) The completion of a Lanai Natural Resources Plan (LNRP) within 18 months of the date of the agreement. Implementation of the LNRP will include identification of priority ecosystems and species, prioritization of

management actions required, and commitment of funding; (2) maintenance and monitoring of the completed existing Lanaihale fences; (3) ungulate eradication within existing Lanaihale fences and control efforts in other priority areas as identified in the LNRP; (4) cooperation with, and support of management and monitoring within, TNC's Kanepuu Preserve units; (5) protection of rare plant clusters; (6) Lanai tree snail protection, management, and monitoring; (7) identification of rare species for immediate protective intervention efforts; (8) protection of coastal areas; and (9) establishment of nearly 7,000 ac (2,800 ha) of ''no development areas'' as determined by the LNRP, within which enhancement of overall ecological condition and conservation of listed species will be emphasized. PL additionally agrees to provide more than $200,000 in funding each year toward achievement of the conservation measures described in the MOU.

Under the terms of the MOU, PL will prepare the LNRP. This plan will include a description of detailed management actions with timelines that will benefit and provide protection for 38 plant species, the two Lanai tree snails, and their habitat on the island of Lanai. The MOU provides for the Service to be a member of the LNRP planning and implementation team, and an active participant in the ongoing conservation efforts on the island of Lanai.

PL has committed to implementing certain protective measures in advance of the LNRP to ensure species conversation. Actions currently being implemented include: (1) Planning and construction of an enclosure for the protection of the two Lanai tree snails; (2) planning, construction, and maintenance of fences around three rare plant populations; (3) outplanting of rare species in protected locations; (4) implementation of biosecurity measures to avoid the incursion and spread of invasive species; (5) maintenance of all existing fences; (6) predator control where necessary and appropriate to protect listed species; and (7) identification of other priority actions and sites. These measures are currently underway and being conducted in coordination with the Service.

Our records indicate that between 2010 until 2015 there were no section 7 consultations regarding federally-funded projects on Lanai. We believe that there is a low likelihood of a Federal nexus to provide a benefit to the species from designation of critical habitat. However, we note that CCPI has indicated the possibility of putting forth a project proposal to develop a wind farm on Lanai. Whether such a proposal may proceed, and when, is unknown at this time. Should this occur, however, there would likely be a Federal nexus that would trigger consultation under section 7 on these lands. The Service has considered this possibility, and noted that the most likely placement of towers and roads for a potential wind farm is largely discontinuous with the areas that were proposed as critical habitat. Because any consultation that may occur under section 7 as a result would involve only a very small proportion of the critical habitat proposed on Lanai, in contrast to the significant and comprehensive nature of the conservation benefits to be accrued from the MOU and LNRP, as well as from our partnership with PL and CCPI, we conclude that even if consultation were to take place in the future for such an activity, we do not anticipate that it would result in benefit to the species that would outweigh the benefits realized through the MOU and LNRP, and our partnership with PL and CCPI. The commitments provided under the terms of the MOU between the Service and PL and CCPI, in the form of management actions that will be included the LNRP and actions already underway in advance of the LNRP, will lead to protection of individuals from threats and either maintenance or enhancement of habitat for the species, or lead to emergence of suitable habitat where it is not present, thereby benefitting the conservation of 38 plant species, the two Lanai tree snails, and their habitat on the island of Lanai. The development of the MOU with the Service to protect listed species on the island of Lanai, the current conservation efforts underway by PL, and the development of the Lanai Natural Resources Plan by PL demonstrates the willingness of PL and CCPI to contribute to the conservation of listed species and their habitat, and their value as a partner in conservation. The strength of this partnership leads us to anticipate that these benefits will continue into the future.

Benefits of Inclusion—We find there are minimal benefits to including the areas described above in critical habitat. As discussed earlier, the designation of critical habitat invokes the provisions of section 7 of the Act. However, in the cases under consideration here, should there be a Federal nexus that would require consultation under section 7, we find the requirement that Federal agencies consult with us and ensure that their actions are not likely to destroy or adversely modify critical habitat will not result in significant benefits to the species. An evaluation of our consultation history on the islands of Maui Nui demonstrates that there is a low probability of a Federal nexus for many of the areas being excluded; furthermore, when consultation did occur for actions in the excluded areas, the projected outcomes of such actions were that they were not likely to adversely affect the listed species, as the actions in question were generally designed to benefit the species or their habitat. For example, between 2010 and 2015, we conducted 111 consultations for the island of Maui. Only two were formal consultations, one for the Habitat Conservation Plan (HCP) for the Kaheawa Wind Power II project on State land on west Maui, and one (with a reinitiation) for operations (road project) on Federal land in Haleakala National Park (neither of these areas are excluded in this final designation). In both cases we concluded that the project, as proposed, was not likely to destroy or adversely modify critical habitat.

Of the remaining 109 consultations, 25 were informal consultations and 84 were requests for technical assistance or species lists. The majority (19) of these informal consultations were conducted for projects involving road repair or modifications, bridge repairs, or construction of communications towers. Eight of the informal consultations involved projects in areas being excluded from critical habitat; however, we concurred with each agency's determination that the project, as proposed, was not likely to adversely affect listed species. We did conduct a single formal consultation, in 2008, on the construction of a communications tower funded by the FCC. However, the project area did not fall within critical habitat boundaries, and as we have no information to suggest that any similar activity is likely to occur again, there is little benefit that would be gained through the designation of critical habitat. Based on our consultation history on these lands (one formal consultation in 2008, and only 7 informal consultations over the past 5 years) and the fact that most of these informal consultations were for federally funded actions designed to benefit the species, we find it unlikely that the designation of critical habitat would provide significant benefits to the species through section 7 consultation in these particular cases.

In addition, if a Federal nexus were to occur for an action taking place within an area occupied by one or more listed species, section 7 consultation would already be triggered and the Federal agency would consider the effects of its

actions on the species through a jeopardy analysis. Because one of the primary threats to these species is habitat loss and degradation, the consultation process under section 7 of the Act for projects with a Federal nexus will, in evaluating the effects to these species, evaluate the effects of the action on the conservation or function of the habitat for the species regardless of whether critical habitat is designated for these lands. As noted in our economic analysis (IEC 2013, p. 2–11), the Service's recommendations for offsetting adverse project impacts to habitat that is occupied by a listed bird, invertebrate, or plant species under the jeopardy standard are often the same as recommendations we would make to offset adverse impacts to critical habitat, with the exception of the conservation project's location. Although the standards for jeopardy and adverse modification are not the same, any additional conservation that could be attained through the section 7 prohibition on adverse modification analysis would not likely be significant in this case because of the consultation history and conservation agreements already in place.

In addition, the existing conservation programs being implemented by these landowners substantially reduce the regulatory benefits of critical habitat. All of the areas described are managed by proven conservation partners, and have management plans in place that provide significant benefits to the Maui Nui species and their habitat, as detailed above. The designation of critical habitat carries no requirement that non-Federal landowners undertake any proactive conservation measures, for example with regard to the maintenance, restoration, or enhancement of habitat for listed species. Any voluntary action by a non-Federal landowner that contributes to the maintenance, restoration, or enhancement of habitat is therefore a valuable benefit to the listed species, and in the particular cases considered here, is a significant benefit above and beyond that which can be provided by critical habitat designation. Based on the track record of these landowners, it is reasonable to expect that these beneficial conservation efforts will continue into the future and that critical habitat would provide little conservation benefit in comparison.

Another potential benefit of including lands in a critical habitat designation is that the designation can serve to educate landowners, State and local government agencies, and the public regarding the potential conservation value of an area, and may help focus conservation efforts on areas of high conservation value for certain species. Any information about the Maui Nui species and their habitat that reaches a wider audience, including parties engaged in conservation activities, is valuable. However, in these cases, the educational value of critical habitat is limited because the landowners and land managers in question are already aware of the presence of the species, are knowledgeable about the species, and have furthermore already taken proactive steps to manage for the conservation of these species, as demonstrated by their ongoing conservation efforts and participation in conservation agreements.

There is a long history of critical habitat designation in Hawaii, and neither the State nor county jurisdictions have ever initiated their own additional requirements in areas because they were identified as critical habitat. Therefore, based on this history, we believe this potential benefit of critical habitat is limited.

Benefits of Exclusion—The benefits of excluding the areas described above from designated critical habitat are relatively substantial. Excluding the areas owned and managed by these landowners and land managers from critical habitat designation will provide significant benefit in terms of sustaining and enhancing the partnership between the Service and these landowners and partners, with positive consequences for conservation for the species that are the subject of this rule as well as other species that may benefit from such partnerships in the future. As described above, partnerships with non-Federal landowners are vital to the conservation of listed species, especially on non-Federal lands; therefore, the Service is committed to supporting and encouraging such partnerships through the recognition of positive conservation contributions. In the cases considered here, the measures these landowners and land managers have already put in place to enhance species conservation likely exceed any potential benefits that would accrue through section 7 consultation, particularly since the likelihood for a Federal nexus is so minimal on many of these lands. Furthermore, in those cases where a Federal nexus may occur and trigger consultation through section 7, our consultation history demonstrates that most federally funded or authorized actions in these specific areas have been related to conservation actions, thus critical habitat would not result in additional conservation measures, which minimizes or eliminates the regulatory benefit of critical habitat in these particular cases.

The designation of critical habitat, on the other hand, could have an unintended negative effect on our relationship with non-Federal landowners and land managers due to the perceived imposition of government regulation. According to some researchers, the designation of critical habitat on private lands significantly reduces the likelihood that landowners will support and carry out conservation actions (Main *et al.* 1999, p. 1,263; Bean 2002, p. 2). The magnitude of this negative outcome is greatly amplified in situations where active management measures (such as reintroduction, fire management, and control of invasive species) are necessary for species conservation (Bean 2002, pp. 3–4). We believe the judicious exclusion of specific areas of non-federally owned lands from critical habitat designation can contribute to species recovery and provide a superior level of conservation than critical habitat. Therefore, we consider the positive effect of excluding proven conservation partners from critical habitat to be a significant benefit of exclusion.

Benefits of Exclusion Outweigh the Benefits of Inclusion—We have reviewed and evaluated the exclusion of 84,891 ac (34,354 ha) of land owned and managed by 13 landowners on the islands of Maui, Molokai, and Lanai from critical habitat designation (see Table 9). The benefits of including these lands in the designation are comparatively small, as the habitat on the covered lands is already being monitored and managed under various management plans or agreements, as detailed above, to improve the habitat elements that are equivalent to the physical or biological features that are outlined in this critical habitat rule. In addition, we see little likelihood of these areas benefitting from the application of section 7 to critical habitat, as the probability of a non-conservation action with a Federal nexus on these lands is low, as reflected in the consultation history between 2010 and 2015 (and consultation history for the islands of Maui Nui since 2003, as provided in our proposed rule (77 FR 34464, June 11, 2012)). We therefore anticipate little, if any, additional protections through application of the section 7 prohibition on adverse modification or destruction due to the designation of critical habitat on these lands. The potential educational benefits of inclusion are also limited. All of the landowners and land managers under consideration are proven conservation partners, and have

demonstrated their knowledge of the species and their habitat needs. In addition, as described above, they have all developed or participated in an active community outreach program that has increased community awareness of the Maui Nui species, and they contribute to our knowledge of the species through monitoring and adaptive management of their lands.

In contrast, the benefits derived from excluding these owners and enhancing our partnership with these landowners and land managers is significant. The positive conservation results that we believe will be realized through the maintenance of these existing partnerships, as well as through the encouragement of future partnerships for listed species, are a significant benefit of exclusion. In cases such as these, where the benefits of including the areas in question are minimal, the benefits of excluding proven partners with such a positive track record for proactive conservation measures are relatively greater.

For the reasons discussed above, we have determined that the additional regulatory benefit of designating critical habitat, afforded through the section 7(a)(2) consultation process, is minimal because of limited potential for a Federal nexus not related to conservation actions and because conservation measures specifically benefitting the Maui Nui species and their habitat are in place as demonstrated by the provisions of the various management plans and voluntary agreements described above. The positive conservation outcomes provided by these plans and agreements greatly reduce the benefit of critical habitat in the specific cases considered here. In addition, the potential educational and informational benefits of critical habitat designation on lands containing the physical or biological features essential to the conservation of the Maui Nui species would be minimal, because the landowners and land managers under consideration are already making significant contributions to our understanding of these species, and continue to disseminate useful information to the public.

On the other hand, because voluntary conservation efforts for the benefit of listed species on private lands are so valuable, the Service considers the maintenance and encouragement of proven conservation partnerships to be a significant benefit of exclusion. The development and maintenance of effective working partnerships with private landowners for the conservation of listed species is particularly important in areas such as Hawaii, a State with relatively little Federal landownership but many species of conservation concern. Excluding these areas from critical habitat will help foster the partnership we have developed with the landowners and land managers in question have developed with Federal, State, and local conservation organizations, and will encourage the continued implementation of voluntary conservation actions for the benefit of the Maui Nui species and their habitat on these lands. In addition, these partnerships not only provide a benefit for the conservation of the Maui Nui species, but may also serve as a model and aid in fostering future cooperative relationships with other parties here and in other locations for the benefit of other endangered or threatened species. Therefore, in consideration of the factors discussed above in the *Benefits of Exclusion* section, including the relevant impacts to current and future partnerships, we have determined that the benefits of exclusion of lands owned and managed by the 13 landowners considered here and identified in Table 9 outweigh the benefits of designating these privately owned lands as critical habitat.

Summary of Benefits of Exclusion Outweighs the Benefits of Inclusion, by Landowner

The Nature Conservancy. In this final designation, the Secretary has exercised her authority to exclude from critical habitat lands owned or managed by The Nature Conservancy, totaling 10,056 ac (4,062 ha) on the islands of Maui and Molokai. The Nature Conservancy (TNC) is a proven conservation partner, as demonstrated, in part, by their ongoing management programs, documented in long-range management plans and yearly operational plans for TNC's Kapunakea Preserve on west Maui and Waikamoi Preserve on east Maui, and Kamakou Preserve and Moomomi Preserve on Molokai. The Nature Conservancy's management and protection of these areas currently provide significant conservation benefits to many of the Maui Nui species and their habitat which lessens the incremental benefit of critical habitat, particularly as there is little likelihood of a Federal nexus on these lands that would potentially trigger the consideration of adverse modification or destruction of critical habitat through section 7 consultation. The landowner and public are already aware of the conservation value of these areas due to their designation as TNC Preserves, and TNC's active outreach program. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the conservation actions of TNC provide benefits on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with TNC, as well as encourage additional beneficial conservation partnerships in the future. The Secretary has therefore concluded that in this particular case, the benefits of excluding TNC lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

Maui Land and Pineapple Company, Inc. In this final designation, the Secretary has exercised her authority to exclude 8,931 ac (3,614 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned and managed by Maui Land and Pineapple Company (ML & P). Maui Land and Pineapple Company is a proven conservation partner with an established track record of voluntary protection and management of listed species as demonstrated, in part, by their ongoing management program for the Puu Kukui Watershed Preserve (Puu Kukui WP), their participation in the WMMWP, and the tree snail habitat protection agreement for ML & P's Puu Kukui WP on west Maui. ML & P's management and protection of these areas currently provide significant conservation benefits to many of the Maui Nui species and their habitat, which lessens the incremental benefit of critical habitat. The designation of critical habitat would add little, if any, additional benefit beyond that provided by the current management plans, as our consultation history indicates there is little likelihood of a Federal nexus on these lands that would potentially trigger the consideration of adverse modification or destruction of critical habitat through section 7 consultation. The landowner and public are already aware of the conservation value of these

areas, as Puu Kukui is the largest privately owned watershed preserve in the State, and the actions of the WMMWP are well known. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing management plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the conservation actions of ML & P provide benefits on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with ML & P, as well as encourage additional beneficial conservation partnerships in the future. The Secretary has therefore concluded that in this particular case, the benefits of excluding ML & P lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

Ulupalakua Ranch. In this final designation, the Secretary has exercised her authority to exclude 6,535 ac (2,645 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are under management by Ulupalakua Ranch. Ulupalakua Ranch is a proven partner, as evidenced, in part, by their history of conservation actions including the Auwahi and Puu Makua restoration agreements and ongoing management of Ulupalakua Ranch lands on east Maui; Ulupalakua Ranch is also an active member of the LHWRP. Ulupalakua Ranch's management and protection of these areas currently provide significant conservation benefits to many of the Maui Nui species and their habitat, which lessens the incremental benefit of critical habitat. Ulupalakua Ranch is currently carrying out activities on their lands for the conservation of rare and endangered species and their habitats; funding for these projects through Federal sources (*e.g.,* from the Service and NRCS) has resulted in a history of informal consultations for this area. These activities, however, were designed either entirely or in part to benefit the listed species or their habitat, and all resulted in not likely to adversely affect determinations. In addition, one formal consultation did take place on Ulupalakua Ranch lands in 2008, for the construction of a communications tower. However, as the action area did not overlap critical habitiat, and we have no information to suggest that such a project is likely to occur again, we conclude there is little if any additional benefit to be gained from the designation of critical habitat on Ulupalakua Ranch lands. Therefore, in this particular case, although there is a likelihood of a Federal nexus, we expect any regulatory benefit realized as a result of critical habitat would be minimal. In addition, the landowner and public are already aware of the conservation value of this area through Ulupalakua Ranch's active volunteer and outreach program. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the conservation actions of Ulupalakua Ranch provide benefits on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with Ulupalakua Ranch, as well as encourage additional beneficial conservation partnerships in the future. The combination of conservation gained from continuing management actions by this landowner and the importance of maintaining, enhancing, and developing conservation partnerships in this situation are sufficient to outweigh the potential benefits that may be realized through section 7 for these areas. The Secretary has therefore concluded that in this particular case, the benefits of excluding Ulupalakua Ranch lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

Haleakala Ranch Company. In this final designation, the Secretary has exercised her authority to exclude 8,716 ac (3,527 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are under management by Haleakala Ranch. Haleakala Ranch is a proven conservation partner, as evidenced, in part, by a history of significant voluntary management actions and agreements that provide for the conservation of many of the Maui Nui species and their habitat, and by their participation in the EMWP, as detailed above; all of these actions lessen the incremental benefit of critical habitat. Haleakala Ranch is currently carrying out activities on their lands for the conservation of rare and endangered species and their habitats; past funding for these projects through Federal sources (*e.g.,* from the Service and NRCS) has recently resulted in informal consultation under section 7. That consultation was for management actions designed to benefit the species (ungulate and weed control), and resulted in a not likely to adversely affect determination. Therefore, in this particular case, although there is a likelihood of a Federal nexus, we expect any regulatory benefit realized as a result of critical habitat would be minimal. In this case, the landowner and public are aware of the conservation value of this area through the long history of conservation activities that have occurred there. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the conservation actions of Haleakala Ranch provide benefits on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with Haleakala Ranch, as well as encourage additional beneficial conservation partnerships in the future. The combination of conservation gained from continuing management actions by this landowner and the importance of maintaining, enhancing, and developing conservation partnerships in this situation are sufficient to outweigh the potential benefits that may be realized

through section 7 for these areas. The Secretary has therefore concluded that in this particular case, the benefits of excluding Haleakala Ranch lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

East Maui Irrigation Company, Ltd. In this final designation, the Secretary has exercised her authority to exclude 6,721 ac (2,720 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are managed by East Maui Irrigation Company, Ltd. (EMI). East Maui Irrigation Company is a proven conservation partner, as demonstrated, in part, by their ongoing management and restoration agreements for EMI lands at Haiku Uka on east Maui, and their founding participation in the EMWP. EMI's management and protection of these areas currently provide significant conservation benefits to many of the Maui Nui species and their habitat; actions have included the facilitation of ungulate control measures and the construction of 7 mi (11 km) of ungulate exclusion fencing in an area of essential habitat, watershed resource monitoring, and invasive weed control. All of these actions lessen the incremental benefit of critical habitat, as the regulatory effect of critical habitat would add little, if any, additional benefit beyond that provided by the current management plans, as our consultation history indicates there is little likelihood of a Federal nexus on these lands that would potentially trigger the consideration of adverse modification or destruction of critical habitat through section 7 consultation. The landowner is already aware of the conservation value of these lands through their conservation history and participation in the EMWP. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the conservation actions of EMI provide benefits on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with EMI, as well as encourage additional beneficial conservation partnerships in the future. The Secretary has therefore concluded that in this particular case, the benefits of excluding EMI lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

Nuu Mauka Ranch. In this final designation, the Secretary has exercised her authority to exclude 2,094 ac (848 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned by Nuu Mauka Ranch. Nuu Mauka Ranch's management and protection of these areas currently provide significant conservation benefits to many of the Maui Nui species and their habitat through ongoing management under the Native Watershed Forest Restoration Conservation Plan, LHWRP management plan, and the Southern Haleakala Forest restoration project agreement for Nuu Mauka Ranch lands on east Maui, all of which lessen the incremental benefit of critical habitat. Nuu Mauka Ranch is currently carrying out activities on their lands for the conservation of rare and endangered species and their habitats; past funding for these projects through Federal sources (*e.g.,* from the Service and NRCS) indicates the potential for a Federal nexus on these lands. However, past actions have been designed to benefit the Maui Nui species or their habitat (*e.g.,* construction of an ungulate exclusion fence), therefore in this particular case we expect any regulatory benefit realized as a result of critical habitat would be minimal. The designation of critical habitat would add little, if any, additional benefit beyond that provided by the current management plans, as our consultation history indicates there is little likelihood of a Federal nexus on these lands that would potentially trigger the consideration of adverse modification or destruction of critical habitat through section 7 consultation. The landowner is already aware of the conservation value of these lands through their conservation history and participation in the LHWRP. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the conservation actions of Nuu Mauka Ranch provide benefits on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with Nuu Mauka Ranch, as well as encourage additional beneficial conservation partnerships in the future. The combination of conservation gained from continuing management actions by this landowner and the importance of maintaining, enhancing, and developing conservation partnerships in this situation are sufficient to outweigh the potential benefits that may be realized through section 7 for these areas. The Secretary has therefore concluded that in this particular case, the benefits of excluding Nuu Mauka Ranch lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

Kaupo Ranch. In this final designation, the Secretary has exercised her authority to exclude 931 ac (377 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned or managed by Kaupo Ranch. Kaupo Ranch has undertaken voluntary conservation measures on their lands, demonstrating their value as a partner through participation in the LHWRP management plans and the Southern Haleakala Forest Restoration Project for Kaupo Ranch lands on east Maui. Kaupo Ranch's management and protection of these areas currently provide significant conservation benefits to many of the Maui Nui species and their habitat, which lessens the incremental benefit of critical habitat. Kaupo Ranch is currently carrying out activities on their lands for the conservation of rare and endangered species and their habitats; examples include weed control, outplanting of native plants, and the construction of an ungulate exclusion fence. Funding for brush management and prescribed grazing has resulted in one recent informal consultation for this area; this resulted in a not likely to adversely affect determination. Therefore, in this particular case,

although there is some potential for a Federal nexus, we expect any regulatory benefit realized as a result of critical habitat would be minimal, as the most likely trigger for consultation would be actions designed to benefit the species. The landowner is already aware of the conservation value of this area through their active management history, partnership with Haleakala National Park, and participation in the LHWRP. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the conservation actions of Kaupo Ranch provide benefits on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with Kaupo Ranch, as well as encourage additional beneficial conservation partnerships in the future. The Secretary has therefore concluded that in this particular case, the benefits of excluding Kaupo Ranch lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

Wailuku Water Company. In this final designation, the Secretary has exercised her authority to exclude 7,410 ac (2,999 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned or managed by Wailuku Water Company on west Maui, and under management as part of the West Maui Mountains Watershed Partnership (WMMWP). The ongoing conservation actions through the WMMWP management plan and Partners for Fish and Wildlife Agreements for Wailuku Water Company lands on west Maui provide significant conservation benefits to many of the Maui Nui species and their habitat, which lessens the incremental benefit of critical habitat. Wailuku Water Company is one of the founding members and a funder of the WMMWP, and participates in numerous management actions on their lands that contribute to the conservation of rare and endangered species and their habitats. In the recent past, Federal funding for habitat restoration on Wailuku Water Company lands through the Service's Partners for Fish and Wildlife Program has led to informal consultation under section 7. However, the outcome was a not likely to adversely affect determination, as the project was designed to benefit the species and their habitat. Therefore, in this particular case, although there is some potential for a Federal nexus, we expect any regulatory benefit realized as a result of critical habitat would be minimal, as the most likely trigger for consultation would be actions designed to benefit the species. The landowner is already aware of the conservation value of this area through their active management history and participation in the WMMWP. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the conservation actions of Wailuku Water Company provide benefits on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with Wailuku Water Company, as well as encourage additional beneficial conservation partnerships in the future. The combination of conservation gained from continuing management actions by this landowner and the importance of maintaining, enhancing, and developing conservation partnerships in this situation are sufficient to outweigh the potential benefits that may be realized through section 7 for these areas. The Secretary has therefore concluded that in this particular case, the benefits of excluding Wailuku Water Company lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

County of Maui, Department of Water Supply (DWS). In this final designation, the Secretary has exercised her authority to exclude 3,690 ac (1,493 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned by the County of Maui DWS on west Maui, and under management as part of the WMMWP. The County of Maui DWS has demonstrated their value as a conservation partner as a founding partner and funder of the WMMWP, which provides for important conservation actions through implementation of the WMMWP management plan on west Maui. The management plans and projects supported by the County of Maui DWS provide significant conservation benefits to many of the Maui Nui species and their habitat, which lessens the incremental benefit of critical habitat. The DWS is a founding partner and funder of the WMMWP, and provides financial support to several partnerships and organizations that contribute to conservation actions benefitting the conservation of rare and endangered species and their habitats. In the recent past, one of their habitat protection projects received Federal funding through the Service's Partners for Fish and Wildlife Program, which led to informal consultation under section 7. However, the outcome was a not likely to adversely affect determination, as the project was designed to benefit the species and their habitat. Therefore, in this particular case, although there is some potential for a Federal nexus, we expect any regulatory benefit realized as a result of critical habitat would be minimal, as the most likely trigger for consultation would be actions designed to benefit the species. The landowner is already aware of the conservation value of this area through their active management history and participation in the WMMWP. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on non-Federal lands. Here the conservation actions of Maui County DWS provide benefits on these lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands,

which will continue and strengthen our positive relationship with Maui County DWS, as well as encourage additional beneficial conservation partnerships in the future. The combination of conservation gained from continuing management actions by this landowner and the importance of maintaining, enhancing, and developing conservation partnerships in this situation are sufficient to outweigh the potential benefits that may be realized through section 7 for these areas. The Secretary has therefore concluded that in this particular case, the benefits of excluding Maui County DWS lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

Kamehameha Schools. In this final designation, the Secretary has exercised her authority to exclude 1,217 ac (492 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned or managed by Kamehameha Schools on west Maui, and under management as part of the WMMWP. Kamehameha Schools is an established conservation partner, and has participated in the development, implementation, and funding of management plans and projects that benefit the Maui Nui species and other listed species throughout the Hawaiian islands. The ongoing conservation actions through the WMMWP management plan for Kamehameha Schools lands on west Maui currently provide significant conservation benefits to many of the Maui Nui species and their habitat, which lessens the incremental benefit of critical habitat. Past funding for WMMWP projects through Federal sources (*e.g.,* from the Service) indicates the potential for a Federal nexus should a project occur on Kamehameha Schools lands. However, such past actions have been designed to benefit the Maui Nui species or their habitat, therefore in this particular case we expect any regulatory benefit realized as a result of critical habitat would be minimal. The designation of critical habitat would add little, if any, additional benefit beyond that provided by the current management plans, as our consultation history indicates there is little likelihood of a Federal nexus on these lands that would potentially trigger the consideration of adverse modification or destruction of critical habitat through section 7 consultation. The landowner is aware of the conservation value of these areas, as Kamehameha Schools has a long history of conservation actions in partnership with the Service here and in other areas. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing management plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the conservation actions of Kamehameha Schools provide benefits on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with Kamehameha Schools, as well as encourage additional beneficial conservation partnerships in the future. The Secretary has therefore concluded that in this particular case, the benefits of excluding Kamehameha Schools lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

Makila Land Company. In this final designation, the Secretary has exercised her authority to exclude 3,150 ac (1,275 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned and managed by Makila Land Company on west Maui, and under management as part of the WMMWP. The Makila Land Company is an established partner in the WMMWP, and ongoing conservation actions through the WMMWP management plan for Makila Land Company lands on west Maui currently provide significant conservation benefits to many of the Maui Nui species and their habitat, which lessens the incremental benefit of critical habitat. The designation of critical habitat would add little, if any, additional benefit beyond that provided by the current management plans, as our consultation history indicates there is little likelihood of a Federal nexus on these lands that would potentially trigger the consideration of adverse modification or destruction of critical habitat through section 7 consultation. The landowner is already aware of the conservation value of these areas through their history of conservation actions in partnership with the Service and participation in the WMMWP. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing management plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the conservation actions of Makila Land Company provide benefits on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with Makila Land Company, as well as encourage additional beneficial conservation partnerships in the future. The Secretary has therefore concluded that in this particular case, the benefits of excluding Makila Land Company lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

Kahoma Land Company. In this final designation, the Secretary has exercised her authority to exclude 46 ac (19 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned or managed by Kahoma Land Company on west Maui, and under management as part of the WMMWP. The ongoing conservation actions through the WMMWP management plan for Kahoma Land Company lands on west Maui provide significant conservation benefits to many of the Maui Nui species and their habitat, which lessens the incremental benefit of critical habitat. The Kahoma Land Company is a coalition of Maui residents that participate in conservation actions on their lands that contribute to the conservation of rare and endangered species and their habitats, including weed control, outplanting of native plants, strategic fencing, and ungulate removal. In the recent past, Federal funding for habitat restoration on Kahoma Land Company lands through the Service's Partners for Fish and Wildlife Program has led to informal consultation under section 7. However, the outcome was a not likely to adversely affect determination, as the project was designed to benefit the

species and their habitat. Therefore, in this particular case, although there is some potential for a Federal nexus, we expect any regulatory benefit realized as a result of critical habitat would be minimal, as the most likely trigger for consultation would be actions designed to benefit the species. The landowner is already aware of the conservation value of this area through their active management history and participation in the WMMWP. The benefits of exclusion, on the other hand, are significant, as excluding areas covered by existing plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the conservation actions of Kahoma Land Company provide benefits on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with Kahoma Land Company, as well as encourage additional beneficial conservation partnerships in the future. The combination of conservation gained from continuing management actions by this landowner and the importance of maintaining, enhancing, and developing conservation partnerships in this situation are sufficient to outweigh the potential benefits that may be realized through section 7 for these areas. The Secretary has therefore concluded that in this particular case, the benefits of excluding Kahoma Land Company lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

Lanai Resorts, LLC, and Castle & Cooke Properties, Inc. In this final designation, the Secretary has exercised her authority to exclude 25,413 ac (10,284 ha) of lands from critical habitat, under section 4(b)(2) of the Act, that are owned by Lanai Resorts, LLC (LR), also known as Pulama Lanai (PL). Our partnership with PL (and Castle & Cooke Properties, Inc. (CCPI), which holds rights on PL land for the possible development of a wind farm) provides significant conservation benefits to many of the Maui Nui species and their habitat, as demonstrated by the ongoing conservation efforts on the island, the commitment to develop the Lanai Natural Resources Plan (LNRP), and a memorandum of understanding (MOU) between the Service and LR and CCPI. The terms of the MOU, signed on January 26, 2015, are sweeping, and include a number of substantial management commitments that stand to make significant contributions to the conservation of the listed species on Lanai and their habitat. All of these considerations serve to lessen the incremental benefit of critical habitat. Examples of actions included in the MOU are the identification of priority ecosystems and species, prioritization of management actions required, and commitment of funding to maintain and monitor fences, control ungulates, protect rare plant clusters, protect, manage and monitor the Lanai tree snails, and establish ''no development'' areas. In addition, PL has committed to implementing certain protective measures in advance of the LNRP to ensure species conservation.

At present, the designation of critical habitat on Lanai would add little, if any, additional benefit beyond that provided by the MOU and LNRP, as our consultation history indicates there is little likelihood of a Federal nexus on these lands that would potentially trigger the consideration of adverse modification or destruction of critical habitat through section 7 consultation. It is possible, however, that consultation may be triggered in the future by a Federal permitting requirement should CCPI decide to pursue their option to develop a wind farm on the island. Even under such a circumstance, however (which currently remains speculative), we believe that consultation would be unlikely to result in benefits to the Maui Nui species greater than those realized through the MOU and LNRP, as critical habitat was not proposed within the potential footprint of the prospective wind farm, and similar consultations in the past have resulted in not likely to destroy or adversely modify findings (see *Benefits of Inclusion,* above). Therefore, we would not expect that critical habitat would result in added benefits to the species through conservation measures, even in the event of a future Federal nexus on these lands; any regulatory benefit realized as a result of critical habitat would likely be minimal compared to the conservation benefits gained through our partnership with PL and CCPI. The landowners are already well aware of the conservation value of this area through their work with the Service to develop the MOU, as well as their past management efforts.

The benefits of exclusion, on the other hand, are substantial, as excluding areas covered by existing plans and programs can encourage land managers to partner with the Services in the future, by removing any real or perceived disincentives for engaging in conservation activities, and thereby provide a benefit by encouraging future conservation partnerships and beneficial management actions. We give great weight to the benefits of excluding areas where we have demonstrated partnerships, especially on private lands. Here the development of the MOU with the Service to protect listed species on the island of Lanai, the current conservation efforts underway by PL, and the development of the Lanai Natural Resources Plan by PL demonstrates the willingness of PL and CCPI to contribute to the conservation of listed species and their habitat, and their value as a partner in conservation. Their conservation actions provide significant benefits for the Maui Nui species and their habitat on these private lands beyond those that can be achieved through critical habitat and section 7 consultations, and significant conservation benefits would be realized through the exclusion of these lands, which will continue and strengthen our positive relationship with PL and CCPI, as well as encourage additional beneficial conservation partnerships in the future. The combination of conservation gained from continuing management actions by this landowner and the importance of maintaining, enhancing, and developing conservation partnerships in this situation are sufficient to outweigh the potential benefits that may be realized through section 7 for these areas. The Secretary has therefore concluded that in this particular case, the benefits of excluding PL and CCPI lands outweigh those of including them in critical habitat. As detailed below, the Secretary has further determined that such exclusion will not result in the extinction of any of the Maui Nui species in question.

Exclusion Will Not Result in Extinction of the Species—We have determined that the exclusion of 84,891 ac (34,354 ha) from the designation of critical habitat for the Maui Nui species on lands on Maui, Molokai, and Lanai owned and managed by the 13 landowners identified here will not result in extinction of the species. In fact, exclusion of these lands is based, in part, on our conclusion that such exclusion will likely result in the

maintenance, restoration, or enhancements of the physical or biological features essential to the conservation of the Maui Nui species. Furthermore, exclusion of these lands is likely to improve our ability to form and maintain conservation partnerships with private landowners in areas essential to the conservation of the Maui Nui species. As discussed above, reintroduction and reestablishment of populations into areas that are not currently occupied by the species will be required to achieve their conservation. Exclusion is not likely to reduce the likelihood that reintroductions would occur or be successful. Exclusion of lands that are managed by private landowners for restoration or maintenance of suitable native habitat is more likely to facilitate robust partnerships with private landowners that would be required to support a reintroduction program that would be effective in conserving many of the Maui Nui species, such as the kiwikiu. Excluding lands covered by voluntary conservation partnerships is likely to restore, maintain, and increase the strength and number of partnerships with private landowners that are needed to recover the species.

In each case, we have evaluated ongoing conservation efforts that are currently in effect through existing management plans and determined that such efforts will adequately protect the geographical areas containing the physical or biological features essential to the conservation of the species. An important consideration as we evaluate these exclusions and their potential effect on the species in question is that critical habitat does not carry with it a regulatory requirement to restore or actively manage habitat for the benefit of listed species; the regulatory effect of critical habitat is only the avoidance of destruction or adverse modification of critical habitat should an action with a Federal nexus occur. It is therefore advantageous for the conservation of the species to support the proactive efforts of non-Federal landowners who are contributing to the enhancement of essential habitat features for listed species through exclusion. The actions of the non-Federal landowners we have excluded from critical habitat in this final rule provide tangible conservation benefits that reduce the likelihood of extinction for the Maui Nui species and increase the recovery potential of these species.

We have determined that there is a low likelihood of a Federal nexus that would trigger the regulatory protections of critical habitat for many of the areas excluded here. However, for those areas that may have projects occur with a Federal nexus and affecting any of the listed species in occupied areas, the jeopardy standard of section 7 of the Act, coupled with current land management measures that are not under Federal purview, provides assurances that these species will not go extinct as a result of excluding these lands from the critical habitat designation. For projects that may occur in areas not occupied by any listed species and that have a Federal nexus, there is greater potential for critical habitat to provide some benefit through consultation to assure the avoidance of destruction or adverse modification of critical habitat. However, for the particular areas excluded here, we have analyzed section 7 consultation history and determined that most past Federal actions have been designed to benefit the species or habitat (*e.g.,* habitat restoration activities funded, in part, by the Service's Partners for Fish and Wildlife Program). Furthermore, even if not for a conservation project, all section 7 consultations in the excluded areas have resulted in not likely to adversely affect determinations. In such cases, critical habitat does not provide additional benefits to the species in terms of protecting essential but unoccupied habitat areas. For the specific areas excluded in this final rule, we have concluded that not only would such exclusions not result in the extinction of any of the Maui Nui species, but in fact the exclusion demonstrated conservation partners participating in such federally funded programs for habitat protection, restoration, or enhancement is more likely to increase the probability of species recovery and conservation, by removing real or perceived regulatory constraints and encouraging the implementation of proactive conservation measures that provide significant benefits to the species that would not otherwise be realized.

We particularly considered the potential for extinction as a result of exclusion from critical habitat for those species in this rule which occur only on lands being excluded from the final designation. These include the listed species that occur only on Lanai (the two Lanai tree snails, and the plants *Abutilon eremitopetalum, Cyanea gibsonii, Kadua cordata* ssp. *remyi, Labordia tinifolia* var. *lanaiensis, Pleomele fernaldii,* and *Viola lanaiensis*) and the plant *Stenogyne kauaulaensis* that occurs in the wild only in Montane Mesic 2 on the island of Maui. For the Lanai species, as described above, we have determined that exclusion of all areas proposed as critical habitat on Lanai, owned and managed by PL and CCPI, will provide significant conservation benefits to the species. As noted earlier, the designation of critical habitat carries no requirement that non-Federal landowners undertake any proactive conservation measures, therefore voluntary actions by a private landowner that contribute to active management for the conservation of listed species is a significant benefit above and beyond that which can be provided by critical habitat designation. In this particular case, based on the substantial conservation gains that will be realized through the implementation of our MOU and our partnership with PL and CCPI, we conclude that exclusion of areas proposed as critical habitat on Lanai will not result in the extinction of these species, but will increase the probability of their conservation and recovery. Although there is some potential for future consultation under section 7 on Lanai should CCPI proceed with the development of a potential wind farm, the footprint of that wind farm is not within the areas proposed as critical habitat, and none of the species occur within that area. Any potential effect of the wind farm on the species at issue here is limited to the potential widening of an access road along The Nature Conservancy's Kanepuu Preserve, but as this area is not occupied by any of the listed species, such an action would not be anticipated to contribute to the increased vulnerability to extinction of any of the Lanai species. We similarly conclude that exclusion will not result in the extinction of the plant *Stenogyne kauaulaensis,* with the last remaining wild population on lands on Maui owned by the Makila Land Company. This population is in an area inaccessible to ungulates, and is being monitored by the PEPP; outplantings of the species have occurred in west Maui, in an area that is retained within the final designation in the Panaewa section of the West Maui Natural Area Reserve. As described above, the Makila Land Company is a long-time cooperator in the WMMWP and partner with the Service to fund and implement habitat protection and restoration actions that benefit the species, and has set aside upper elevation areas of their property for conservation and protection of rare dry to mesic forest communities. Proactive conservation actions that occur on these lands include fencing and removal of ungulates, weed control, outplanting of native plants, and allowing monitoring of rare plants by

the State and PEPP. All of these actions provide significant conservation for the last remaining wild population of *Stenogyne kauaulaensis,* and we conclude that exclusion of these lands will likely improve the status and recovery potential of the species, through maintaining and enhancing our positive conservation partnership with Makila Land Company and recognizing the importance of their ongoing management actions.

In addition, the species for which we are excluding critical habitat are subject to other protections as well; these protections remain in effect even absent the designation of critical habitat. Section 195D–4 of Hawaii Revised Statutes (endangered species and threatened species) stipulates that species determined to be endangered or threatened under the Federal Act shall be deemed endangered or threatened under the State law. Under the State law, it is unlawful, with some exceptions, to ''take'' such species, or to possess, sell, carry or transport them. The statutory protections for this species under State law provide additional assurances that exclusion of this area from critical habitat will not result in extinction of one or more of the Maui Nui species in this final rule that currently occupy, or potentially could occupy, these lands.

We have thoroughly considered the effect of each of the exclusions made in this final rule. In every case, exclusion is based upon the strength of existing conservation actions, commitments, and partnerships, which our analysis demonstrates will provide significant conservation benefits to the Maui Nui species, above and beyond those that would be realized through the designation of critical habitat. Based on the management plans and agreements in place, and the proven track record of our conservation partners, we reasonably assume these positive actions will continue into the future. For all of these reasons, we conclude not only that exclusion will not result in the extinction of any of the Maui Nui species, but that exclusion will result in the improvement of the status of each species in question, due to the positive conservation efforts taking place in those areas excluded. Therefore, based on all of these considerations, the Secretary has determined that the failure to designate any of the areas proposed as critical habitat as a result of exclusion will not result in the extinction of the species concerned, and is exercising her discretion under section 4(b)(2) of the Act to exclude from this final critical habitat designation portions of the proposed critical habitat units that are within the areas identified in Table 89, totaling 84,891 ac (34,354 ha).

Summary of Exclusions Based on Other Relevant Factors

As discussed under *Exclusions Based on Other Relevant Factors,* above, we considered the benefits of excluding areas from critical habitat that are covered by partnerships or voluntary conservation efforts. We believe these exclusions of specific areas of non-federally owned lands can contribute to species recovery and provide a superior level of conservation than designation of critical habitat, that voluntary conservation management by landowners extends species protections beyond those available through section 7 consultations, and that implementation of the conservation measures identified here is consistent with accepted conservation biology principles, lessening the benefits of critical habitat designation. In addition, we believe that excluding these lands will encourage other conservation partnerships.

We have excluded from the final critical habitat designation a variety of lands for which there is evidence of a conservation partnership with private landowners. We find that the benefits of the critical habitat exclusions outweigh the benefits of including the areas as critical habitat. This is largely due to (1) the important role that conservation of the species' habitats on private lands will play in the recovery of each species; (2) the need to maintain or develop effective cooperative conservation partnerships with private landowners; and (3) the likely increase in cooperation from a significant proportion of private landowners that will occur as a result of the exclusions from critical habitat.

Maps of areas essential to the conservation of the species covered in this rule, identified through designated critical habitat, or through partnerships and conservation agreements with landowners and land managers but excluded from critical habitat under section 4(b)(2) of the Act, are available in the document ''Supplementary Information for the Designation and Nondesignation of Critical Habitat on Molokai, Lanai, Maui, and Kahoolawe for 135 Species,'' available on the Internet at *http://www.regulations.gov* under Docket No. FWS–R1–ES–2015–0071.

The total area excluded from critical habitat designation in this rule is summarized by landowner in the following table.

TABLE 10—TOTAL AREA (AC, HA) EXCLUDED FROM CRITICAL HABITAT BY ISLAND AND LAND OWNER OR LAND MANAGER

Island	Land owner or land manager	Area excluded AC (HA)
Maui	County Department of Water Supply	3,690 (1,493)
	East Maui Irrigation Company, Ltd	6,721 (2,720)
	Haleakala Ranch	8,716 (3,527)
	Kahoma Ranch	46 (19)
	Kamehameha Schools	1,217 (492)
	Kaupo Ranch	931 (377)
	Makila Land Company	3,150 (1,275)
	Maui Land & Pineapple Company	8,931 (3,614)
	Nuu Mauka Ranch LLC	2,094 (848)
	The Nature Conservancy	6,481 (2,623)
	Ulupalakua Ranch	6,535 (2,645)
	Wailuku Water Company	7,410 (2,999)
Molokai	The Nature Conservancy	3,557 (1,440)
Lanai	Lanai Resorts (dba Pulama Lanai), Castle & Cooke Properties	25,413 (10,284)

XII. Required Determinations

Regulatory Planning and Review (Executive Orders 12866 and 13563)

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) will review all significant rules. The Office of Information and Regulatory Affairs has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this rule in a manner consistent with these requirements.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 *et seq.*), whenever an 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 effects of the rule on small entities (*i.e.,* small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. To determine if potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term ''significant economic impact'' is meant to apply to a typical small business firm's business operations.

The Service's current understanding of the requirements under the RFA, as amended, and following recent court decisions, is that Federal agencies are only required to evaluate the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself, and therefore, not required to evaluate the potential impacts to indirectly regulated entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried by the Agency is not likely to destroy or adversely modify critical habitat. Therefore, under section 7 only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Consequently, it is our position that only Federal action agencies will be directly regulated by this designation. There is no requirement under RFA to evaluate the potential impacts to entities not directly regulated. Moreover, Federal agencies are not small entities. Therefore, because no small entities are directly regulated by this rulemaking, the Service certifies that, if promulgated, the final critical habitat designation will not have a significant economic impact on a substantial number of small entities.

During the development of this final rule we reviewed and evaluated all information submitted during the comment period that may pertain to our consideration of the probable incremental economic impacts of this critical habitat designation. Based on this information, we affirm our certification that this final critical habitat designation will not have a significant economic impact on a substantial number of small entities, and a regulatory flexibility analysis is not required.

Energy Supply, Distribution, or Use—Executive Order 13211

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. OMB has provided guidance for implementing this Executive Order that outlines nine outcomes that may constitute ''a significant adverse effect'' when compared to not taking the regulatory action under consideration. The economic analysis finds that none of these criteria is relevant to this analysis. As described in the economic analysis (FEA 2015, Chapter 4 and Appendix A), renewable energy projects (*e.g.,* wind and geothermal developments) are expected to be subject to section 7 consultations, and the economic analysis concludes that the impacts of critical habitat designation on these activities are most likely limited to additional administrative costs of section 7 consultation (FEA 2015, Appendix A). Based on information in the economic analysis, energy-related impacts associated with conservation activities for the Maui Nui species within critical habitat are not expected. As such, the designation of critical habitat is not expected to significantly affect energy supplies, distribution, or use. 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.*), we make the following findings:

(1) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or tribal governments, or the private sector, and includes both ''Federal intergovernmental mandates'' and ''Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)–(7). ''Federal intergovernmental mandate'' includes a regulation that ''would impose an enforceable duty upon State, local, or tribal governments'' with two exceptions. It excludes ''a condition of Federal assistance.'' It also excludes ''a duty arising from participation in a voluntary Federal program,'' unless the regulation ''relates

to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,'' if the provision would ''increase the stringency of conditions of assistance'' or ''place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding,'' and the State, local, or tribal governments ''lack authority'' to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. ''Federal private sector mandate'' includes a regulation that ''would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.''

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) The designation of critical habitat imposes no obligation on State or local governments. By definition, Federal agencies are not considered small entities, although the activities they fund or permit may be proposed or carried out by small entities. Consequently, we do not believe that the critical habitat designation will significantly or uniquely affect small government entities. As such, a Small Government Agency Plan is not required.

Federalism—Executive Order 13132

In accordance with Executive Order 13132 (Federalism), this rule does not have significant Federalism effects. A federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of, this critical habitat designation with appropriate State resource agencies in Hawaii. We received comments from Hawaii elected officials; Maui County Council; Hawaii Department of Land and Natural Resources, Division of Forestry and Wildlife; Hawaii Department of Hawaiian Home Lands; Hawaii Department of Agriculture; the University of Hawaii Institute for Astronomy; Maui County Police Department; and, Maui County Planning Department and have addressed them in the Summary of Comments and Recommendations section of the rule. From a federalism perspective, the designation of critical habitat directly affects only the responsibilities of Federal agencies. The Act imposes no other duties with respect to critical habitat, either for States and local governments, or for anyone else. As a result, the rule does not have substantial direct effects either on the States, or on the relationship between national government and the States, or on the distribution of powers and responsibilities among the various levels of government. The designation may have some benefit to these governments because the areas that contain the features essential to the conservation of the species are more clearly defined, and the physical and biological features of the habitat necessary to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long–range planning (because these local governments no longer have to wait for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) will be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

Civil Justice Reform—Executive Order 12988

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We are designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, the rule identifies the elements of the physical or biological features essential to the conservation of the Maui Nui species. The designated areas of critical habitat are presented on maps, and the rule provides several options for the interested public to obtain more detailed location information, if desired.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses as defined by NEPA (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

XIII. References Cited

A complete list of references cited is available on the Internet at *http://www.regulations.gov* and upon request from the Pacific Islands Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**, above).

Authors

The primary authors of this document are the staff members of the Pacific Islands Fish and Wildlife Office.

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

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

PART 17—[AMENDED]

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

Authority: 16 U.S.C. 1361–1407; 1531–1544; 4201–4245, unless otherwise noted.

■ 2. Amend § 17.11(h) by:

■ a. Revising the entries for ''Honeycreeper, crested'' and ''Parrotbill, Maui (honeycreeper)'' under BIRDS; and

■ b. Revising the entry for ''Snail, Newcomb's tree'' under SNAILS.

The revisions read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*		*
BIRDS							
*	*	*	*	*	*		*
Honeycreeper, crested (Akohekohe).	*Palmeria dolei*	U.S.A. (HI)	Entire	E	1	17.95(b)	NA
*	*	*	*	*	*		*
Parrotbill, Maui (Kiwikiu).	*Pseudonestor xanthophrys.*	U.S.A. (HI)	Entire	E	1	17.95(b)	NA
*	*	*	*	*	*		*
SNAILS							
*	*	*	*	*	*		*
Snail, Newcomb's tree.	*Newcombia cumingi*	U.S.A. (HI)	NA	E	815	17.95(f)	NA
*	*	*	*	*	*		*

■ 3. Amend § 17.12(h) by:

■ a. Removing the entries for *Centaurium sebaeoides, Cyanea dunbarii, Cyanea macrostegia* ssp. *gibsonii, Hedyotis mannii, Hedyotis schlectendahliana* var. *remyi, Lipochaeta kamolensis,* and *Mariscus fauriei* under FLOWERING PLANTS;

■ b. Adding entries for *Cyanea dunbariae, Cyanea gibsonii, Cyperus fauriei, Kadua cordata* ssp. *remyi, Kadua laxiflora, Melanthera kamolensis,* and *Schenkia sebaeoides* in alphabetical order under FLOWERING PLANTS;

■ c. Revising the entries for *Acaena exigua, Bidens campylotheca* ssp. *pentamera, Bidens campylotheca* ssp. *waihoiensis, Bidens conjuncta, Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Calamagrostis hillebrandii, Canavalia pubescens, Clermontia peleana, Cyanea asplenifolia, Cyanea duvalliorum, Cyanea grimesiana* ssp. *grimesiana, Cyanea horrida, Cyanea kunthiana, Cyanea magnicalyx, Cyanea maritae, Cyanea munroi, Cyanea obtusa, Cyanea profuga, Cyanea solanacea, Cyperus trachysanthos, Cyrtandra ferripilosa, Cyrtandra filipes, Cyrtandra oxybapha, Festuca molokaiensis, Geranium hanaense, Geranium hillebrandii, Gouania hillebrandii, Hesperomannia arborescens, Hibiscus brackenridgei, Kokia cookei, Melicope munroi, Mucuna sloanei* var. *persericea, Myrsine vaccinioides, Neraudia sericea, Peperomia subpetiolata, Phyllostegia bracteata, Phyllostegia haliakalae, Phyllostegia hispida, Phyllostegia pilosa, Pittosporum halophilum, Platanthera holochila, Portulaca sclerocarpa, Santalum haleakalae* var. *lanaiense, Schiedea jacobii, Schiedea laui, Schiedea salicaria, Sesbania tomentosa, Solanum incompletum, Stenogyne kauaulaensis, Tetramolopium remyi, Vigna o-wahuensis,* and *Wikstroemia villosa* under FLOWERING PLANTS;

■ d. Removing the entries for *Asplenium fragile var. insulare, Diellia erecta,* and *Phlegmariurus (= Lycopodium, = Huperzia) mannii* under FERNS AND ALLIES;

■ e. Adding entries for *Asplenium dielerectum* and *Asplenium peruvianum* var. *insulare* in alphabetical order under FERNS AND ALLIES; and

■ f. Revising the entries for *Adenophorus periens, Huperzia (= Phlegmariurus, = Lycopodium) mannii, Marsilea villosa,* and *Pteris lidgatei* under FERNS AND ALLIES.

The revisions and additions 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							

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
*	*	*	*	*	*		*
Acaena exigua	Liliwai	U.S.A. (HI)	Rosaceae	E	467	17.99(e)(1)	NA
*	*	*	*	*	*		*
Bidens campylotheca ssp. *pentamera*.	Kookoolau	U.S.A. (HI)	Asteraceae	E	815	17.99(e)(1)	NA
Bidens campylotheca ssp. *waihoiensis*.	Kookoolau	U.S.A. (HI)	Asteraceae	E	815	17.99(e)(1)	NA
Bidens conjuncta	Kookoolau	U.S.A. (HI)	Asteraceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Bidens micrantha ssp. *kalealaha*.	Kookoolau	U.S.A. (HI)	Asteraceae	E	467	17.99(e)(1)	NA
*	*	*	*	*	*		*
Bonamia menziesii	None	U.S.A. (HI)	Convolvulaceae	E	559	17.99(a)(1), (c), (e)(1), (i), and (k)	NA
*	*	*	*	*	*		*
Calamagrostis hillebrandii.	None	U.S.A. (HI)	Poaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Canavalia pubescens.	Awikiwiki	U.S.A. (HI)	Fabaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Clermontia peleana	Oha wai	U.S.A. (HI)	Campanulaceae	E	532	17.99(e)(1) and (k)	NA
*	*	*	*	*	*		*
Cyanea asplenifolia	Haha	U.S.A. (HI)	Campanulaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Cyanea dunbariae	Haha	U.S.A. (HI)	Campanulaceae	E	594	17.99(c)	NA
Cyanea duvalliorum	Haha	U.S.A. (HI)	Campanulaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Cyanea gibsonii	Haha	U.S.A. (HI)	Campanulaceae	E	435	NA	NA
*	*	*	*	*	*		*
Cyanea grimesiana ssp. *grimesiana*.	Haha	U.S.A. (HI)	Campanulaceae	E	592, 815	17.99(c) and (i)	NA
*	*	*	*	*	*		*
Cyanea horrida	Haha nui	U.S.A. (HI)	Campanulaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Cyanea kunthiana	Haha	U.S.A. (HI)	Campanulaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Cyanea magnicalyx	Haha	U.S.A. (HI)	Campanulaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Cyanea maritae	Haha	U.S.A. (HI)	Campanulaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Cyanea munroi	Haha	U.S.A. (HI)	Campanulaceae	E	815	17.99(c)	NA
*	*	*	*	*	*		*
Cyanea obtusa	Haha	U.S.A. (HI)	Campanulaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Cyanea profuga	Haha	U.S.A. (HI)	Campanulaceae	E	815	17.99(c)	NA
*	*	*	*	*	*		*
Cyanea solanacea	Popolo	U.S.A. (HI)	Campanulaceae	E	815	17.99(c)	NA
*	*	*	*	*	*		*
Cyperus fauriei	None	U.S.A. (HI)	Cyperaceae	E	532	17.99(c) and (k)	NA

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
*	*	*	*	*	*		*
Cyperus trachysanthos.	Puukaa	U.S.A. (HI)	Cyperaceae	E	592	17.99(a)(1), (c), and (i)	NA
*	*	*	*	*	*		*
Cyrtandra ferripilosa	Haiwale	U.S.A. (HI)	Gesneriaceae	E	815	17.99(e)(1)	NA
Cyrtandra filipes	Haiwale	U.S.A. (HI)	Gesneriaceae	E	815	17.99(c) and (e)(1)	NA
*	*	*	*	*	*		*
Cyrtandra oxybapha	Haiwale	U.S.A. (HI)	Gesneriaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Festuca molokaiensis.	None	U.S.A. (HI)	Poaceae	E	815	17.99(c)	NA
*	*	*	*	*	*		*
Geranium hanaense	Nohoanu	U.S.A. (HI)	Geraniaceae	E	815	17.99(e)(1)	NA
Geranium hillebrandii	Nohoanu	U.S.A. (HI)	Geraniaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Gouania hillebrandii	None	U.S.A. (HI)	Rhamnaceae	E	165	17.99(c), (e)(1), and (e)(2)	NA
*	*	*	*	*	*		*
Hesperomannia arborescens.	None	U.S.A. (HI)	Asteraceae	E	536	17.99(c), (e)(1), and (i)	NA
*	*	*	*	*	*		*
Hibiscus brackenridgei.	Mao hau hele	U.S.A. (HI)	Malvaceae	E	559	17.99(c), (e)(1), (e)(2), (i), and (k)	NA
*	*	*	*	*	*		*
Kadua cordata ssp. *remyi.*	Kopa	U.S.A. (HI)	Rubiaceae	E	666	NA	NA
*	*	*	*	*	*		*
Kadua laxiflora	Pilo	U.S.A. (HI)	Rubiaceae	E	480	17.99(c) and (e)(1)	NA
*	*	*	*	*	*		*
Kokia cookei	Cooke's kokio	U.S.A. (HI)	Malvaceae	E	74	17.99(c)	NA
*	*	*	*	*	*		*
Melanthera kamolensis.	Nehe	U.S.A. (HI)	Asteraceae	E	467	17.99(e)(1)	NA
*	*	*	*	*	*		*
Melicope munroi	Alani	U.S.A. (HI)	Rutaceae	E	666	17.99(c)	NA
*	*	*	*	*	*		*
Mucuna sloanei var. *persericea.*	Sea bean	U.S.A. (HI)	Fabaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Myrsine vaccinioides	Kolea	U.S.A. (HI)	Myrsinaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Neraudia sericea	None	U.S.A. (HI)	Urticaceae	E	559	17.99(c), (e)(1), and (e)(2)	NA
*	*	*	*	*	*		*
Peperomia subpetiolata.	Alaala wai nui	U.S.A. (HI)	Piperaceae	E	815	17.99(e)(1)	NA

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
*	*	*	*	*	*		*
Phyllostegia bracteata.	None	U.S.A. (HI)	Lamiaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Phyllostegia haliakalae.	None	U.S.A. (HI)	Lamiaceae	E	815	17.99(c) and (e)(1)	NA
*	*	*	*	*	*		*
Phyllostegia hispida	None	U.S.A. (HI)	Lamiaceae	E	762	17.99(c)	NA
*	*	*	*	*	*		*
Phyllostegia pilosa	None	U.S.A. (HI)	Lamiaceae	E	815	17.99(c) and (e)(1)	NA
*	*	*	*	*	*		*
Pittosporum halophilum.	Hoawa	U.S.A. (HI)	Pittosporaceae	E	815	17.99(c)	NA
*	*	*	*	*	*		*
Platanthera holochila	None	U.S.A. (HI)	Orchidaceae	E	592	17.99(a)(1), (c), (e)(1), and (i)	NA
*	*	*	*	*	*		*
Portulaca sclerocarpa.	Poe	U.S.A. (HI)	Portulacaceae	E	532	17.99(k)	NA
*	*	*	*	*	*		*
Santalum haleakalae var. *lanaiense.*	Lanai sandalwood, iliahi.	U.S.A. (HI)	Santalaceae	E	215, 815	17.99(c) and (e)(1)	NA
*	*	*	*	*	*		*
Schenkia sebaeoides	Awiwi	U.S.A. (HI)	Gentianaceae	E	448	17.99(a)(1), (c), (e)(1), and (i)	NA
*	*	*	*	*	*		*
Schiedea jacobii	None	U.S.A. (HI)	Caryophyllaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Schiedea laui	None	U.S.A. (HI)	Caryophyllaceae	E	815	17.99(c)	NA
*	*	*	*	*	*		*
Schiedea salicaria	None	U.S.A. (HI)	Caryophyllaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Sesbania tomentosa	Ohai	U.S.A. (HI)	Fabaceae	E	559	17.99(a)(1), (c), (e)(1), (e)(2), (g), (i), and (k)	NA
*	*	*	*	*	*		*
Solanum incompletum.	Popolo ku mai	U.S.A. (HI)	Solanaceae	E	559	17.99(e)(1) and (k)	NA
*	*	*	*	*	*		*
Stenogyne kauaulaensis.	None	U.S.A. (HI)	Lamiaceae	E	815	17.99(e)(1)	NA
*	*	*	*	*	*		*
Tetramolopium remyi	None	U.S.A. (HI)	Asteraceae	E	435	17.99(e)(1)	NA
*	*	*	*	*	*		*
Vigna o-wahuensis	None	U.S.A. (HI)	Fabaceae	E	559	17.99(c), (e)(1), (e)(2), (i), and (k)	NA
*	*	*	*	*	*		*
Wikstroemia villosa	Akia	U.S.A. (HI)	Thymelaeaceae	E	815	17.99(e)(1)	NA

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
*	*	*	*	*	*		*
FERNS AND ALLIES							
*	*	*	*	*	*		*
Adenophorus periens	Pendant kihi fern	U.S.A. (HI)	Grammitidaceae	E	559	17.99(a)(1), (c), (e)(1), (i), and (k)	NA
*	*	*	*	*	*		*
Asplenium dielerectum.	Asplenium-leaved diellia.	U.S.A. (HI)	Aspleniaceae	E	559	17.99(a)(1), (c), (e)(1), (i), and (k)	NA
*	*	*	*	*	*		*
Asplenium peruvianum var. *insulare.*	None	U.S.A. (HI)	Aspleniaceae	E	553	17.99(e)(1) and (k)	NA
*	*	*	*	*	*		*
Huperzia mannii	Wawaeiole	U.S.A. (HI)	Lycopodiaceae	E	467	17.99(e)(1)	NA
*	*	*	*	*	*		*
Marsilea villosa	Ihi ihi	U.S.A. (HI)	Marsileaceae	E	474	17.99(c) and (i)	NA
*	*	*	*	*	*		*
Pteris lidgatei	None	U.S.A. (HI)	Adiantaceae	E	553	17.99(c), (e)(1), and (i)	NA
*	*	*	*	*	*		*

■ 4. Amend § 17.95 as follows:

■ a. In paragraph (b), by adding entries for ''Crested Honeycreeper (Akohekohe) (*Palmeria dolei*)'' and ''Maui Parrotbill (Kiwikiu) (*Pseudonestor xanthophrys*)'' in the same alphabetical order as these species occur in the table at § 17.11(h); and

■ b. In paragraph (f), by adding an entry for ''Newcomb's tree snail (*Newcombia cumingi*),'' to the end of the paragraph.

The additions read as follows:

§ 17.95 Critical habitat—fish and wildlife

* * * * *

(b) *Birds.*

* * * * *

Crested Honeycreeper (Akohekohe) (*Palmeria dolei*),

(1) Critical habitat units are depicted for Maui County, Hawaii, on the maps below.

(2) *Primary constituent elements.* (i) In units 1 and 37, the primary constituent elements of critical habitat for the Akohekohe are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units 2, 3, 4, 5, 6, 7, 8, 9, 38, and 39, the primary constituent elements of critical habitat for the Akohekohe are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units 10, 11, 12, 13, 14, 15, 16, 40, and 41, the primary constituent elements of critical habitat for the Akohekohe are:

(A) Elevation: Between 3,300 and 6,500 ft (1,000 and 2,000 m)

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iv) In units 18, 19, 20, 21, 22, and 42, the primary constituent elements of critical habitat for the Akohekohe are:

(A) Elevation: Between 3,300 and 6,500 ft (1,000 and 2,000 m).

(B) Annual precipitation: Between 50 and 75 in (130 and 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(v) In units 24 and 25, the primary constituent elements of critical habitat for the Akohekohe are:

(A) Elevation: Between 6,500 and 9,800 ft (2,000 and 3,000 m).

(B) Annual precipitation: Between 15 and 40 in (38 and 100 cm).

(C) Substrate: Dry ash; sandy loam; rocky, undeveloped soils; weathered lava.

(D) Canopy: *Chamaesyce, Chenopodium, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Coprosma, Dodonaea, Dubautia, Geranium, Leptecophylla, Vaccinium, Wikstroemia.*

(F) Understory: Ferns, *Bidens, Carex, Deschampsia, Eragrostis, Gahnia, Luzula, Panicum, Pseudognaphalium, Sicyos, Tetramolopium.*

(vi) In units 26, 27, 28, and 29, the primary constituent elements of critical habitat for the Akohekohe are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

(vii) In units 30, 31, 32, 33, 35, 36, 43, and 44, the primary constituent elements of critical habitat for the Akohekohe are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

(3) Existing manmade features and structures, such as buildings, roads, railroads, airports, runways, other paved areas, lawns, and other urban landscaped areas, do not contain one or more of the physical or biological features. Federal actions limited to those areas, therefore, would not trigger a consultation under section 7 of the Act unless they may affect the species or physical or biological features in adjacent critical habitat.

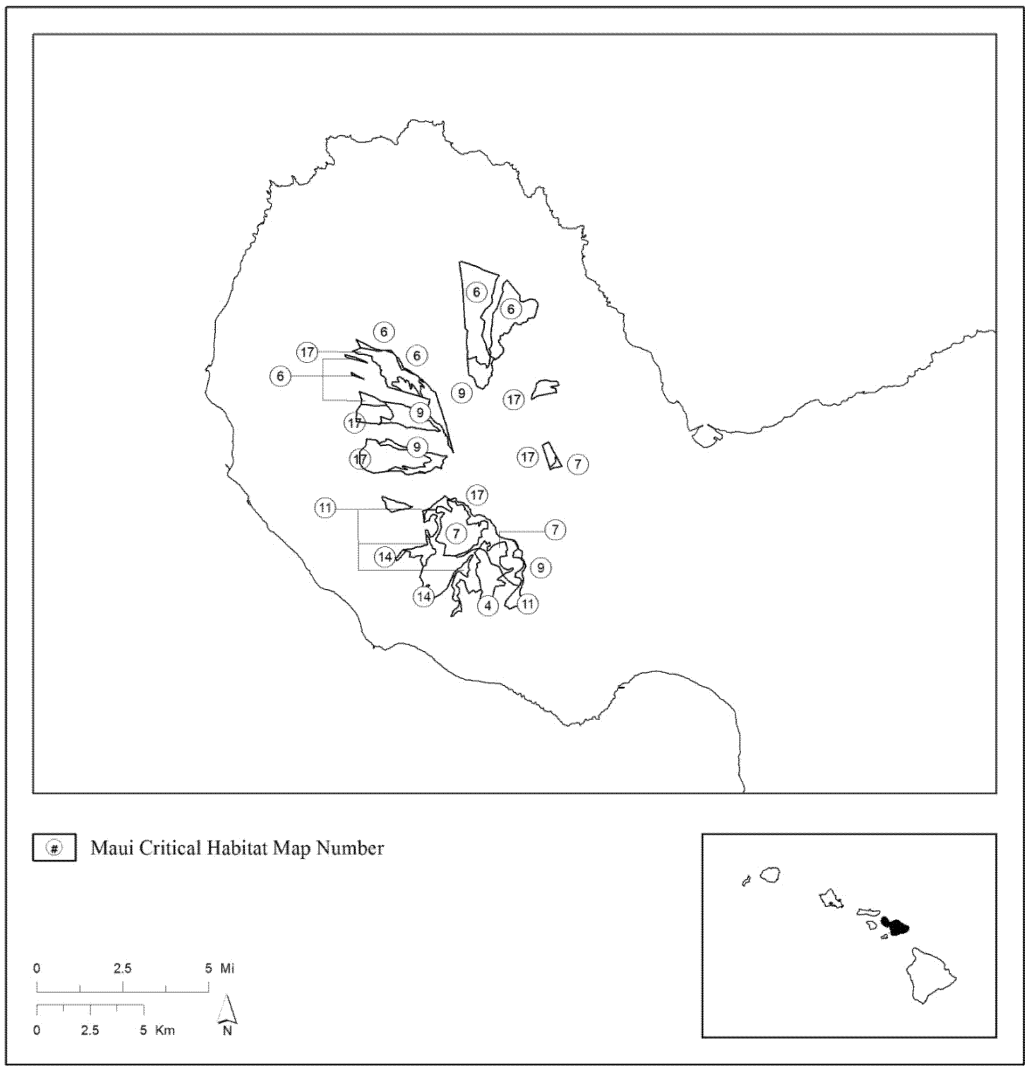
(4) *Critical habitat maps.* Maps were created in GIS, with coordinates in UTM Zone 4, units in meters using North American datum of 1983 (NAD 83).

(5) Index maps of critical habitat units for the Akohekohe follow:

BILLING CODE 4333–15–P

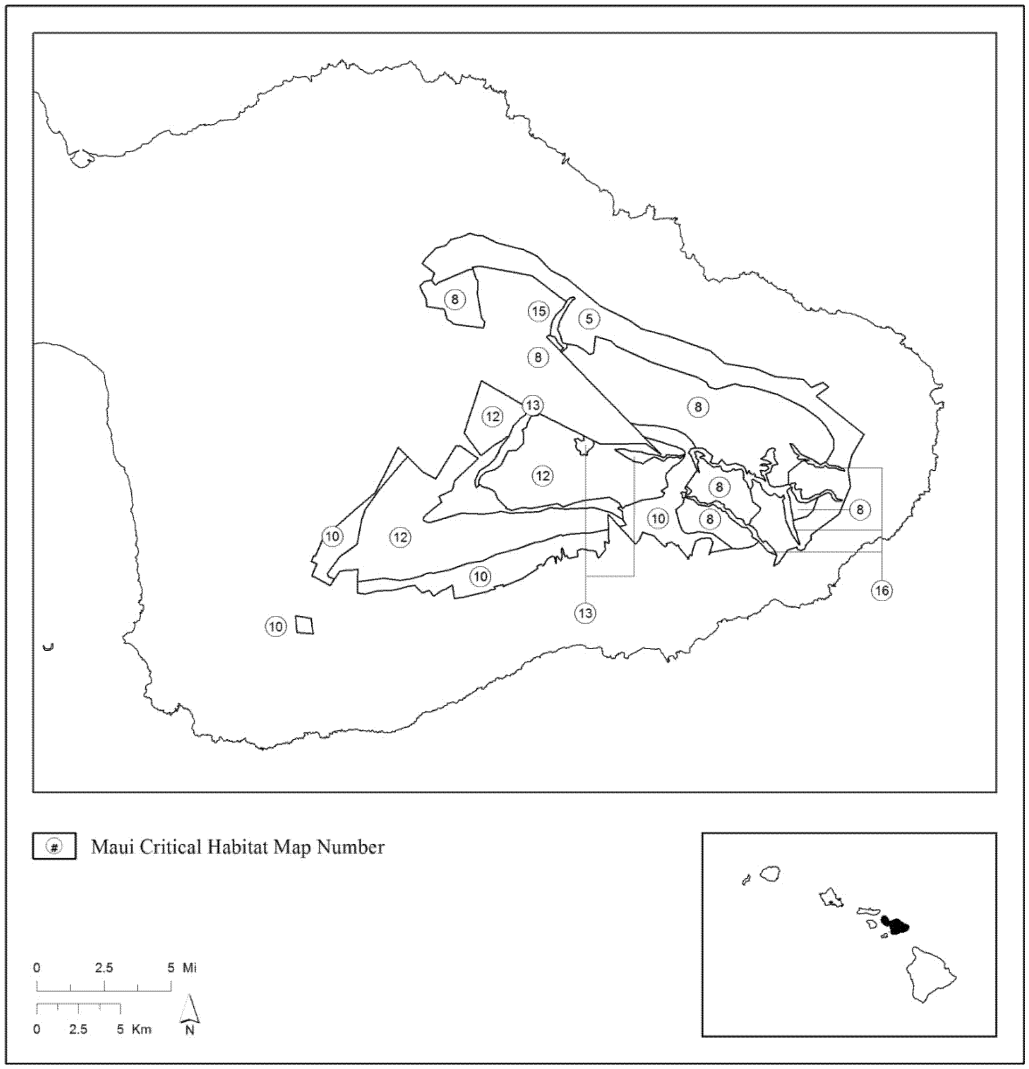
Map 1

Palmeria dolei—Index Map 1—West Maui



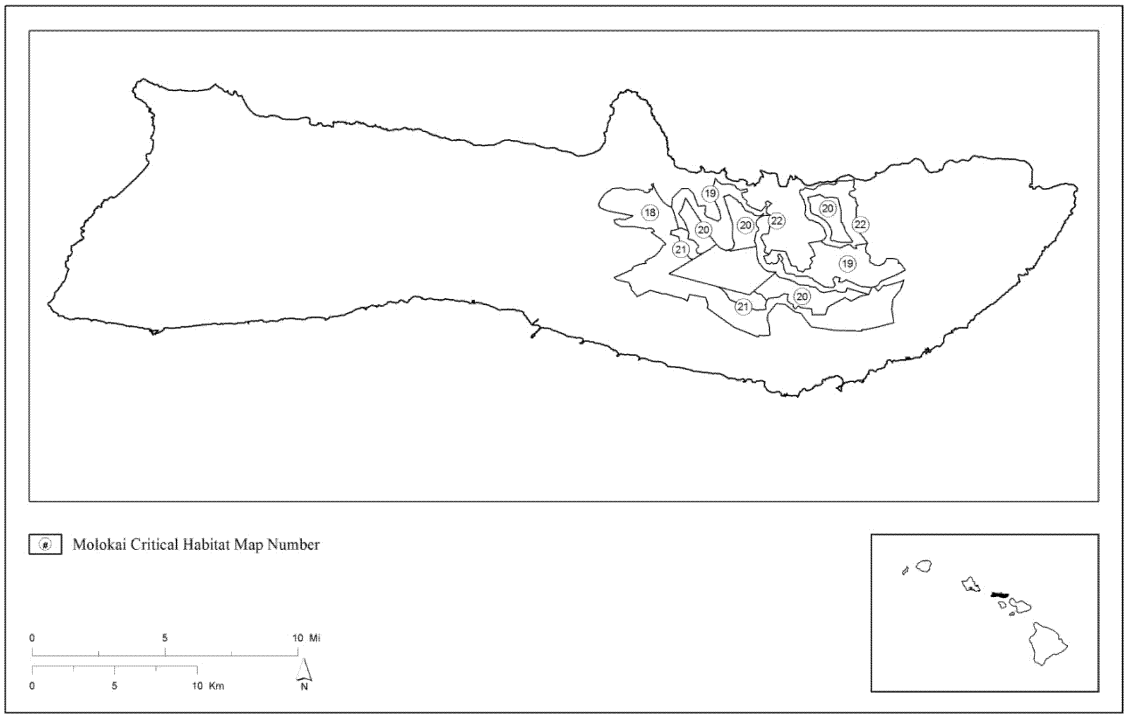
Map 2

Palmeria dolei—Index Map 2—East Maui



Map 3

Palmeria dolei—Index Map 3--Molokai



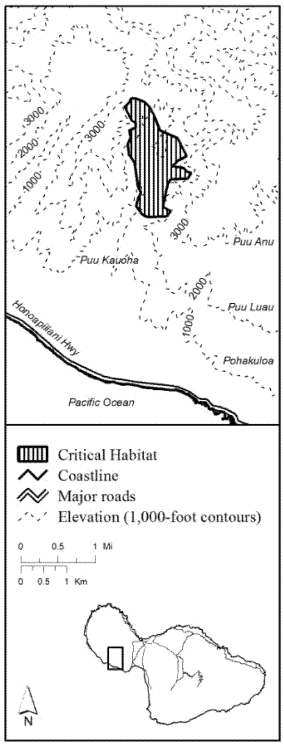
(6) *Palmeria dolei*—Unit 1—Lowland Mesic-Maui, Maui County, Hawaii (477 ac; 193 ha). This unit is critical habitat for the Akohekohe, *Palmeria dolei.* Map of *Palmeria dolei*—Unit 1—Lowland Mesic-Maui follows:

Map 4

Palmeria dolei

Unit 1

Lowland Mesic-Maui



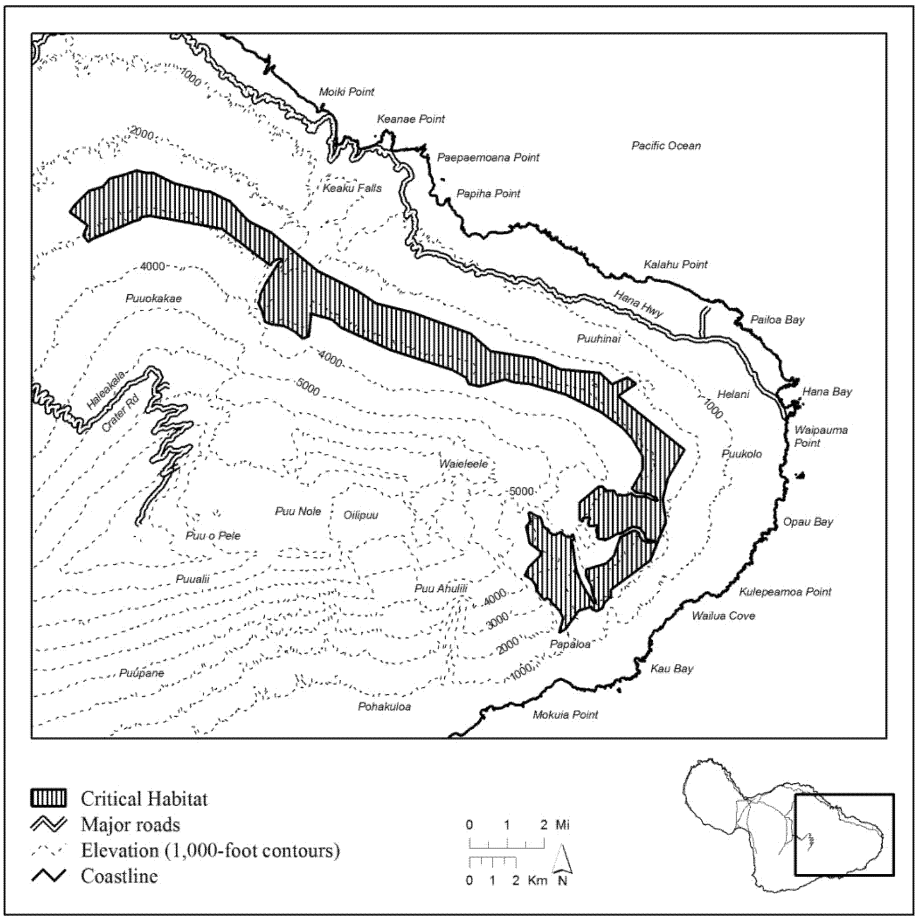
(7) *Palmeria dolei*—Unit 2—Lowland Wet-Maui, Maui County, Hawaii (16,079 ac, 6,507 ha). This unit is critical habitat for the Akohekohe, *Palmeria dolei.* Map of *Palmeria dolei*—Unit 2—Lowland Wet-Maui follows:

Map 5

Palmeria dolei

Unit 2

Lowland Mesic-Maui

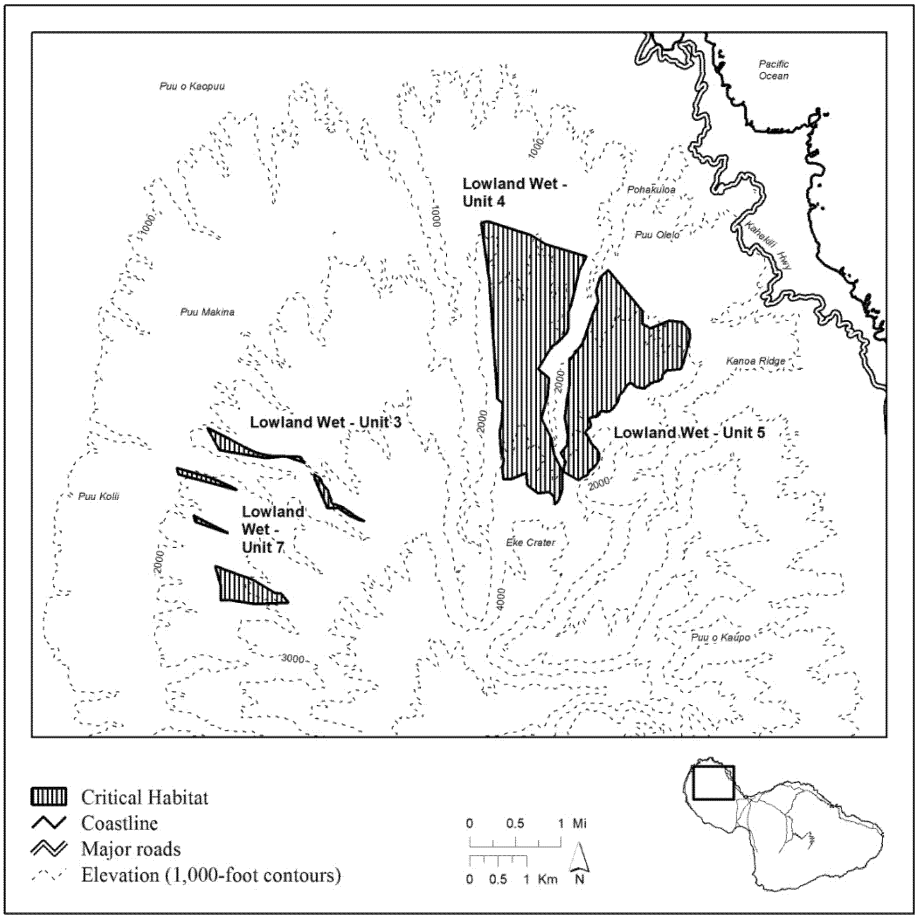


(8) *Palmeria dolei*—Unit 3—Lowland Wet-Maui, Maui County, Hawaii (65 ac, 26 ha); *Palmeria dolei*—Unit 4—Lowland Wet-Maui, Maui County, Hawaii (1,247 ac, 505 ha); *Palmeria dolei*—Unit 5—Lowland Wet-Maui, Maui County, Hawaii (864 ac, 350 ha); and *Palmeria dolei*—Unit 7—Lowland Wet-Maui, Maui County, Hawaii (136 ac, 55 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei.* Map of *Palmeria dolei*—Unit 3—Lowland Wet-Maui, *Palmeria dolei*—Unit 4—Lowland Wet 4-Maui, *Palmeria dolei*—Unit 5—Lowland Wet-Maui, and *Palmeria dolei*—Unit 7—Lowland Wet-Maui follows:

Map 6

Palmeria dolei Unit 3, Unit 4, Unit 5, and Unit 7

Lowland Wet-Maui



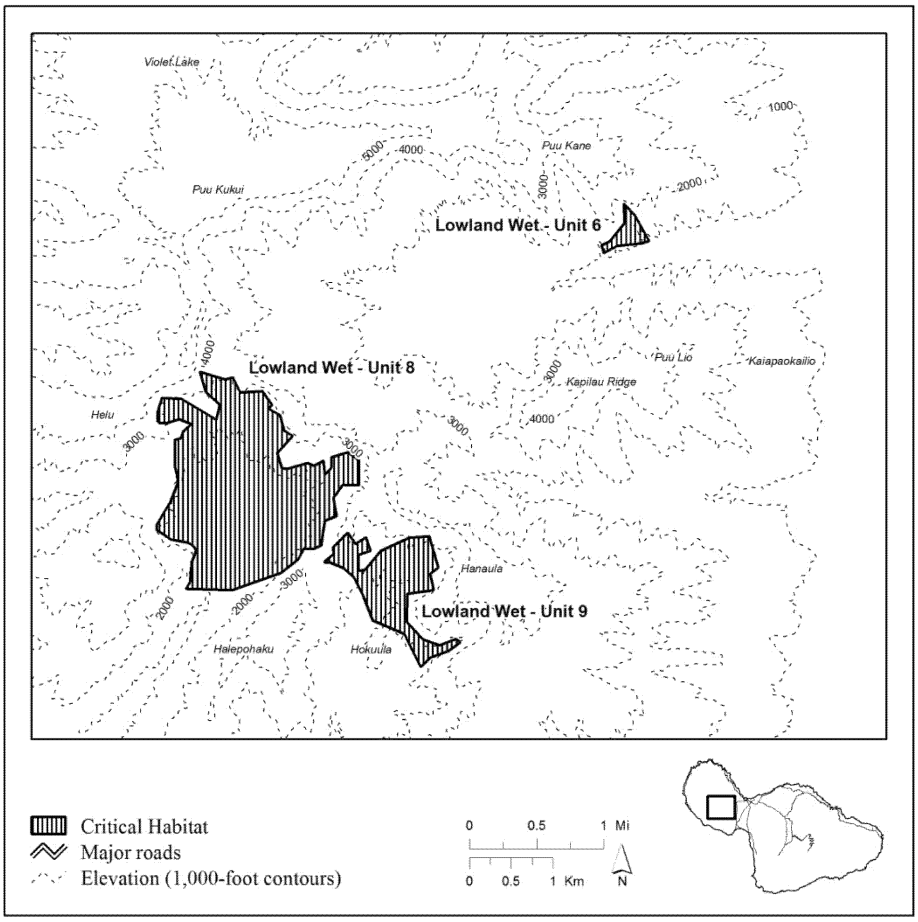
(9) *Palmeria dolei*—Unit 6—Lowland Wet-Maui, Maui County, Hawaii (30 ac, 12 ha); *Palmeria dolei*—Unit 8—Lowland Wet-Maui, Maui County, Hawaii (898 ac, 364 ha); and *Palmeria dolei*—Unit 9—Lowland Wet-Maui, Maui County, Hawaii (230 ac, 93 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei*. Map of *Palmeria dolei*—Unit 6—Lowland Wet-Maui, *Palmeria dolei*—Unit 8—Lowland Wet-Maui, and *Palmeria dolei*—Unit 9—Lowland Wet-Maui follows:

Map 7

Palmeria dolei

Unit 6, Unit 8, and Unit 9

Lowland Wet-Maui



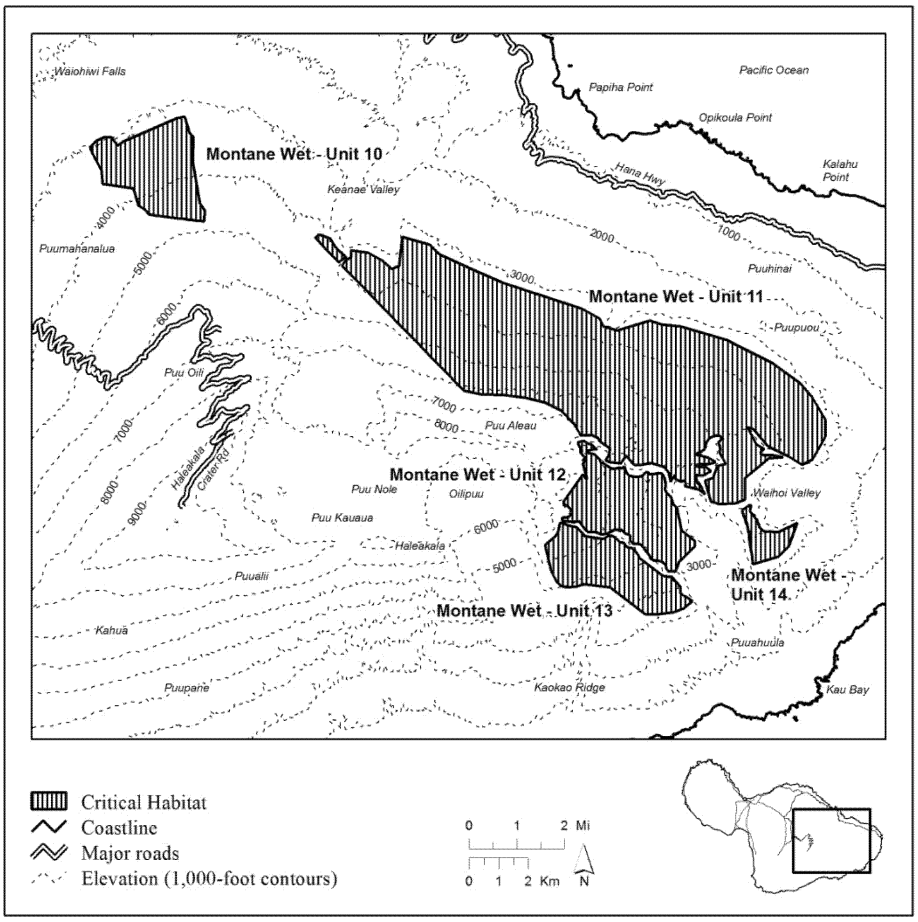
(10) *Palmeria dolei*—Unit 10—Montane Wet-Maui, Maui County, Hawaii (2,110 ac, 854 ha); *Palmeria dolei*—Unit 11—Montane Wet-Maui, Maui County, Hawaii (14,583 ac, 5,901 ha); *Palmeria dolei*—Unit 12—Montane Wet-Maui, Maui County, Hawaii (2,228 ac, 902 ha); *Palmeria dolei*—Unit 13—Montane Wet-Maui, Maui County, Hawaii (1,833 ac, 742 ha); and *Palmeria dolei*—Unit 14—Montane Wet-Maui, Maui County, Hawaii (387 ac, 156 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei*. Map of *Palmeria dolei*—Unit 10—Montane Wet-Maui, *Palmeria dolei*—Unit 11—Montane Wet-Maui, *Palmeria dolei*—Unit 12—Montane Wet-Maui, *Palmeria dolei*—Unit 13—Montane Wet-Maui, and *Palmeria dolei*—Unit 14—Montane Wet-Maui follows:

Map 8

Palmeria dolei

Unit 10, Unit 11, Unit 12, Unit 13, and Unit 14

Montane Wet-Maui



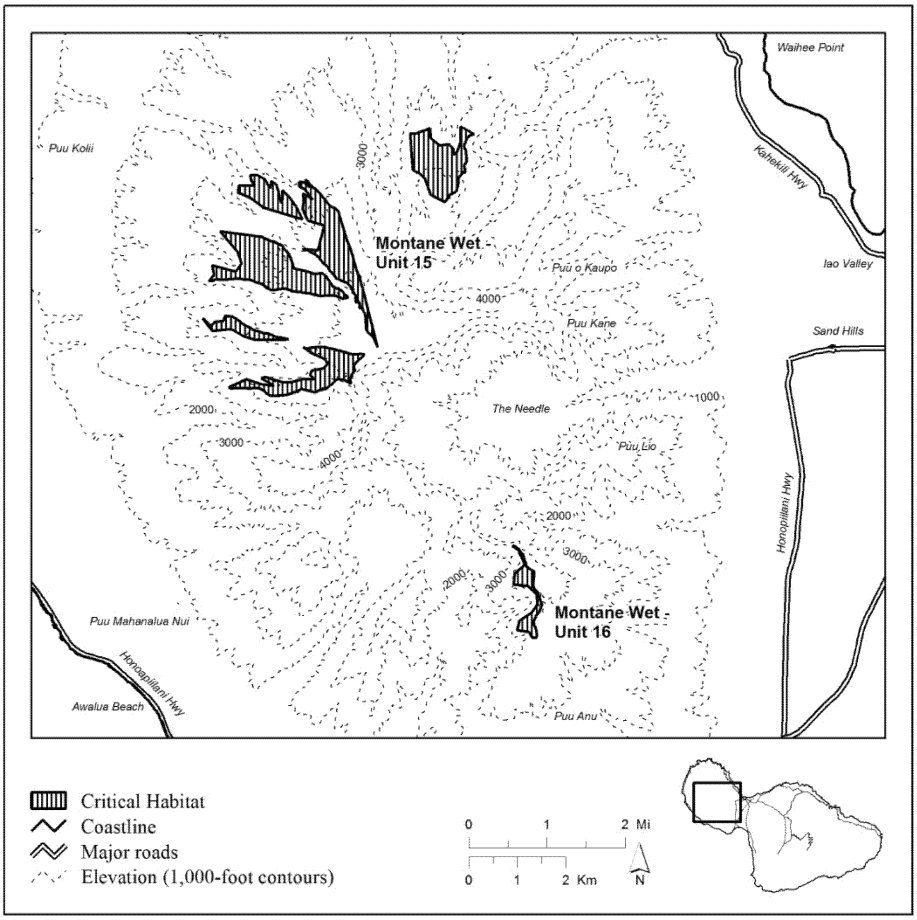
(11) *Palmeria dolei*—Unit 15—Montaine Wet-Maui, Maui County, Hawaii (1,399 ac, 566 ha), and *Palmeria dolei*—Unit 16—Montane Wet-Maui, Maui County, Hawaii (80 ac, 32 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei*. Map of *Palmeria dolei*—Unit 15—Montane Wet-Maui, and *Palmeria dolei*—Unit 16—Montane Wet-Maui follows:

Map 9

Palmeria dolei

Unit 15 and Unit 16

Montane Wet-Maui



(12) [Reserved]

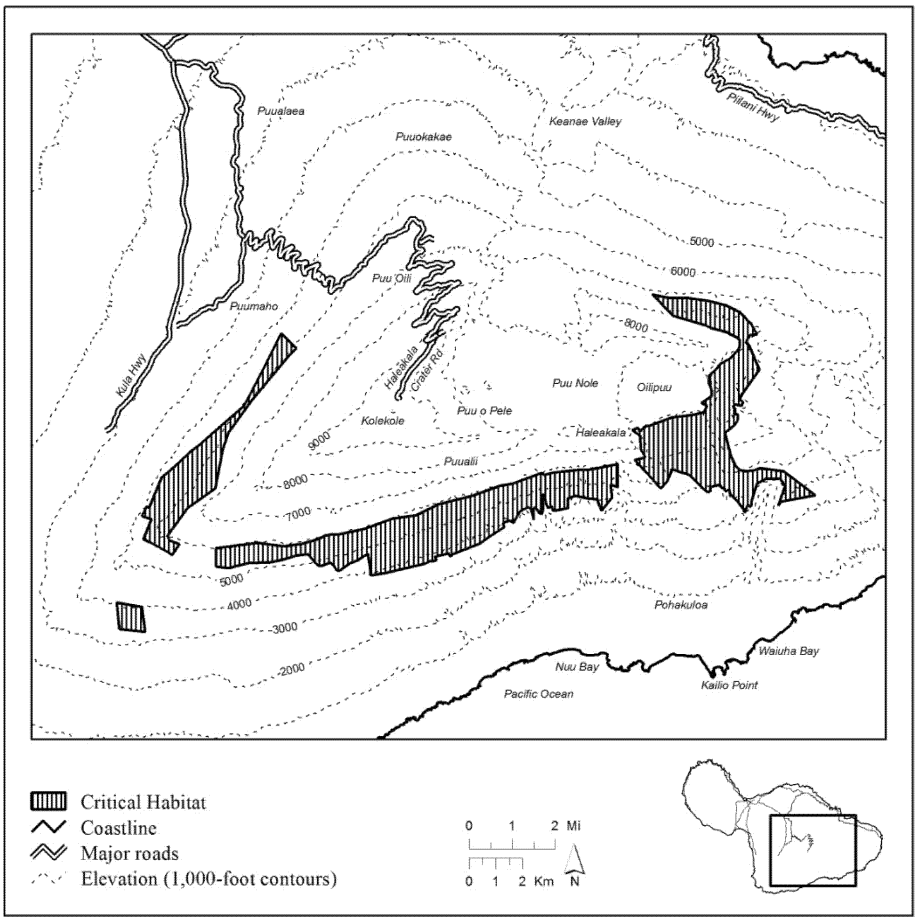
(13) *Palmeria dolei*—Unit 18—Montane Mesic-Maui, Maui County, Hawaii (10,972 ac, 4,440 ha). This unit is critical habitat for the Akohekohe, *Palmeria dolei.* Map of *Palmeria dolei*—Unit 18—Montane Mesic-Maui follows:

Map 10

Palmeria dolei

Unit 18

Montane Mesic-Maui



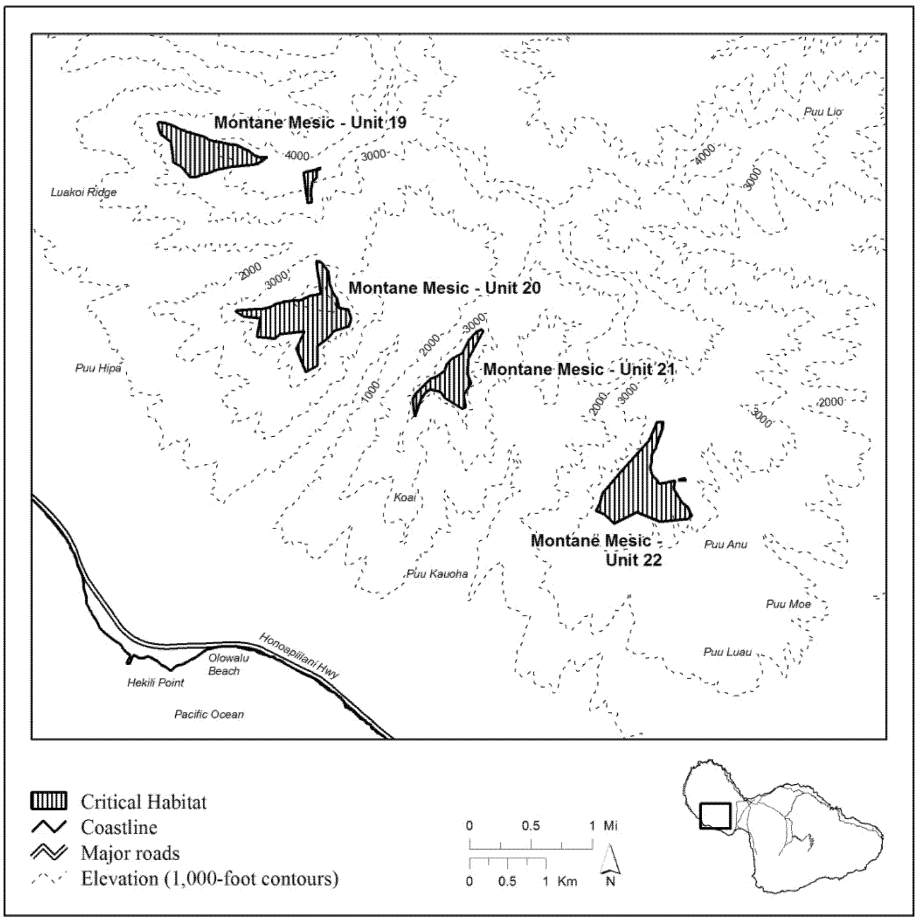
(14) *Palmeria dolei*—Unit 19—Montane Mesic-Maui, Maui County, Hawaii (124 ac, 50 ha); *Palmeria dolei*—Unit 20—Montane Mesic-Maui, Maui County, Hawaii (174 ac, 70 ha); *Palmeria dolei*—Unit 21—Montane Mesic-Maui, Maui County, Hawaii (72 ac, 29 ha); and *Palmeria dolei*—Unit 22—Montane Mesic-Maui, Maui County, Hawaii (170 ac, 69 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei.* Map of *Palmeria dolei*—Unit 19—Montane Mesic-Maui, *Palmeria dolei*—Unit 20—Montane Mesic-Maui, *Palmeria dolei*—Unit 21—Montane Mesic-Maui, and *Palmeria dolei*—Unit 22—Montane Mesic-Maui follows:

Map 11

Palmeria dolei

Unit 19, Unit 20, Unit 21, and Unit 22

Montane Mesic-Maui



(15) [Reserved]

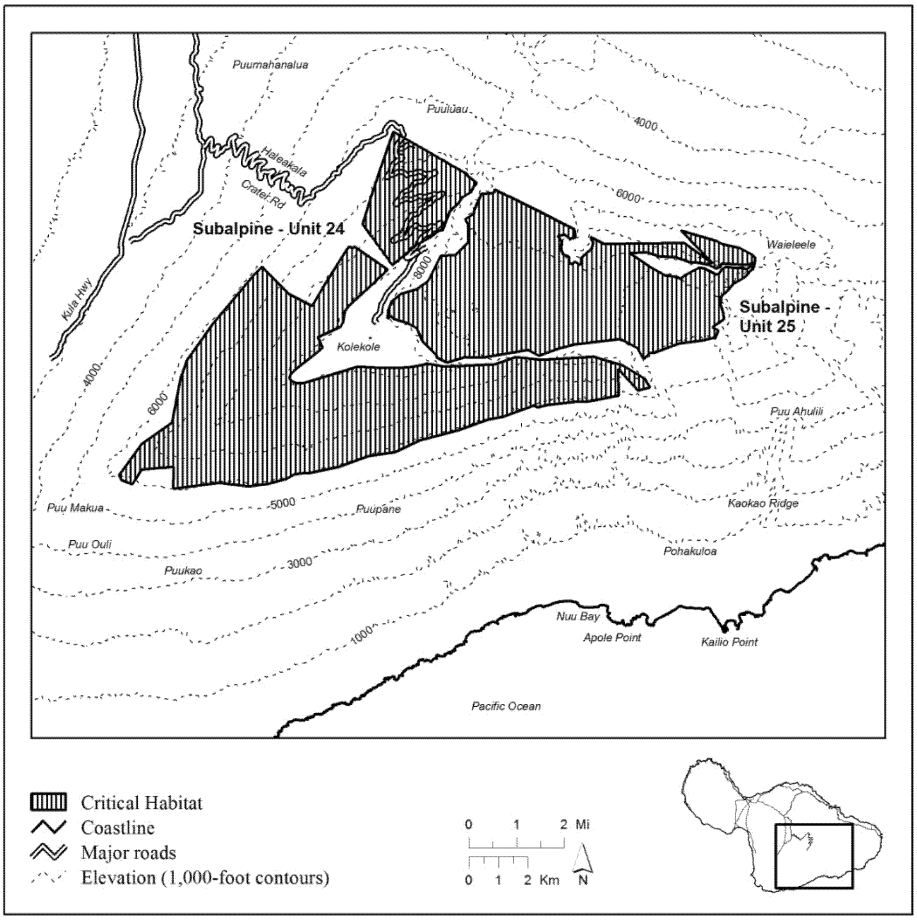
(16) *Palmeria dolei*—Unit 24—Subalpine-Maui, Maui County, Hawaii (15,975 ac, 6,465 ha), and *Palmeria dolei*—Unit 25—Subalpine-Maui, Maui County, Hawaii (9,886 ac, 4,001 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei*. Map of *Palmeria dolei*—Unit 24—Subalpine-Maui and *Palmeria dolei*—Unit 25—Subalpine-Maui follows:

Map 12

Palmeria dolei

Unit 24 and Unit 25

Subalpine-Maui



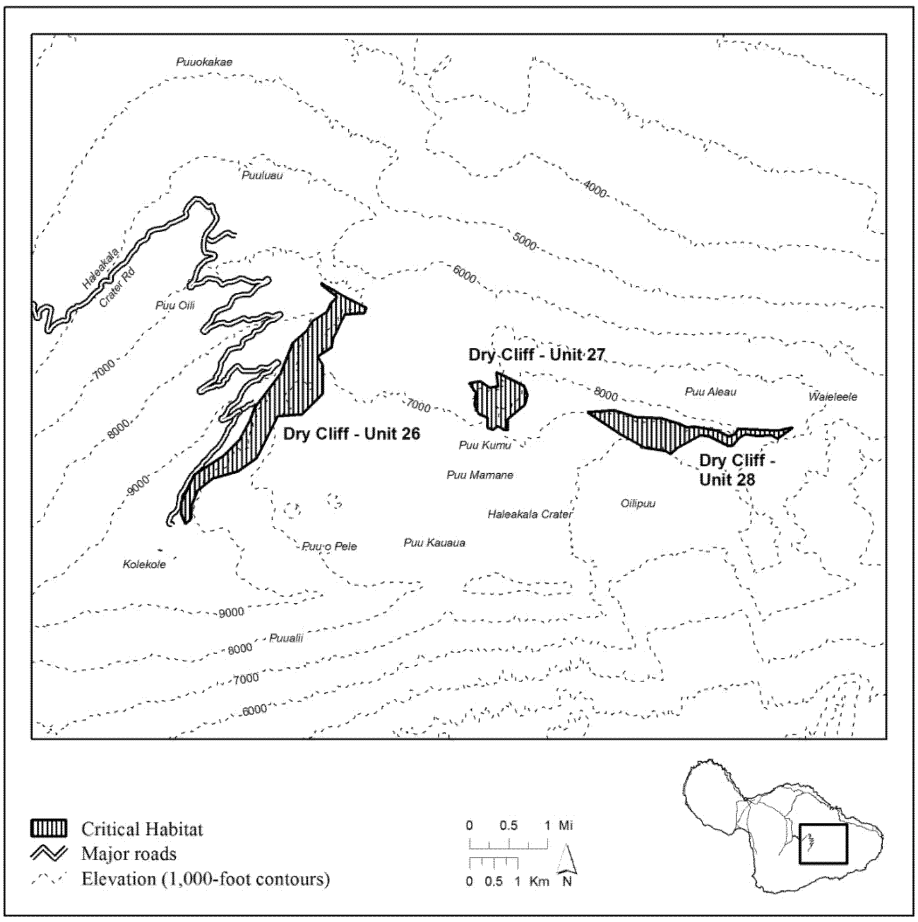
(17) *Palmeria dolei*—Unit 26—Dry Cliff-Maui, Maui County, Hawaii (755 ac, 305 ha); *Palmeria dolei*—Unit 27—Dry Cliff-Maui, Maui County, Hawaii (200 ac, 81 ha); and *Palmeria dolei*—Unit 28—Dry Cliff-Maui, Maui County, Hawaii (315 ac, 127 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei*. Map of *Palmeria dolei*—Unit 26—Dry Cliff-Maui, *Palmeria dolei*—Unit 27—Dry Cliff-Maui, and *Palmeria dolei*—Unit 28—Dry Cliff-Maui follows:

Map 13

Palmeria dolei

Unit 26, Unit 27, and Unit 28

Dry Cliff-Maui



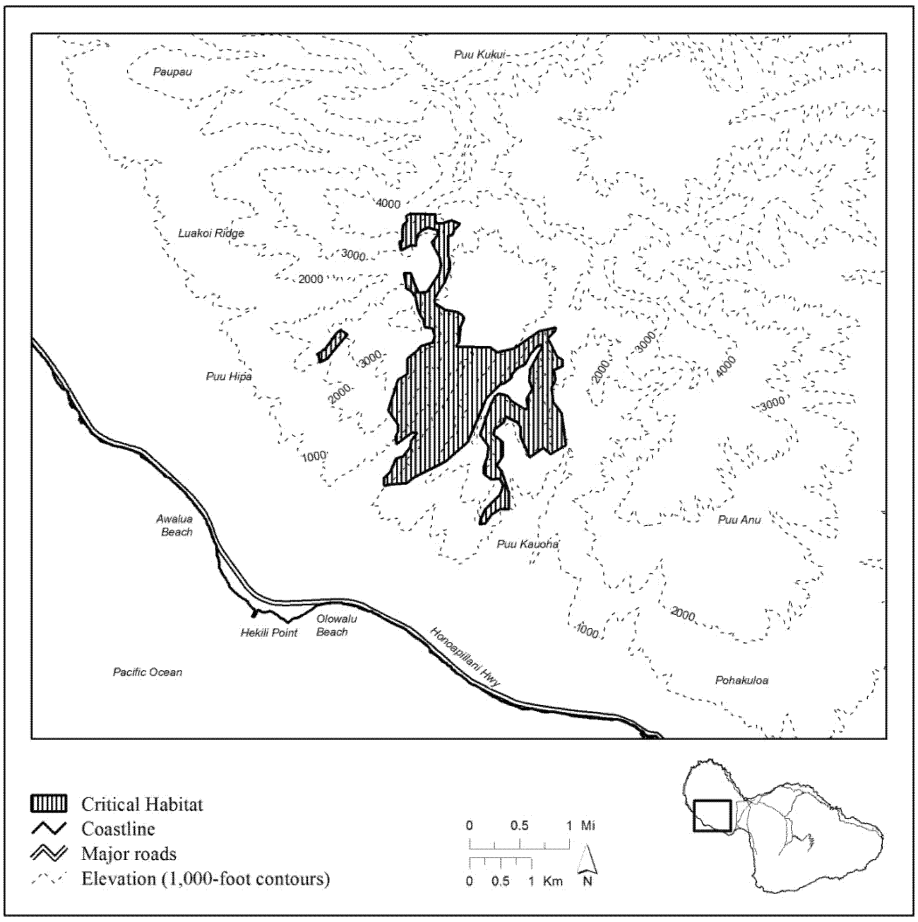
(18) *Palmeria dolei*—Unit 29—Dry Cliff-Maui, Maui County, Hawaii (1,298 ac, 525 ha). This unit is critical habitat for the Akohekohe, *Palmeria dolei.* Map of *Palmeria dolei*—Unit 29—Dry Cliff-Maui follows:

Map 14

Palmeria dolei

Unit 29

Dry Cliff-Maui



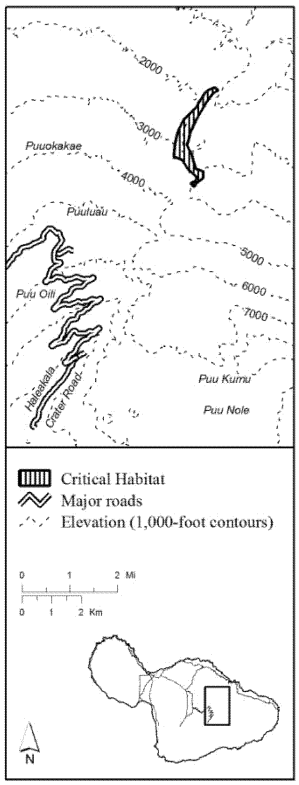
(19) *Palmeria dolei*—Unit 30—Wet Cliff-Maui, Maui County, Hawaii (290 ac, 117 ha). This unit is critical habitat for the Akohekohe, *Palmeria dolei.* Map of *Palmeria dolei*—Unit 30—Wet Cliff-Maui follows:

Map 15

Palmeria dolei

Unit 30

Wet Cliff-Maui



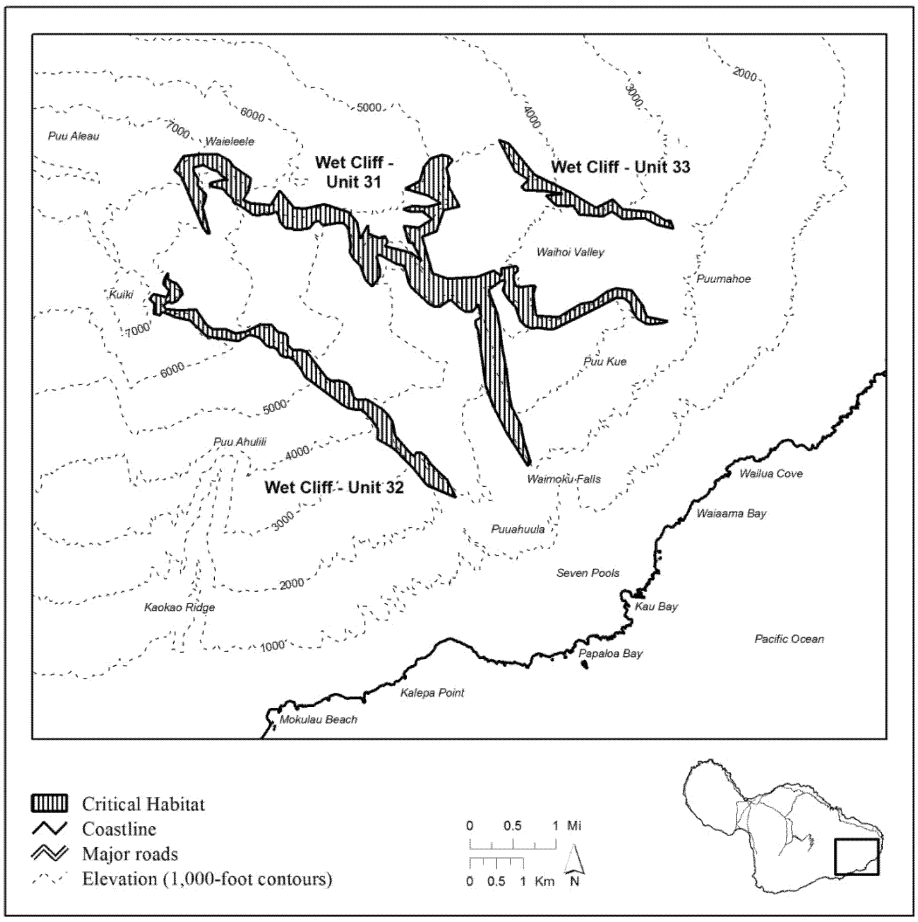
(20) *Palmeria dolei*—Unit 31—Wet Cliff-Maui, Maui County, Hawaii (1,407 ac, 569 ha); *Palmeria dolei*—Unit 32—Wet Cliff-Maui, Maui County, Hawaii (438 ac, 177 ha); and *Palmeria dolei*—Unit 33—Wet Cliff-Maui, Maui County, Hawaii (184 ac, 75 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei*. Map of *Palmeria dolei*—Unit 31—Wet Cliff-Maui, *Palmeria dolei*—Unit 32—Wet Cliff-Maui, and *Palmeria dolei*—Unit 33—Wet Cliff-Maui follows:

Map 16

Palmeria dolei

Unit 31, Unit 32, and Unit 33

Wet Cliff-Maui



(21) [Reserved]

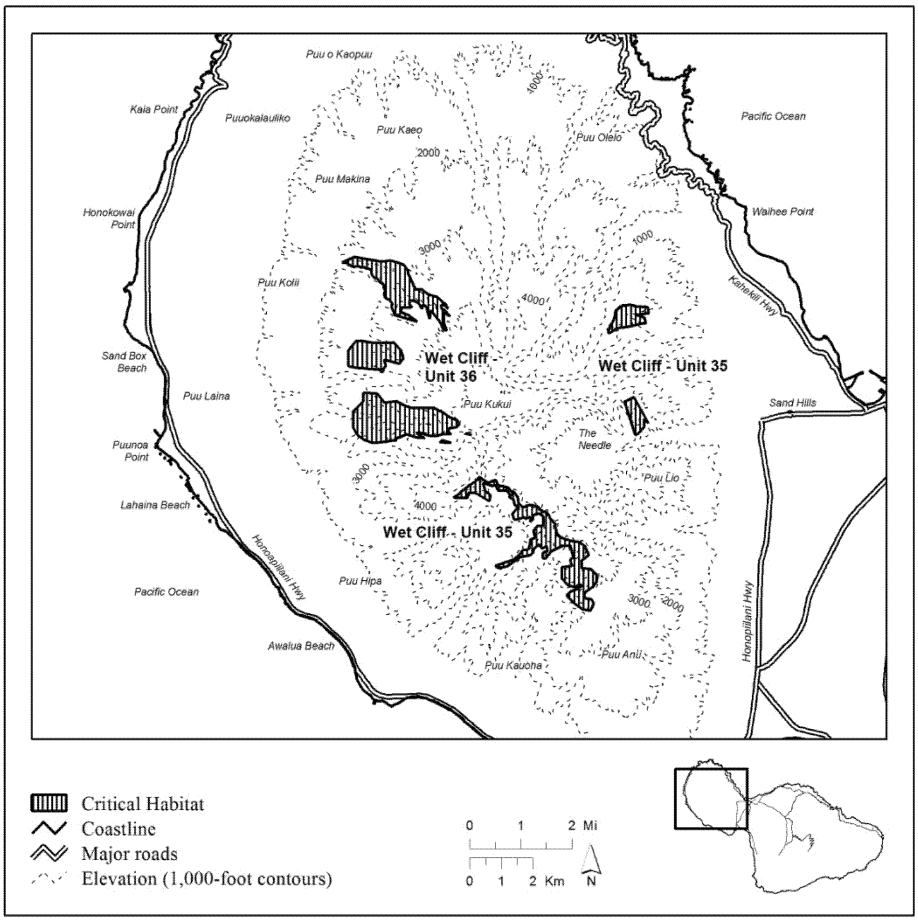
(22) *Palmeria dolei*—Unit 35—Wet Cliff-Maui, Maui County, Hawaii (2,110 ac, 854 ha), and *Palmeria dolei*—Unit 36—Wet Cliff-Maui, Maui County, Hawaii (556 ac, 225 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei*. Map of *Palmeria dolei*—Unit 35—Wet Cliff-Maui, and *Palmeria dolei*—Unit 36—Wet Cliff-Maui follows:

Map 17

Palmeria dolei

Unit 35 and Unit 26

Wet Cliff-Maui



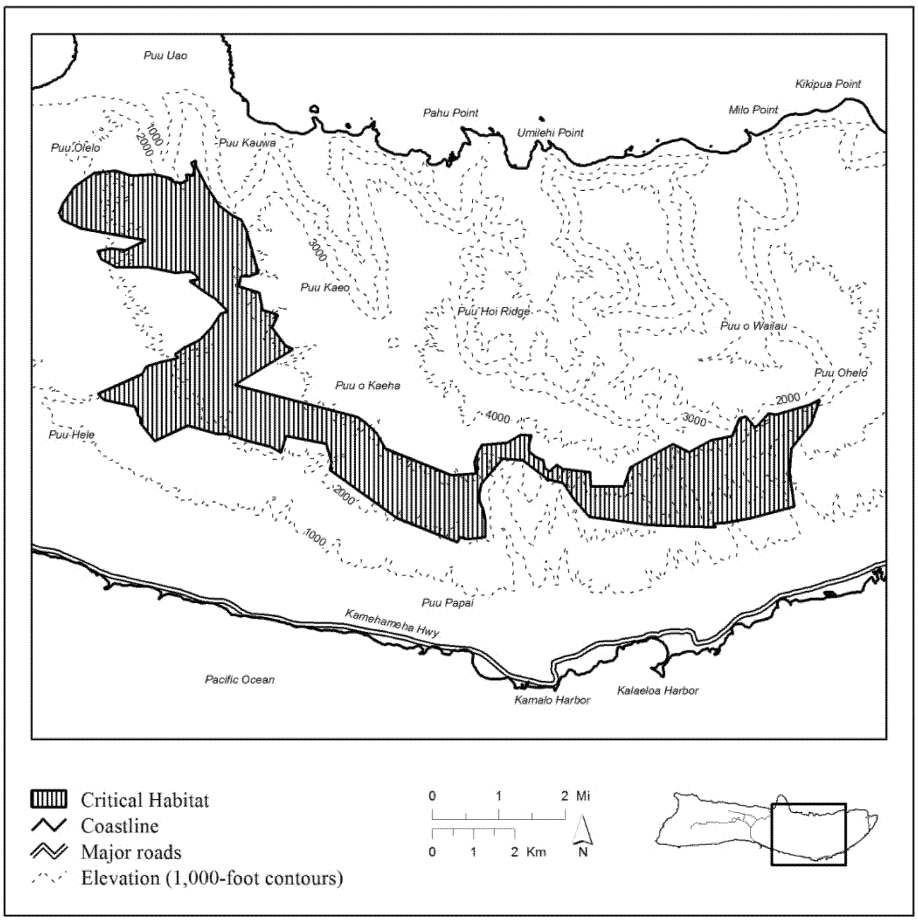
(23) *Palmeria dolei*—Unit 37—Lowland Mesic-Molokai, Maui County, Hawaii (8,770 ac, 3,549 ha). This unit is critical habitat for the Akohekohe, *Palmeria dolei*. Map of *Palmeria dolei*—Unit 37—Lowland Mesic-Molokai follows:

Map 18

Palmeria dolei

Unit 37

Lowland Mesic-Molokai



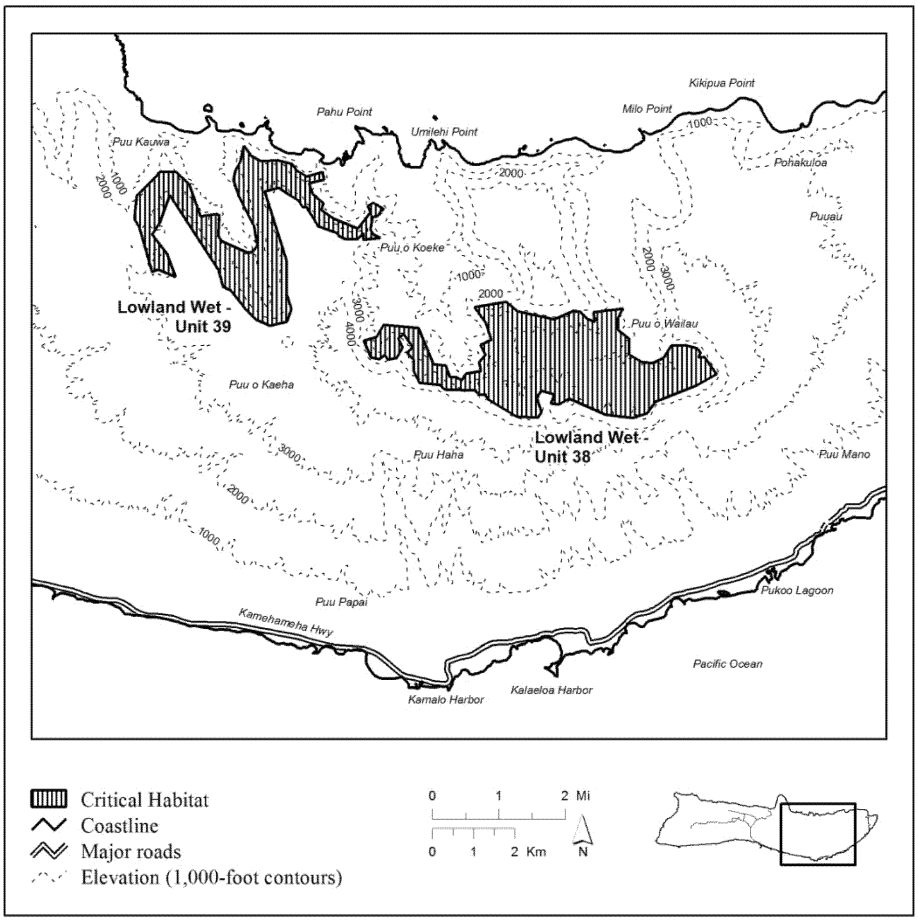
(24) *Palmeria dolei*—Unit 38—Lowland Wet-Molokai, Maui County, Hawaii (2,949 ac, 1,193 ha), and *Palmeria dolei*—Unit 39—Lowland Wet-Molokai, Maui County, Hawaii (1,950 ac, 789 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei*. Map of *Palmeria dolei*—Unit 38—Lowland Wet-Molokai and *Palmeria dolei*—Unit 39—Lowland Wet-Molokai follows:

Map 19

Palmeria dolei

Unit 38 and Unit 39

Lowland Wet-Molokai



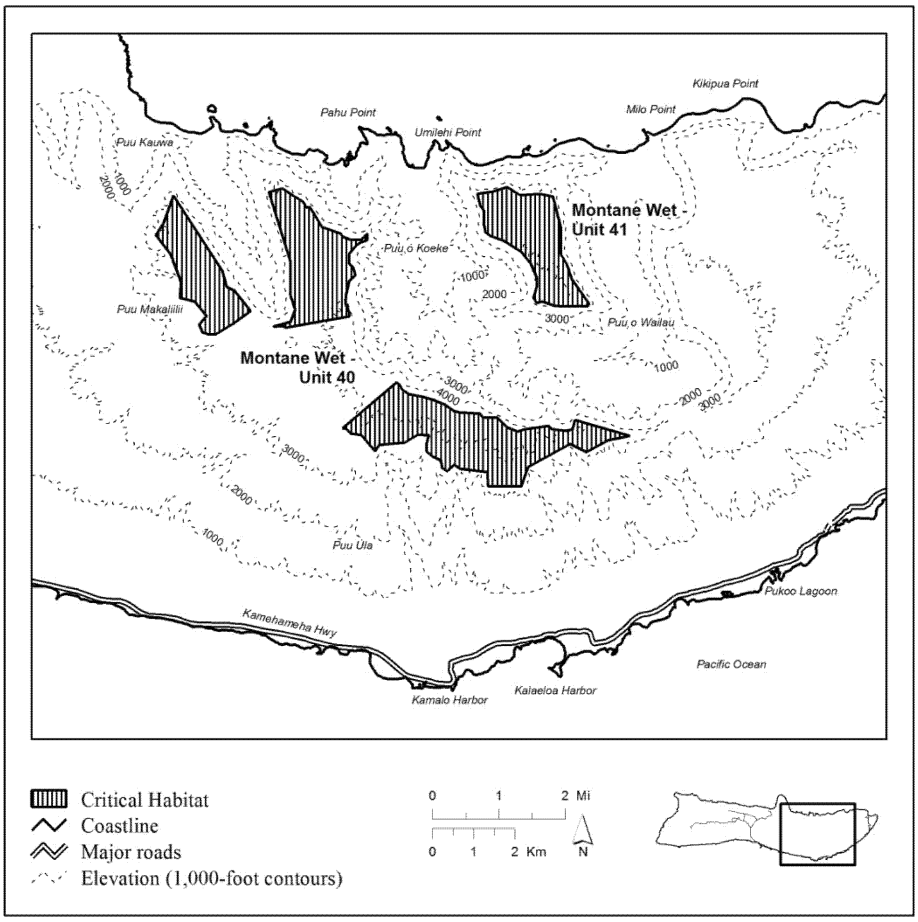
(25) *Palmeria dolei*—Unit 40—Montane Wet-Molokai, Maui County, Hawaii (3,397 ac, 1,375 ha), and *Palmeria dolei*—Unit 41—Montane Wet-Molokai, Maui County, Hawaii (910 ac, 368 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei.* Map of *Palmeria dolei*—Unit 40—Montane Wet-Molokai and *Palmeria dolei*—Unit 41—Montane Wet-Molokai follows:

Map 20

Palmeria dolei

Unit 40 and Unit 41

Montane Wet-Molokai



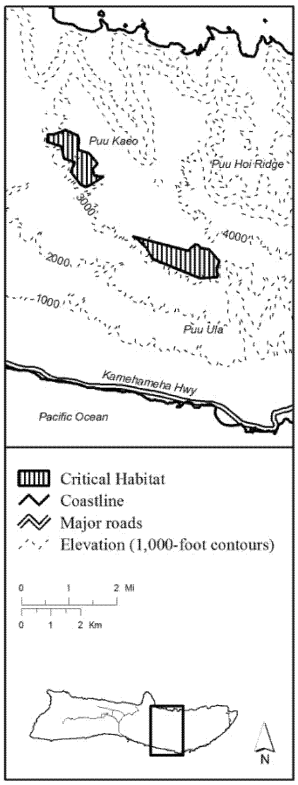
(26) *Palmeria dolei*—Unit 42—Montane Mesic-Molokai, Maui County, Hawaii (816 ac, 330 ha). This unit is critical habitat for the Akohekohe, *Palmeria dolei*. Map of *Palmeria dolei*—Unit 42—Montane Mesic-Molokai follows:

Map 21

Palmeria dolei

Unit 42

Montane Mesic-Molokai



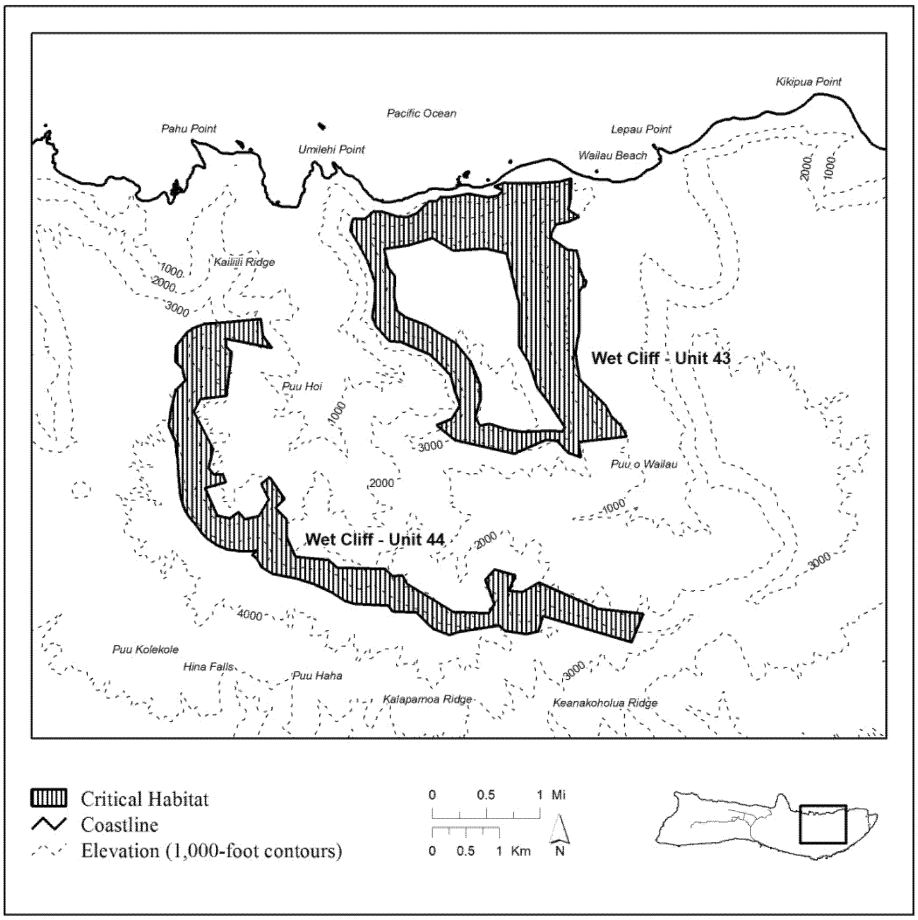
(27) *Palmeria dolei*—Unit 43—Wet Cliff-Molokai, Maui County, Hawaii (1,607 ac, 651 ha), and *Palmeria dolei*—Unit 44—Wet Cliff-Molokai, Maui County, Hawaii (1,268 ac, 513 ha). These units are critical habitat for the Akohekohe, *Palmeria dolei*. Map of *Palmeria dolei*—Unit 43—Wet Cliff-Molokai and *Palmeria dolei*—Unit 44—Wet Cliff-Molokai follows:

Map 22

Palmeria dolei

Unit 43 and Unit 44

Wet Cliff-Molokai



* * * * *

Maui Parrotbill (Kiwikiu) (*Pseudonestor xanthophrys*)

(1) Critical habitat units are depicted for Maui County, Hawaii, on the maps below.

(2) *Primary constituent elements.* (i) In units 1 and 37, the primary constituent elements of critical habitat for the Kiwikiu are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units 2, 3, 4, 5, 6, 7, 8, 9, 38, and 39, the primary constituent elements of critical habitat for the Kiwikiu are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units 10, 11, 12, 13, 14, 15, 16, 40, and 41, the primary constituent elements of critical habitat for the Kiwikiu are:

(A) Elevation: Between 3,300 and 6,500 ft (1,000 and 2,000 m)

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iv) In units 18, 19, 20, 21, 22, and 42, the primary constituent elements of critical habitat for the Kiwikiu are:

(A) Elevation: Between 3,300 and 6,500 ft (1,000 and 2,000 m).

(B) Annual precipitation: Between 50 and 75 in (130 and 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(v) In units 24 and 25, the primary constituent elements of critical habitat for the Kiwikiu are:

(A) Elevation: Between 6,500 and 9,800 ft (2,000 and 3,000 m).

(B) Annual precipitation: Between 15 and 40 in (38 and 100 cm).

(C) Substrate: Dry ash; sandy loam; rocky, undeveloped soils; weathered lava.

(D) Canopy: *Chamaesyce, Chenopodium, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Coprosma, Dodonaea, Dubautia, Geranium, Leptecophylla, Vaccinium, Wikstroemia.*

(F) Understory: Ferns, *Bidens, Carex, Deschampsia, Eragrostis, Gahnia, Luzula, Panicum, Pseudognaphalium, Sicyos, Tetramolopium.*

(vi) In units 26, 27, 28, and 29, the primary constituent elements of critical habitat for the Kiwikiu are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

(vii) In units 30, 31, 32, 33, 35, 36, 43, and 44, the primary constituent elements of critical habitat for the Kiwikiu are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

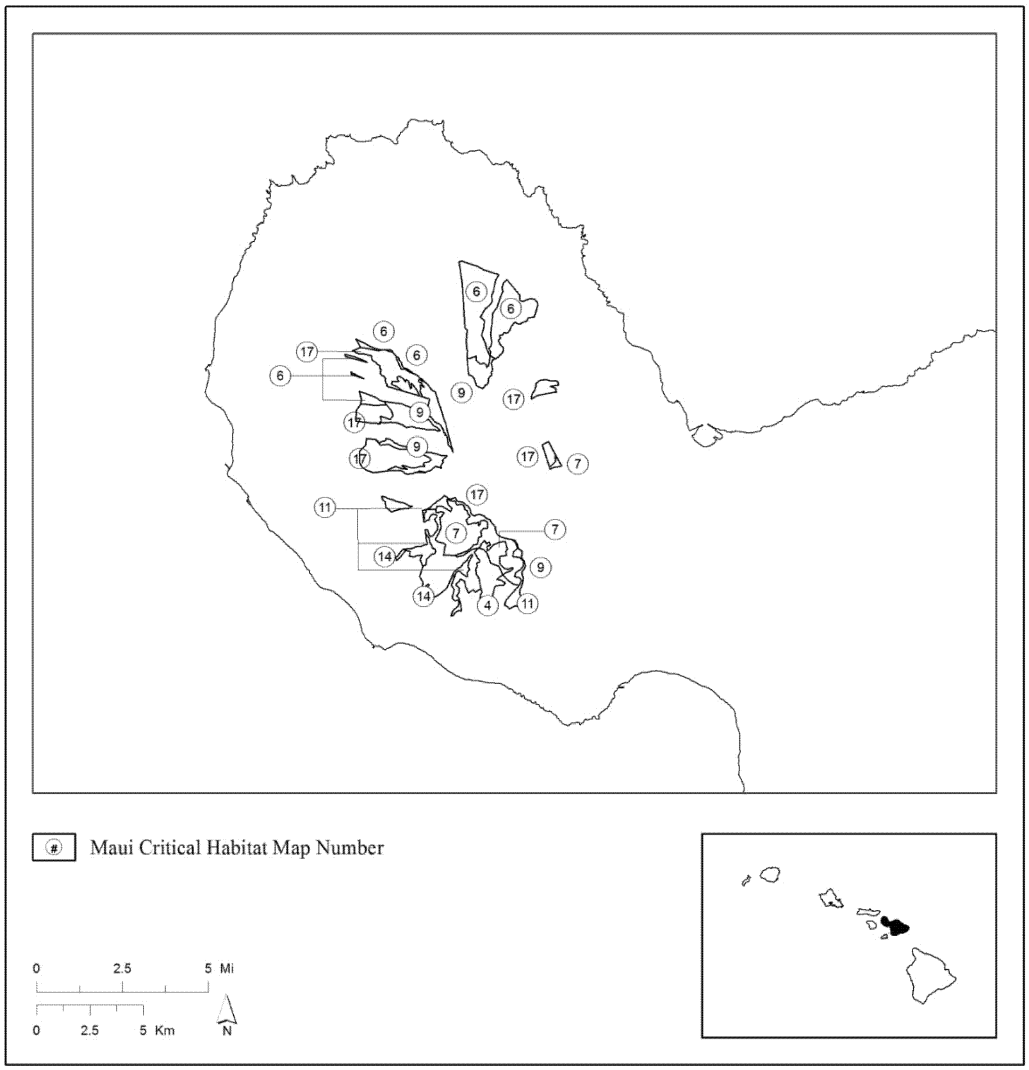
(3) Existing manmade features and structures, such as buildings, roads, railroads, airports, runways, other paved areas, lawns, and other urban landscaped areas, do not contain one or more of the physical or biological features. Federal actions limited to those areas, therefore, would not trigger a consultation under section 7 of the Act unless they may affect the species or physical or biological features in adjacent critical habitat.

(4) *Critical habitat maps.* Maps were created in GIS, with coordinates in UTM Zone 4, units in meters using North American datum of 1983 (NAD 83).

(5) Index maps of critical habitat units for the Kiwikiu follow:

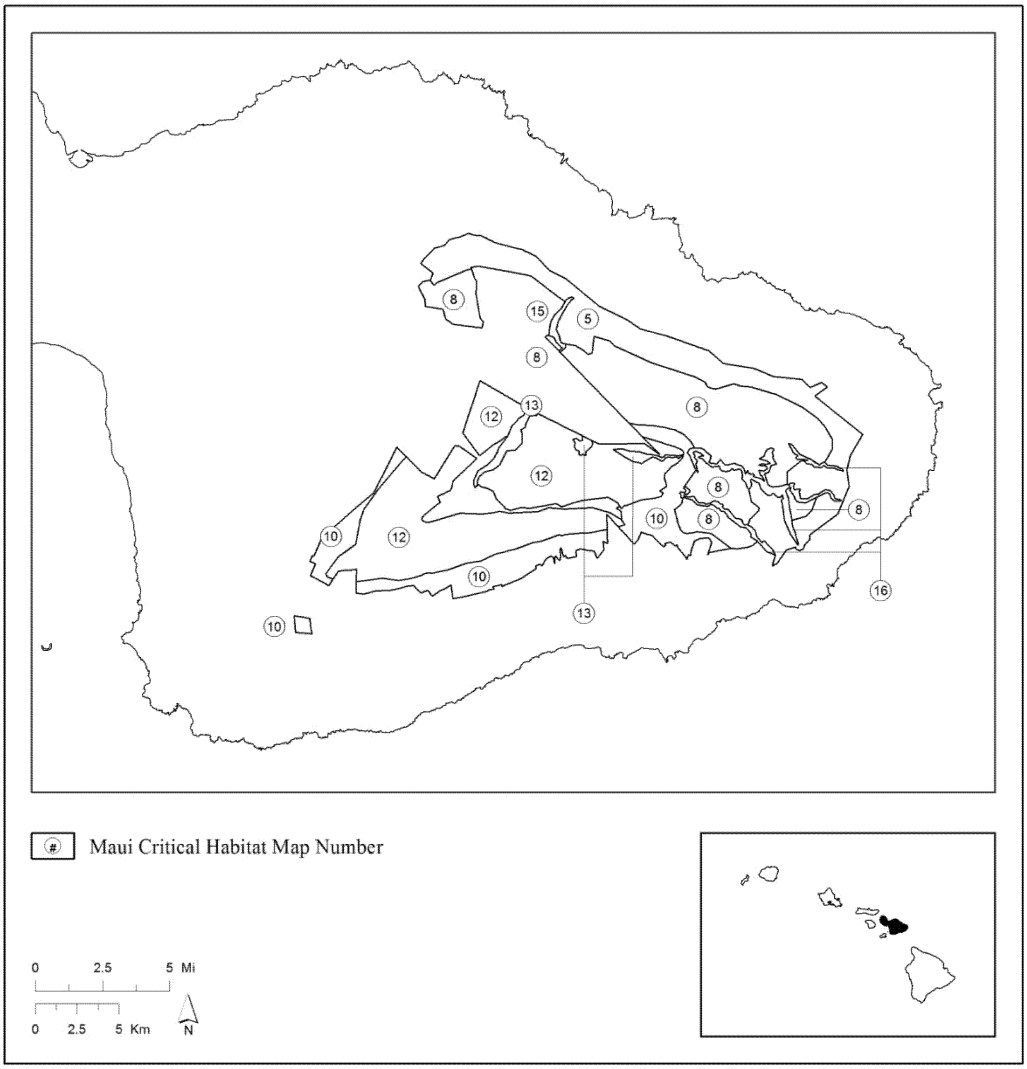
Map 1

Pseudonestor xanthophrys—Index Map 1—West Maui



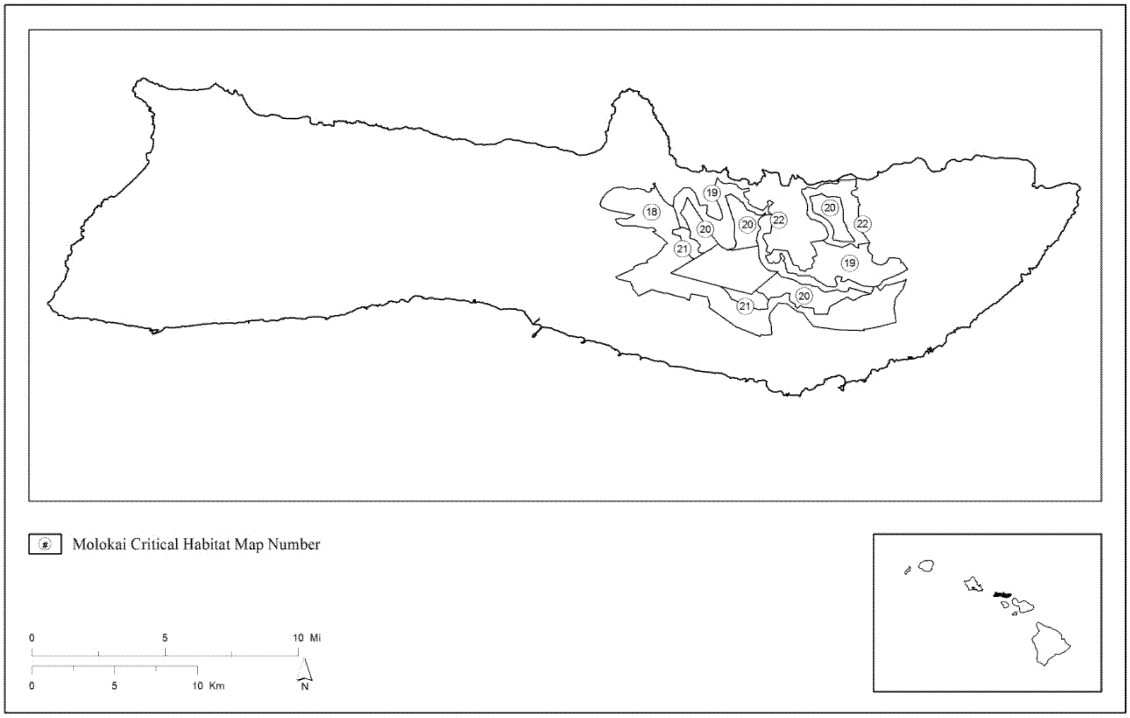
Map 2

Pseudonestor xanthophrys—Index Map 2—East Maui



Map 3

Pseudonestor xanthophrys—Index Map 3—Molokai



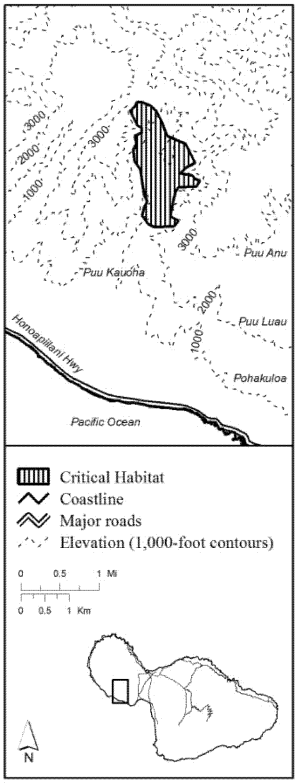
(6) *Pseudonestor xanthophrys*—Unit 1—Lowland Mesic-Maui, Maui County, Hawaii (477 ac; 193 ha). This unit is critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 1—Lowland Mesic-Maui follows:

Map 4

Pseudonestor xanthophrys

Unit 1

Lowland Mesic-Maui



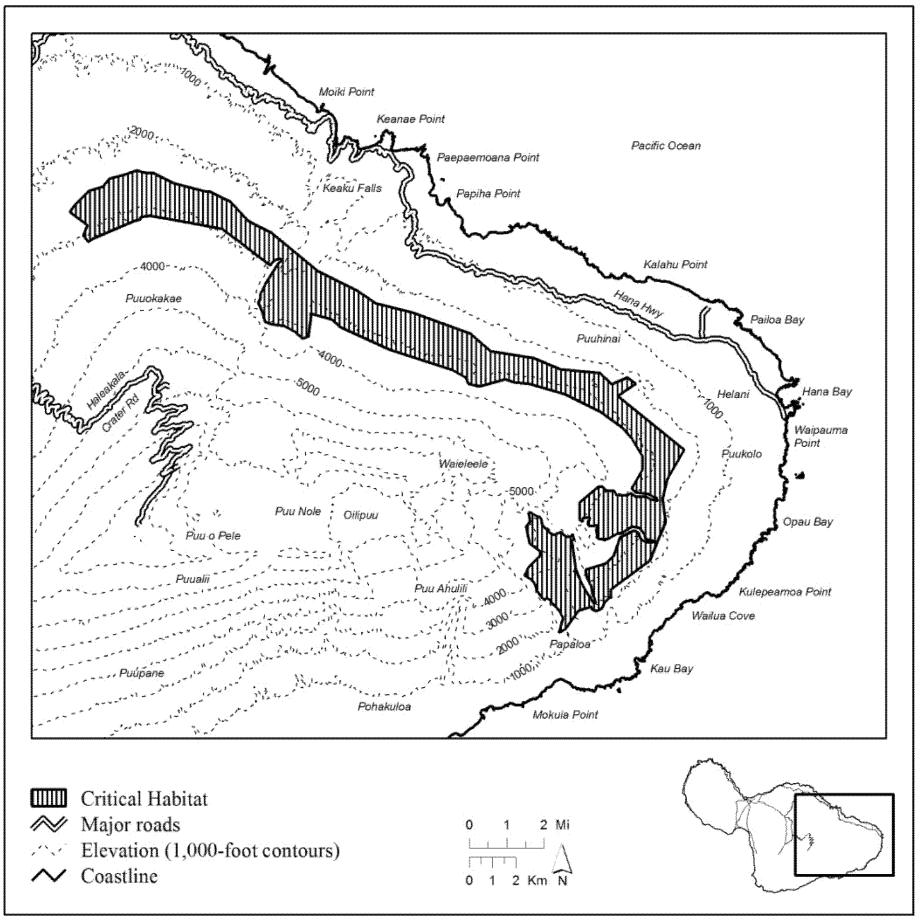
(7) *Pseudonestor xanthophrys*—Unit 2—Lowland Wet-Maui, Maui County, Hawaii (16,079 ac, 6,507 ha). This unit is critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 2—Lowland Wet-Maui follows:

Map 5

Pseudonestor xanthophrys

Unit 2

Lowland Wet-Maui



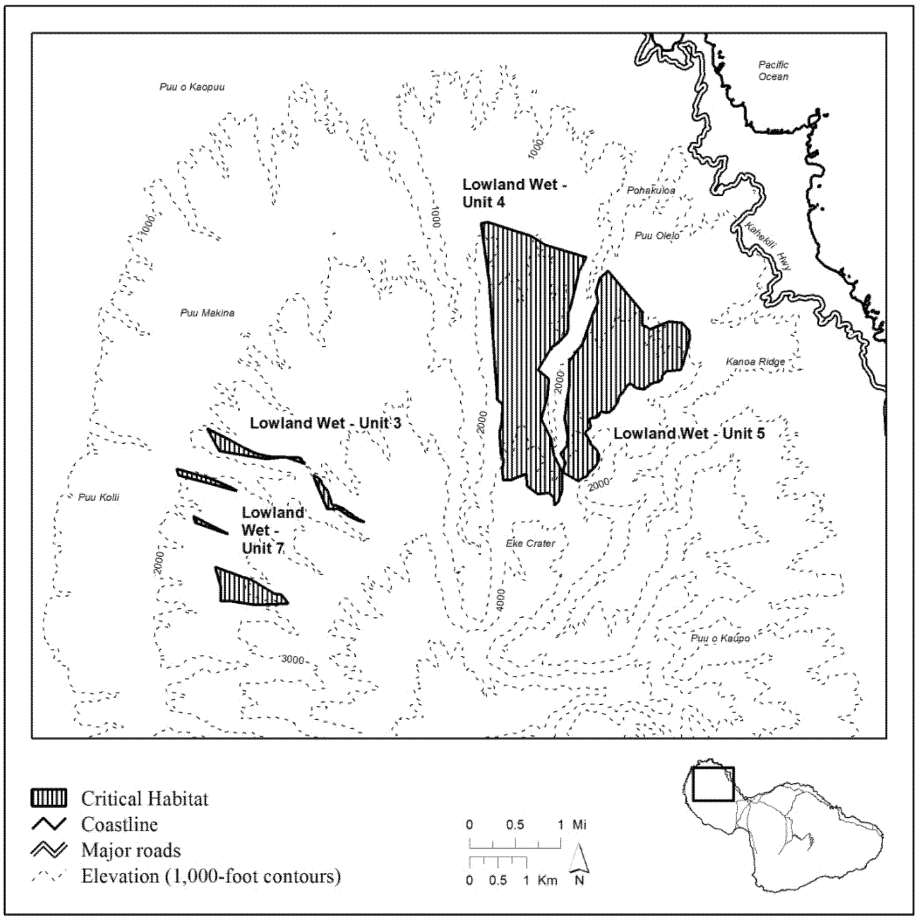
(8) *Pseudonestor xanthophrys*—Unit 3—Lowland Wet-Maui, Maui County, Hawaii (65 ac, 26 ha); *Pseudonestor xanthophrys*—Unit 4—Lowland Wet-Maui, Maui County, Hawaii (1,247 ac, 505 ha); *Pseudonestor xanthophrys*—Unit 5—Lowland Wet-Maui, Maui County, Hawaii (864 ac, 350 ha); and *Pseudonestor xanthophrys*—Unit 7—Lowland Wet-Maui, Maui County, Hawaii (136 ac, 55 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 3—Lowland Wet-Maui, *Pseudonestor xanthophrys*—Unit 4—Lowland Wet 4-Maui, *Pseudonestor xanthophrys*—Unit 5—Lowland Wet-Maui, and *Pseudonestor xanthophrys*—Unit 7—Lowland Wet-Maui follows:

Map 6

Pseudonestor xanthophrys

Unit 3, Unit 4, Unit 5, and Unit 7

Lowland Wet-Maui



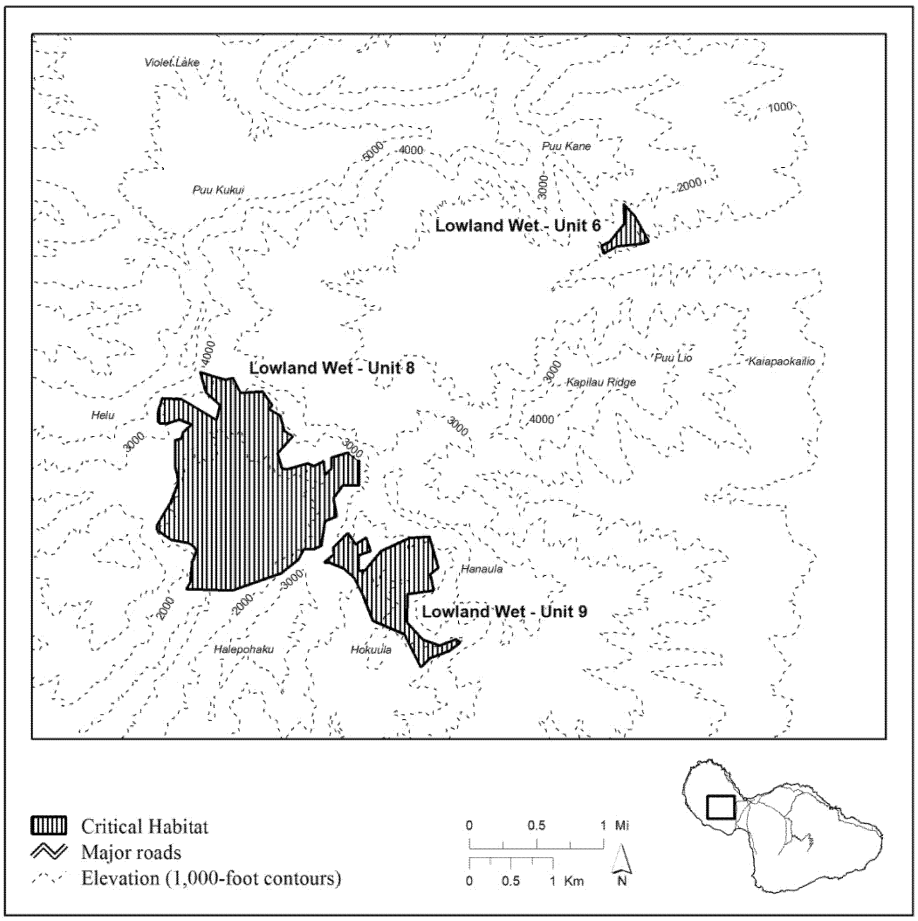
(9) *Pseudonestor xanthophrys*—Unit 6—Lowland Wet-Maui, Maui County, Hawaii (30 ac, 12 ha); *Pseudonestor xanthophrys*—Unit 8—Lowland Wet-Maui, Maui County, Hawaii (898 ac, 364 ha); and *Pseudonestor xanthophrys*—Unit 9—Lowland Wet-Maui, Maui County, Hawaii (230 ac, 93 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 6—Lowland Wet-Maui, *Pseudonestor xanthophrys*—Unit 8—Lowland Wet-Maui, and *Pseudonestor xanthophrys*—Unit 9—Lowland Wet-Maui follows:

Map 7

Pseudonestor xanthophrys

Unit 6, Unit 8, and Unit 9

Lowland Wet-Maui



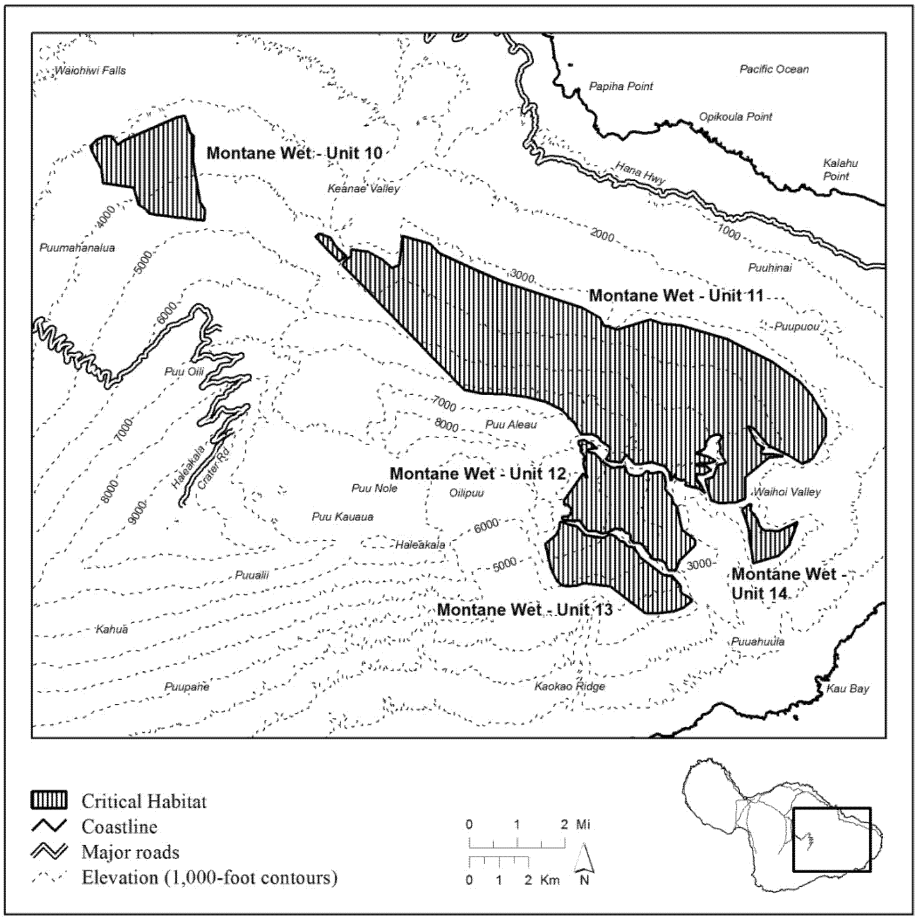
(10) *Pseudonestor xanthophrys*—Unit 10—Montane Wet-Maui, Maui County, Hawaii (2,110 ac, 854 ha); *Pseudonestor xanthophrys*—Unit 11—Montane Wet-Maui, Maui County, Hawaii (14,583 ac, 5,901 ha); *Pseudonestor xanthophrys*—Unit 12—Montane Wet-Maui, Maui County, Hawaii (2,228 ac, 902 ha); *Pseudonestor xanthophrys*—Unit 13—Montane Wet-Maui, Maui County, Hawaii (1,833 ac, 742 ha); and *Pseudonestor xanthophrys*—Unit 14—Montane Wet-Maui, Maui County, Hawaii (387 ac, 156 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 10—Montane Wet-Maui, *Pseudonestor xanthophrys*—Unit 11—Montane Wet-Maui, *Pseudonestor xanthophrys*—Unit 12—Montane Wet-Maui, *Pseudonestor xanthophrys*—Unit 13—Montane Wet-Maui, and *Pseudonestor xanthophrys*—Unit 14—Montane Wet-Maui follows:

Map 8

Pseudonestor xanthophrys

Unit 10, Unit 11, Unit 12, Unit 13, and Unit 14

Montane Wet- Maui



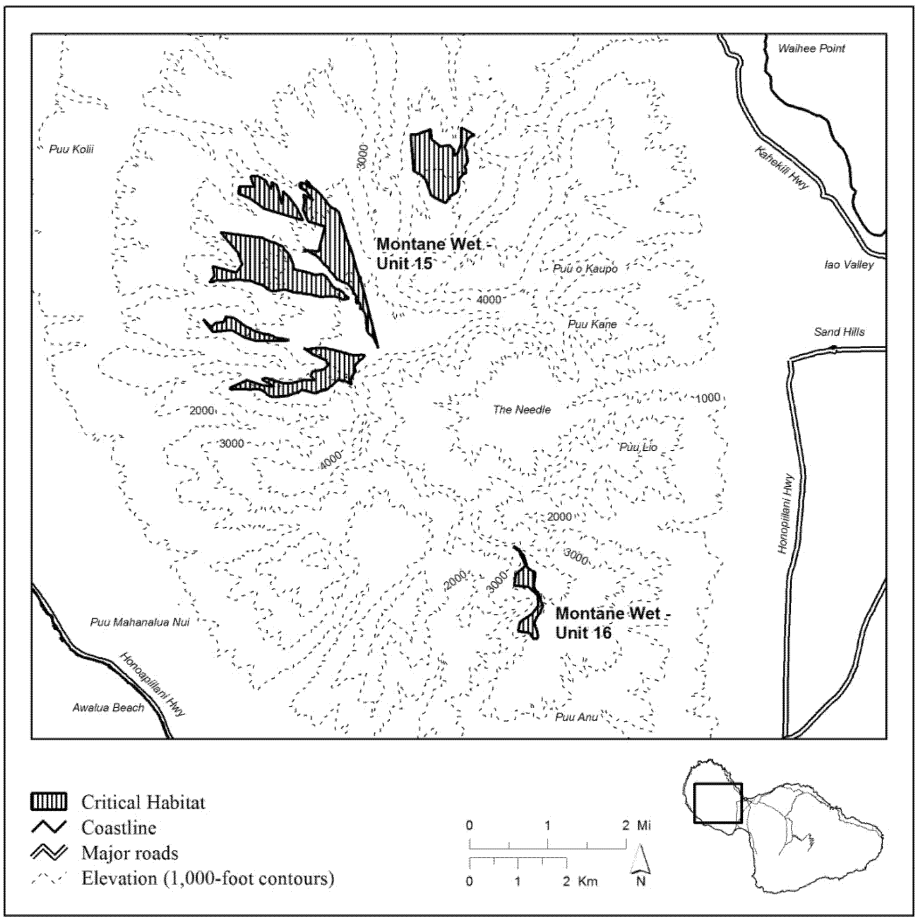
(11) *Pseudonestor xanthophrys*—Unit 15—Montane Wet-Maui, Maui County, Hawaii (1,399 ac, 566 ha), and *Pseudonestor xanthophrys*—Unit 16—Montane Wet-Maui, Maui County, Hawaii (80 ac, 32 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 15—Montane Wet-Maui, and *Pseudonestor xanthophrys*—Unit 16—Montane Wet-Maui follows:

Map 9

Pseudonestor xanthophrys

Unit 15 and Unit 16

Montane Wet-Maui



(12) [Reserved]

(13) *Pseudonestor xanthophrys*—Unit 18—Montane Mesic-Maui, Maui County, Hawaii (10,972 ac, 4,440 ha). This unit is critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.*

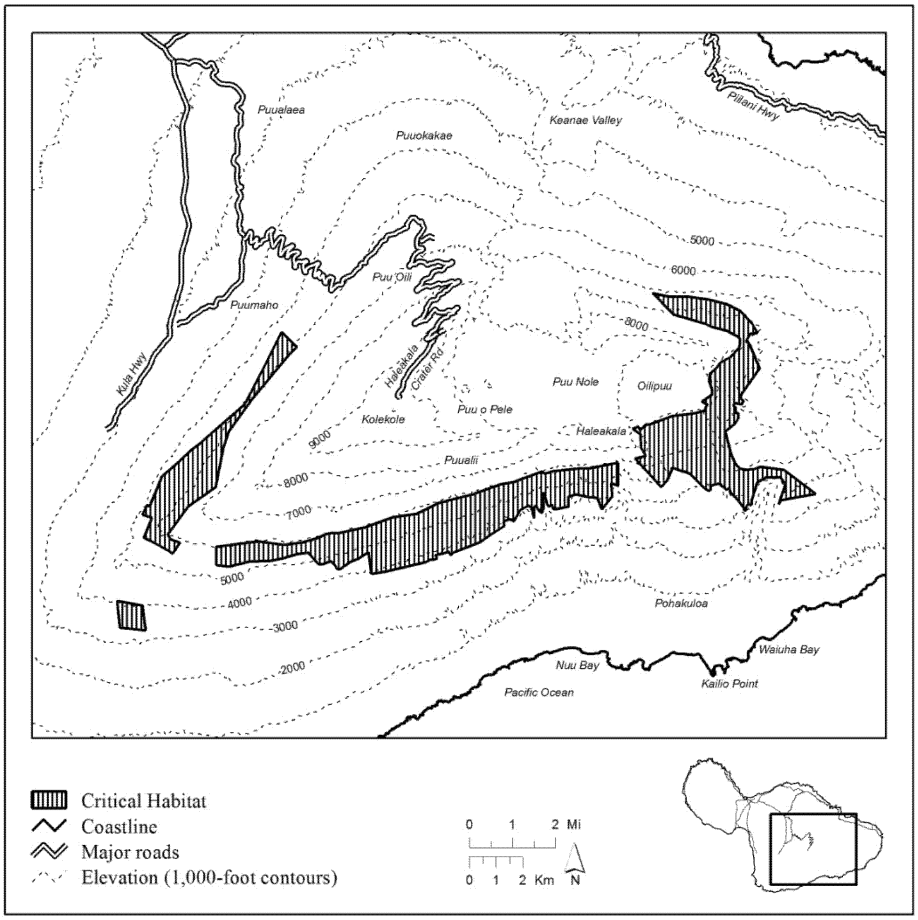
Map of *Pseudonestor xanthophrys*—Unit 18—Montane Mesic-Maui follows:

Map 10

Pseudonestor xanthophrys

Unit 18

Montane Mesic-Maui



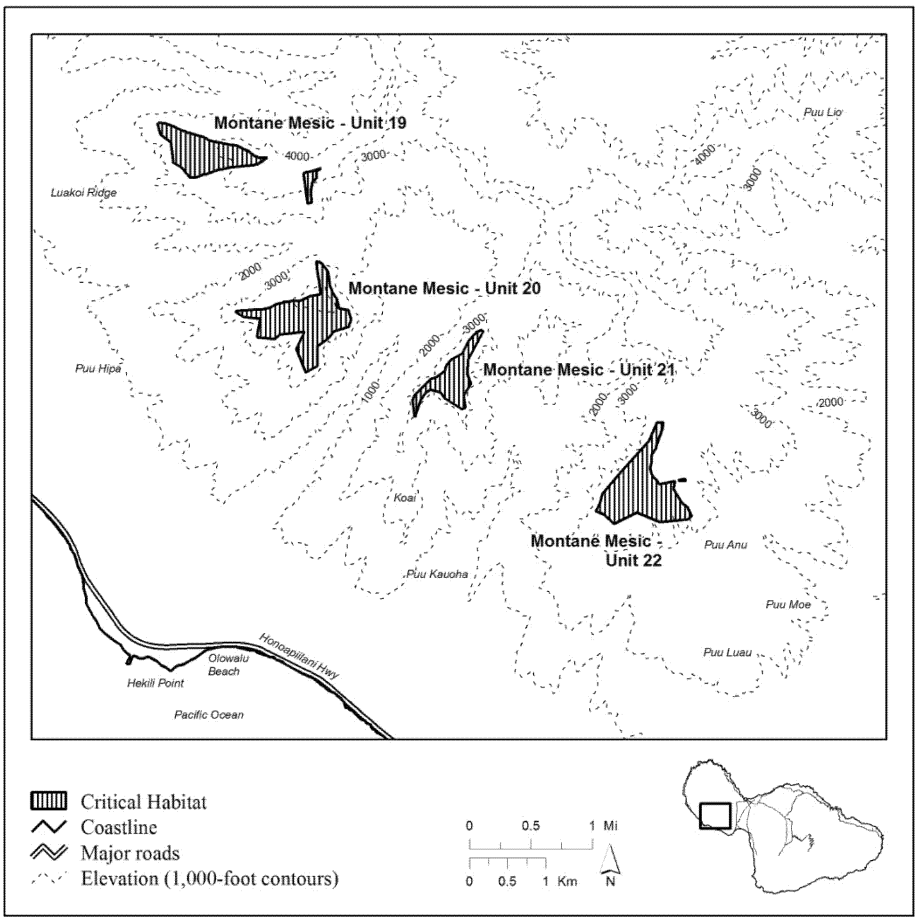
(14) *Pseudonestor xanthophrys*—Unit 19—Montane Mesic-Maui, Maui County, Hawaii (124 ac, 50 ha); *Pseudonestor xanthophrys*—Unit 20—Montane Mesic-Maui, Maui County, Hawaii (174 ac, 70 ha); *Pseudonestor xanthophrys*—Unit 21—Montane Mesic-Maui, Maui County, Hawaii (72 ac, 29 ha); and *Pseudonestor xanthophrys*—Unit 22—Montane Mesic-Maui, Maui County, Hawaii (170 ac, 69 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 19—Montane Mesic-Maui, *Pseudonestor xanthophrys*—Unit 20—Montane Mesic-Maui, *Pseudonestor xanthophrys*—Unit 21—Montane Mesic, and *Pseudonestor xanthophrys*—Unit 22—Montane Mesic-Maui follows:

Map 11

Pseudonestor xanthophrys

Unit 19, Unit 20, Unit 21, and Unit 22

Montane Mesic-Maui



(15) [Reserved]

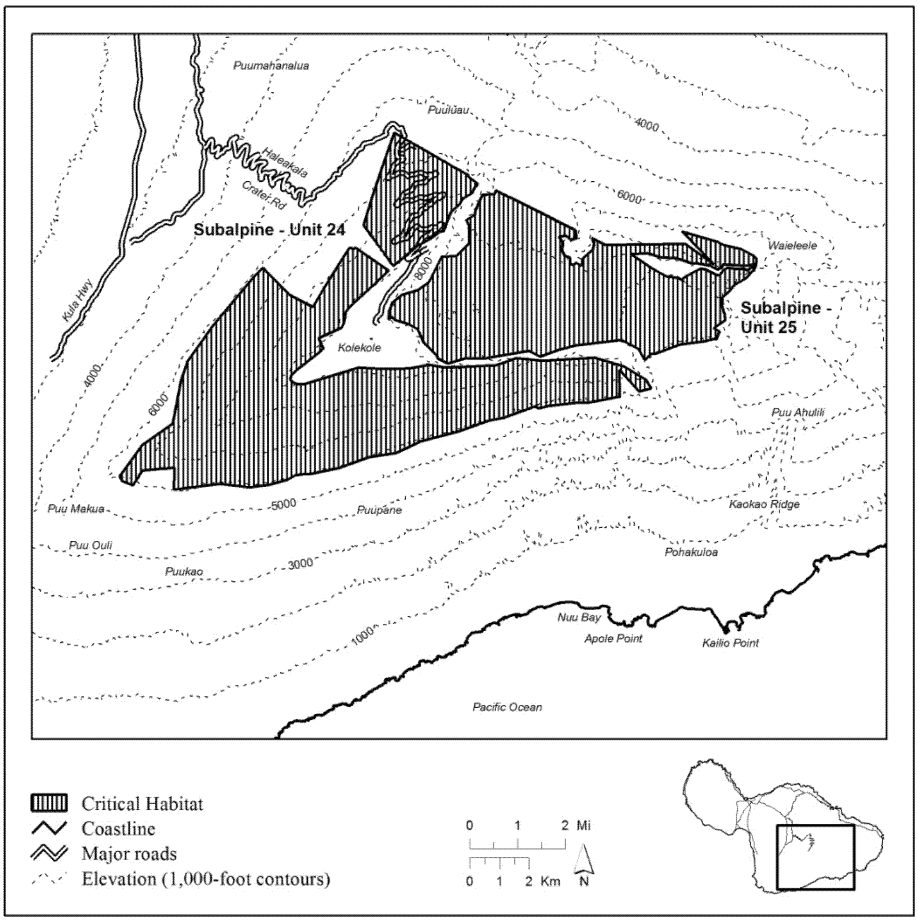
(16) *Pseudonestor xanthophrys*—Unit 24—Subalpine-Maui, Maui County, Hawaii (15,975 ac, 6,465 ha), and *Pseudonestor xanthophrys*—Unit 25—Subalpine-Maui, Maui County, Hawaii (9,886 ac, 4,001 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 24—Subalpine-Maui and *Pseudonestor xanthophrys*—Unit 25—Subalpine-Maui follows:

Map 12

Pseudonestor xanthophrys

Unit 24 and Unit 25

Subalpine-Maui



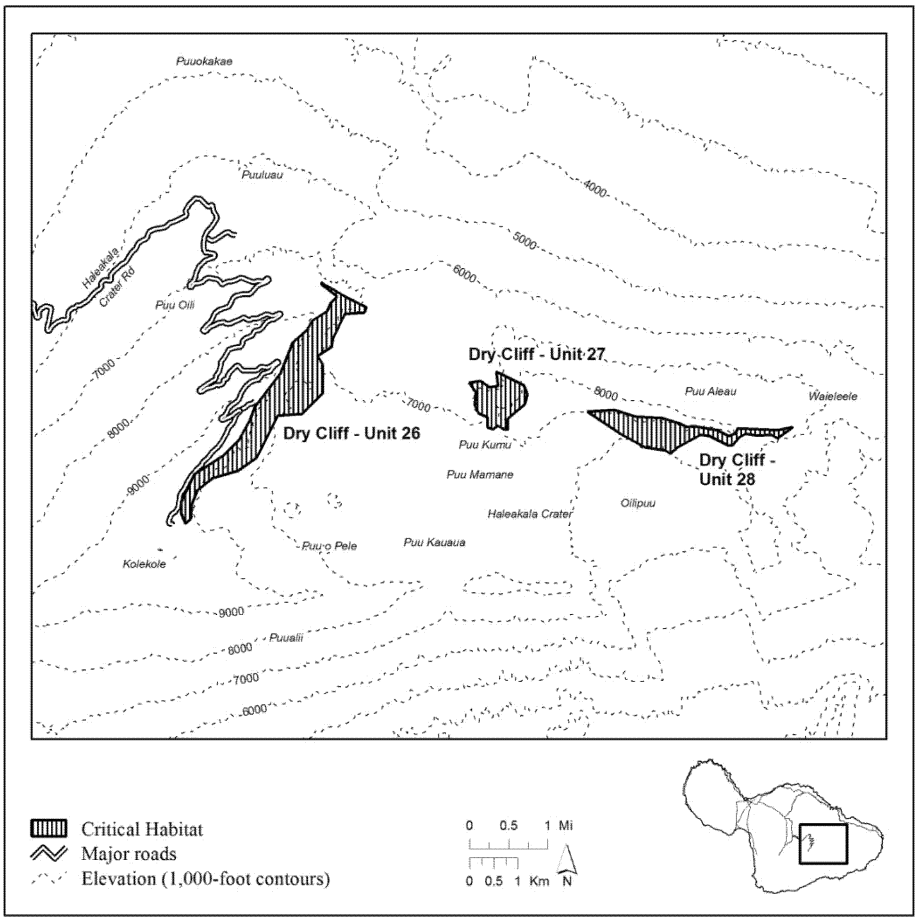
(17) *Pseudonestor xanthophrys*—Unit 26—Dry Cliff-Maui, Maui County, Hawaii (755 ac, 305 ha); *Pseudonestor xanthophrys*—Unit 27—Dry Cliff-Maui, Maui County, Hawaii (200 ac, 81 ha); and *Pseudonestor xanthophrys*—Unit 28—Dry Cliff-Maui, Maui County, Hawaii (315 ac, 127 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 26—Dry Cliff-Maui, *Pseudonestor xanthophrys*—Unit 27—Dry Cliff-Maui, and *Pseudonestor xanthophrys*—Unit 28—Dry Cliff-Maui follows:

Map 13

Pseudonestor xanthophrys

Unit 26, Unit 27, and Unit 28

Dry Cliff-Maui



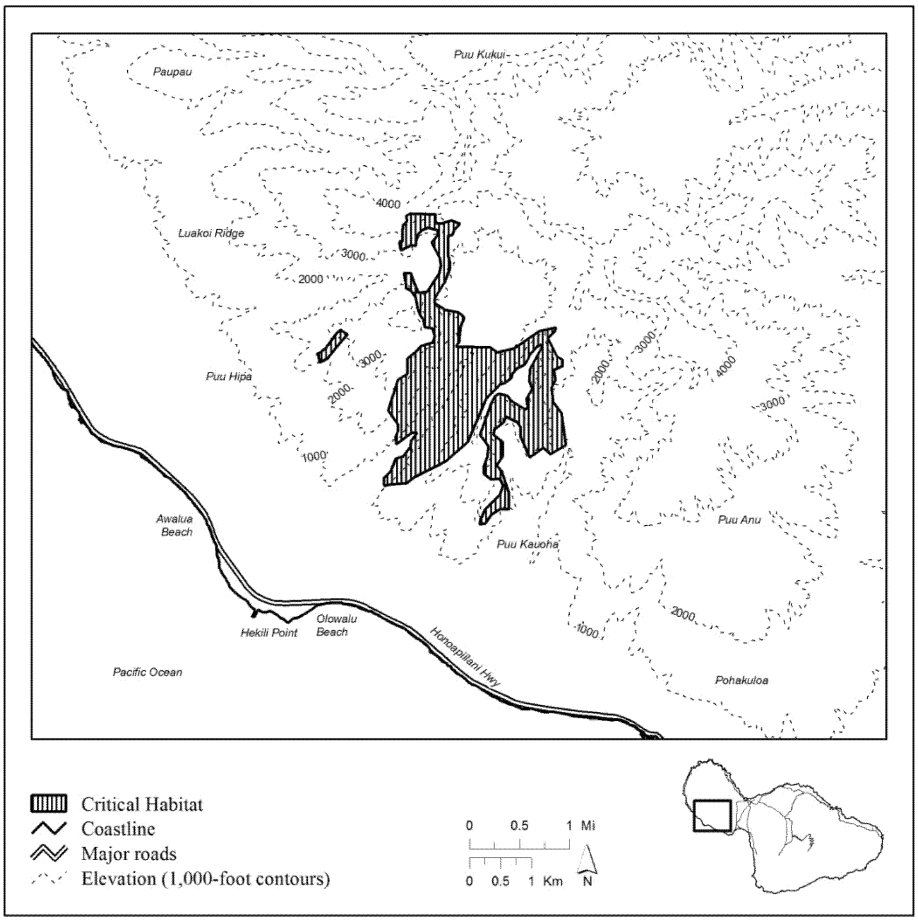
(18) *Pseudonestor xanthophrys*—Unit 29—Dry Cliff-Maui, Maui County, Hawaii (1,298 ac, 525 ha). This unit is critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 29—Dry Cliff-Maui follows:

Map 14

Pseudonestor xanthophrys

Unit 29

Dry Cliff-Maui



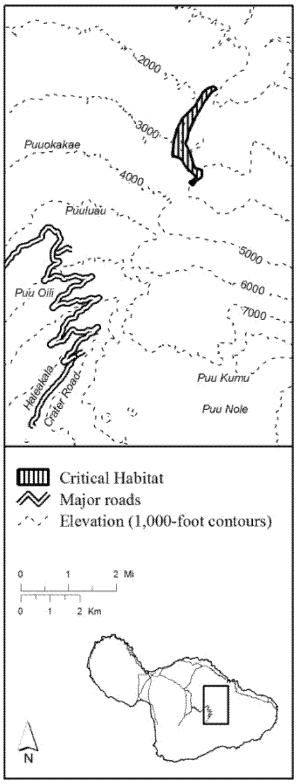
(19) *Pseudonestor xanthophrys*—Unit 30—Wet Cliff-Maui, Maui County, Hawaii (290 ac, 117 ha). This unit is critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 30—Wet Cliff-Maui follows:

Map 15

Pseudonestor xanthophrys

Unit 30

Wet Cliff-Maui



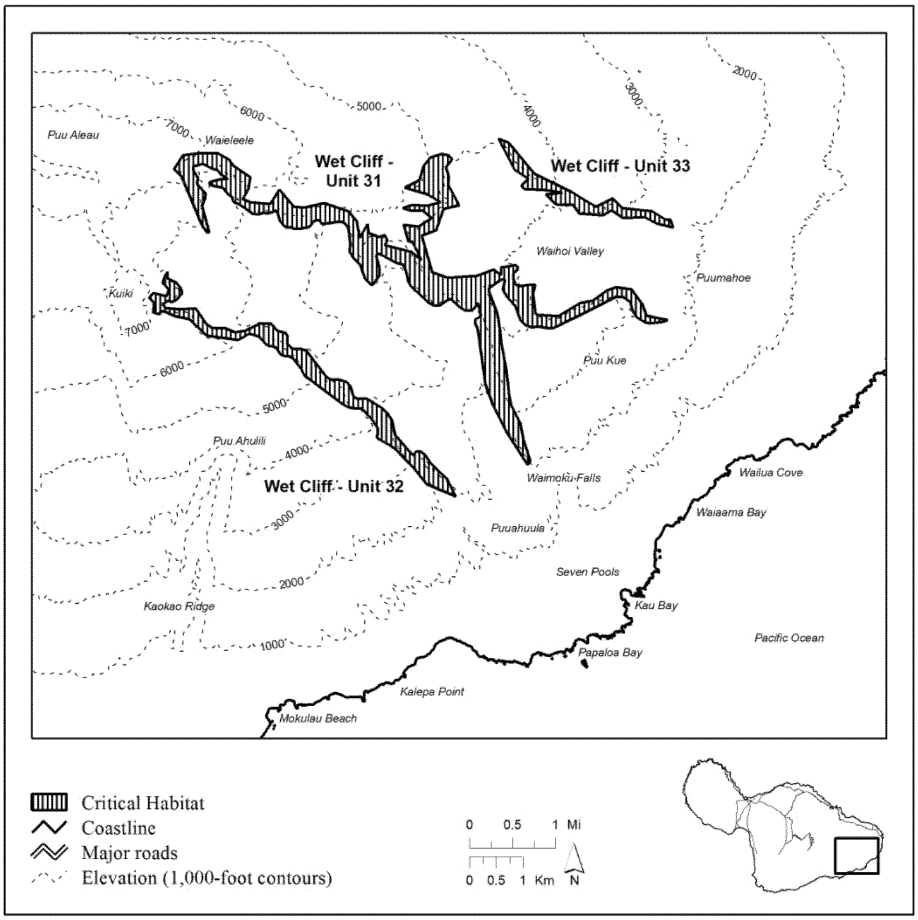
(20) *Pseudonestor xanthophrys*—Unit 31—Wet Cliff-Maui, Maui County, Hawaii (1,407 ac, 569 ha); *Pseudonestor xanthophrys*—Unit 32—Wet Cliff-Maui, Maui County, Hawaii (438 ac, 177 ha); and *Pseudonestor xanthophrys*—Unit 33—Wet Cliff-Maui, Maui County, Hawaii (184 ac, 75 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 31—Wet Cliff-Maui, *Pseudonestor xanthophrys*—Unit 32—Wet Cliff-Maui, and *Pseudonestor xanthophrys*—Unit 33—Wet Cliff-Maui follows:

Map 16

Pseudonestor xanthophrys

Unit 31, Unit 32, and Unit 33

Wet Cliff-Maui



(21) [Reserved]

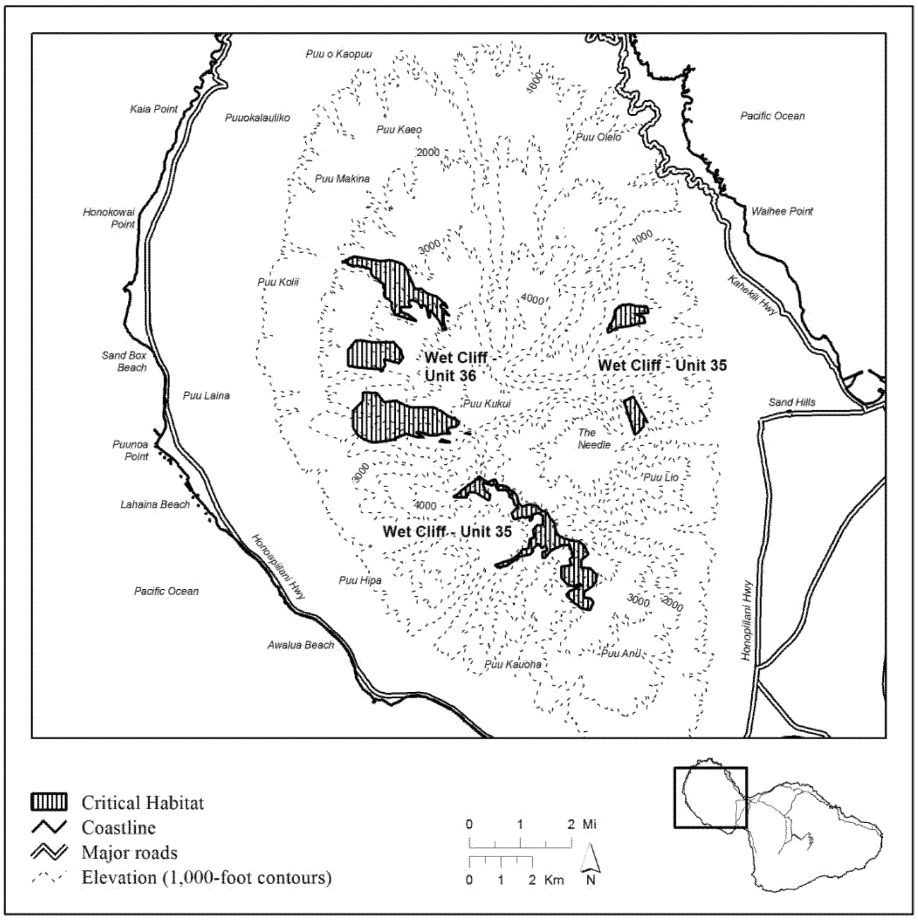
(22) *Pseudonestor xanthophrys*—Unit 35—Wet Cliff-Maui, Maui County, Hawaii (2,110 ac, 854 ha), and *Pseudonestor xanthophrys*—Unit 36—Wet Cliff-Maui, Maui County, Hawaii (556 ac, 225 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 35—Wet Cliff-Maui, and *Pseudonestor xanthophrys*—Unit 36—Wet Cliff-Maui follows:

Map 17

Pseudonestor xanthophrys

Unit 35 and Unit 36

Wet Cliff-Maui



(23) *Pseudonestor xanthophrys*—Unit 37—Lowland Mesic-Molokai, Maui County, Hawaii (8,770 ac, 3,549 ha).

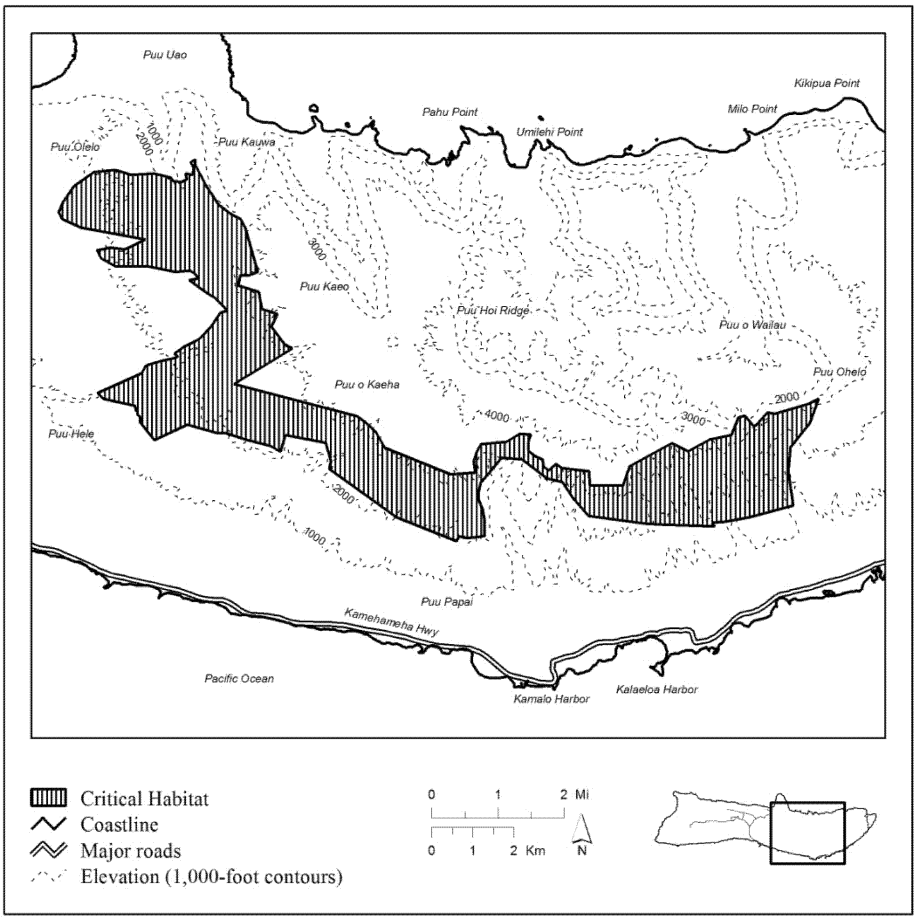
This unit is critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 37—Lowland Mesic-Molokai follows:

Map 18

Pseudonestor xanthophrys

Unit 37

Lowland Mesic-Molokai



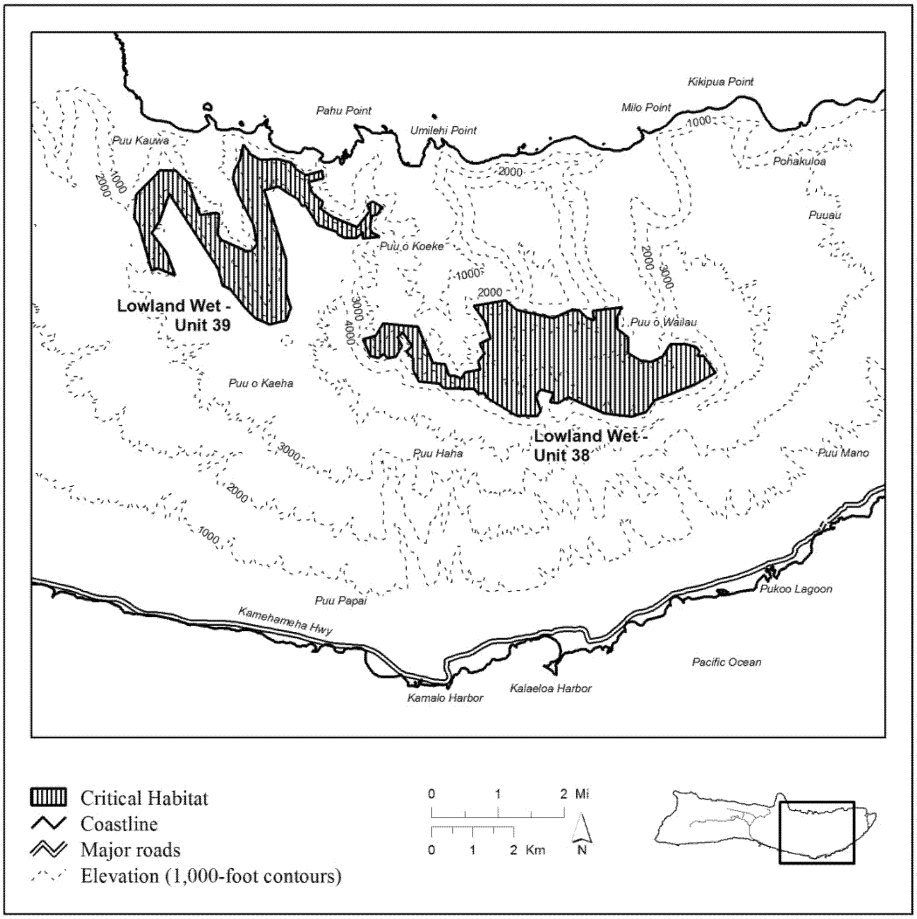
(24) *Pseudonestor xanthophrys*—Unit 38—Lowland Wet-Molokai, Maui County, Hawaii (2,949 ac, 1,193 ha), and *Pseudonestor xanthophrys*—Unit 39—Lowland Wet-Molokai, Maui County, Hawaii (1,950 ac, 790 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 38—Lowland Wet-Molokai and *Pseudonestor xanthophrys*—Unit 39—Lowland Wet-Molokai follows:

Map 19

Pseudonestor xanthophrys

Unit 38 and Unit 39

Lowland Wet-Molokai



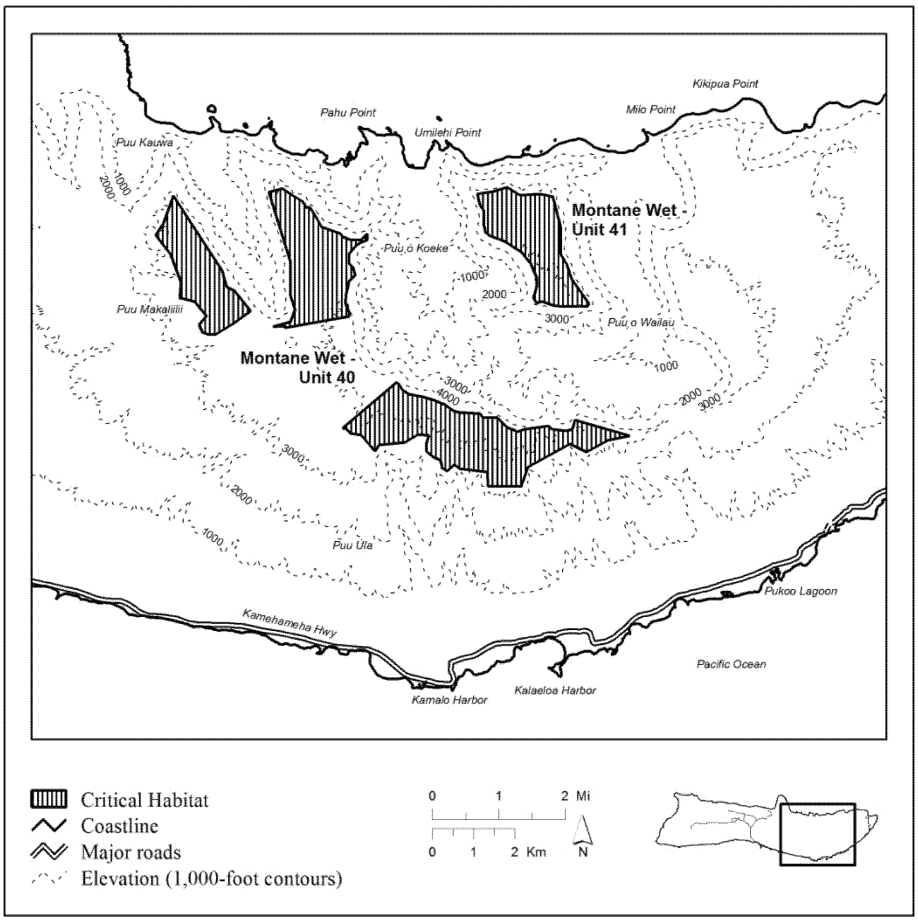
(25) *Pseudonestor xanthophrys*—Unit 40—Montane Wet-Molokai, Maui County, Hawaii (3,397 ac, 1,375 ha), and *Pseudonestor xanthophrys*—Unit 41—Montane Wet-Molokai, Maui County, Hawaii (910 ac, 368 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 40—Montane Wet-Molokai and *Pseudonestor xanthophrys*—Unit 41—Montane Wet-Molokai follows:

Map 20

Pseudonestor xanthophrys

Unit 40 and Unit 41

Montane Wet-Molokai



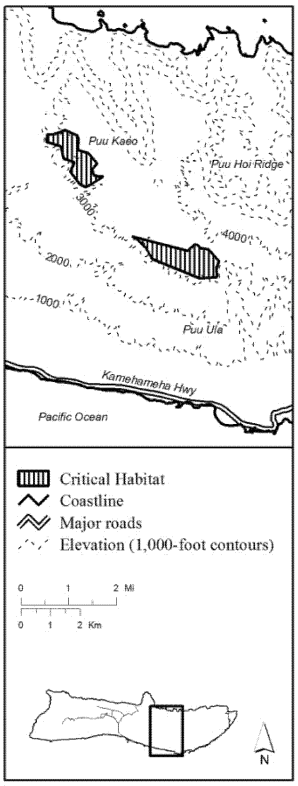
(26) *Pseudonestor xanthophrys*—Unit 42—Montane Mesic-Molokai, Maui County, Hawaii (816 ac, 330 ha). This unit is critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 42—Montane Mesic-Molokai follows:

Map 21

Pseudonestor xanthophrys

Unit 42

Montane Mesic-Molokai



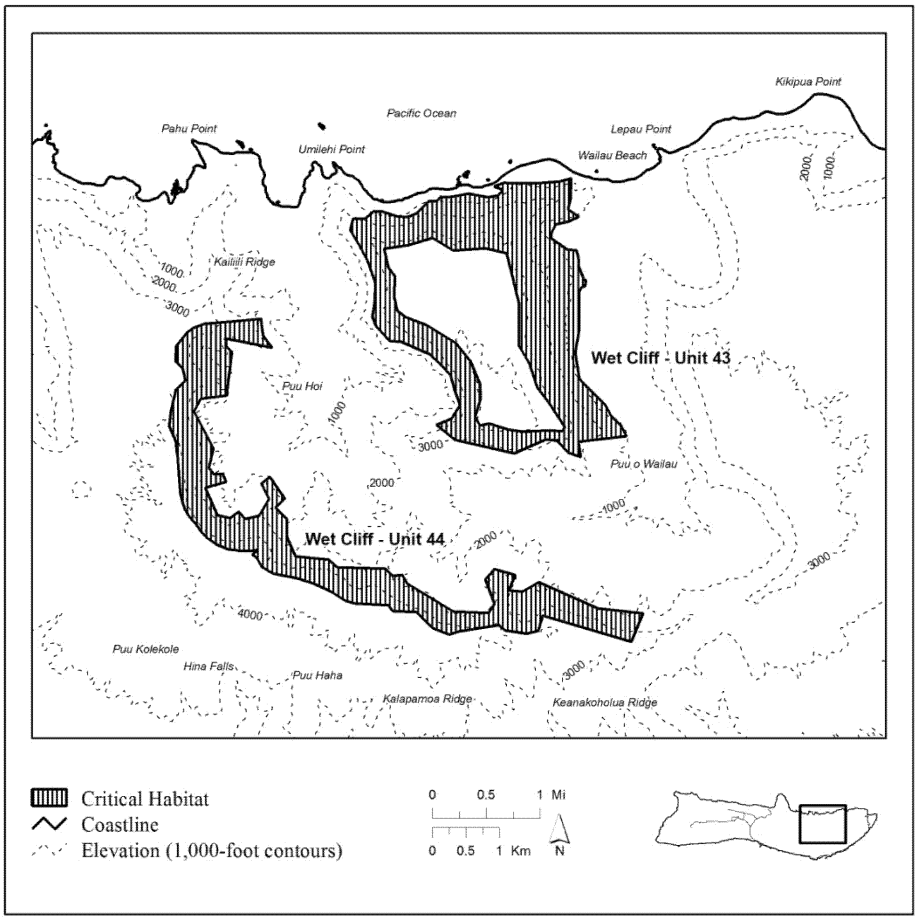
(27) *Pseudonestor xanthophrys*—Unit 43—Wet Cliff-Molokai, Maui County, Hawaii (1,607 ac, 651 ha), and *Pseudonestor xanthophrys*—Unit 44—Wet Cliff-Molokai, Maui County, Hawaii (1,268 ac, 513 ha). These units are critical habitat for the Kiwikiu, *Pseudonestor xanthophrys.* Map of *Pseudonestor xanthophrys*—Unit 43—Wet Cliff-Molokai and *Pseudonestor xanthophrys*—Unit 44—Wet Cliff-Molokai follows:

Map 22

Pseudonestor xanthophrys

Unit 43 and Unit 44

Wet Cliff-Molokai



* * * * *

(f) *Clams and Snails.*

* * * * *

Newcomb's tree snail (*Newcombia cumingi*)

(1) The critical habitat unit is depicted for Maui County, Hawaii, on the map below.

(2) *Primary constituent elements.* In unit 1, the primary constituent elements of critical habitat for the Newcomb's tree snail are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(iv) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(v) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(vi) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(3) Existing manmade features and structures, such as buildings, roads, railroads, airports, runways, other paved areas, lawns, and other urban landscaped areas, do not contain one or more of the physical or biological features. Federal actions limited to those areas, therefore, would not trigger a consultation under section 7 of the Act unless they may affect the species or physical or biological features in adjacent critical habitat.

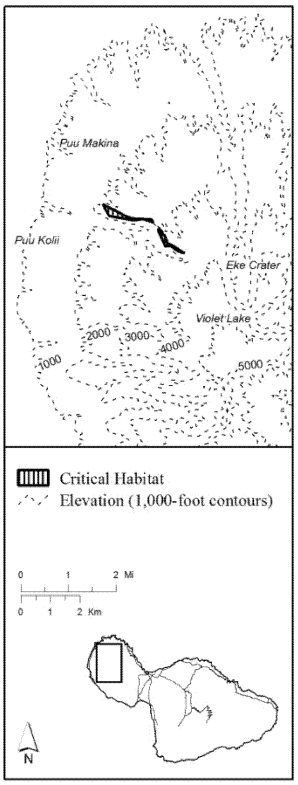
(4) *Critical habitat map.* Map was created in GIS, with coordinates in UTM Zone 4, units in meters using North American datum of 1983 (NAD 83).

(5) *Newcombia cumingi*—Unit 1—Lowland Wet-Maui, Maui County, Hawaii (65 ac, 26 ha). This unit is critical habitat for the Newcomb's tree snail, *Newcombia cumingi.* Map of *Newcombia cumingi*—Unit 1—Lowland Wet-Maui follows:

Newcombia cumingi

Unit 1

Lowland Wet-Maui



* * * * *

§ 17.96 [Amended]

■ 5. Amend § 17.96 as follows:

■ a. In paragraph (a), by removing the entry for ''Family Rhamnaceae: *Gouania hillebrandii''*; and

■ b. By removing and reserving paragraph (b).

■ 6. Amend § 17.99 as follows:

■ a. Revise the section heading.

■ b. Amend paragraph (a)(1) by removing the words listed in the ''Remove'' column below and adding in their place the words listed in the ''Add'' column below:

Paragraph designation	Remove	Add
(a)(1)(cxxxiv), the introductory text	Kauai 11—*Centaurium sebaeoides*—a	Kauai 11—*Schenkia sebaeoides*—a.
(a)(1)(clxxi), the introductory text	Kauai 11—*Diellia erecta*—a	Kauai 11—*Asplenium dielerectum*—a.

■ c. Amend paragraph (a)(1) by revising paragraphs (a)(1)(cxxxiv)(B) and (a)(1)(clxxi)(B).

■ d. Amend paragraph (a)(1)(cdix), the Table of Protected Species Within Each Critical Habitat Unit for Kauai, by removing the words listed in the ''Remove'' column below and adding in their place the words listed in the ''Add'' column below:

Column heading	Remove	Add
Unit name	Kauai 11—*Centaurium sebaeoides*—a	Kauai 11—*Schenkia sebaeoides*—a.
Species occupied	*Centaurium sebaeoides*	*Schenkia sebaeoides.*
Unit name	Kauai 11—*Diellia erecta*—a	Kauai 11—*Asplenium dielerectum*—a.
Species unoccupied	*Diellia erecta*	*Asplenium dielerectum.*

■ e. Amend paragraph (b)(1) by removing the words listed in the ''Remove'' column below in all places that they appear and adding in their place the words listed in the ''Add'' column below:

Remove	Add
Family Gentianaceae: *Centaurium sebaeoides* (awiwi).	Family Gentianaceae: *Schenkia sebaeoides* (awiwi).
Kauai 11—*Centaurium sebaeoides*—a.	Kauai 11—*Schenkia sebaeoides*—a.
Centaurium sebaeoides.	*Schenkia sebaeoides.*

■ f. Amend the paragraph (b)(2) by removing the words listed in the ''Remove'' column below in all places that they appear and adding in their place the words listed in the ''Add'' column below:

Remove	Add
Family Aspleniaceae: *Diellia erecta* (no common name).	Family Aspleniaceae: *Asplenium dielerectum* (asplenium-leaved diellia).
Kauai 11—*Diellia erecta*—a.	Kauai 11—*Asplenium dielerectum*—a.
Diellia erecta	*Asplenium dielerectum.*

■ g. Revise paragraphs (c), (d), (e), and (f).

■ h. Amend paragraph (i) by removing the words listed in the ''Remove'' column below and adding in their place the words listed in the ''Add'' column below:

Paragraph designation	Remove	Add
(i)(2)(i)	*Centaurium sebaeoides*	*Schenkia sebaeoides.*
(i)(3)(i)	*Centaurium sebaeoides*	*Schenkia sebaeoides.*
(i)(4)(i)	*Centaurium sebaeoides*	*Schenkia sebaeoides.*
(i)(5)(i)	*Centaurium sebaeoides*	*Schenkia sebaeoides.*
(i)(6)(i)	*Centaurium sebaeoides*	*Schenkia sebaeoides.*
(i)(7)(i)	*Centaurium sebaeoides*	*Schenkia sebaeoides.*
(i)(7)(ii)	*Centaurium sebaeoides*	*Schenkia sebaeoides.*
(i)(8)(i)	*Centaurium sebaeoides*	*Schenkia sebaeoides.*
(i)(16)(i)	*Diellia erecta*	*Asplenium dielerectum.*
(i)(17)(i)	*Diellia erecta*	*Asplenium dielerectum.*
(i)(18)(i)	*Diellia erecta*	*Asplenium dielerectum.*

■ i. Amend paragraph (i)(35), the Table of Protected Species Within Each Critical Habitat Unit for Oahu, by removing the words listed in the ''Remove'' column below in all places that they appear and adding in their place the words listed in the ''Add'' column below:

Column heading	Remove	Add
Species occupied	*Centaurium sebaeoides*	*Schenkia sebaeoides.*
Species unoccupied	*Centaurium sebaeoides*	*Schenkia sebaeoides.*
Species unoccupied	*Diellia erecta*	*Asplenium dielerectum.*

■ j. Amend paragraph (j)(1), under the heading FAMILY GENTIANACEAE, by removing the words listed in the ''Remove'' column below in all places that they appear and adding in their place the words listed in the ''Add'' column below:

Remove	Add
Centaurium sebaeoides (AWIWI)	*Schenkia sebaeoides* (AWIWI).
Centaurium sebaeoides	*Schenkia sebaeoides.*

■ k. Amend paragraph (j)(2), under the heading FAMILY ASPLENIACEAE, by removing the words listed in the ''Remove'' column below in all places that they appear and adding in their place the words listed in the ''Add'' column below:

Remove	Add
Diellia erecta (ASPLENIUM-LEAVED DIELLIA)	*Asplenium dielerectum* (ASPLENIUM-LEAVED DIELLIA).
Diellia erecta	*Asplenium dielerectum.*

■ l. Amend paragraph (k) by removing the words listed in the ''Remove'' column below and adding in their place the words listed in the ''Add'' column below:

Paragraph designation	Remove	Add
(k)(62), the introductory text	Hawaii 17—*Diellia erecta*—a	Hawaii 17—*Asplenium dielerectum*—a.
(k)(65), the introductory text	Hawaii 18—*Diellia erecta*—b	Hawaii 18—*Asplenium dielerectum*—b.
(k)(70), the introductory text	Hawaii 19—*Mariscus fauriei*—a	Hawaii 19—*Cyperus fauriei*—a.
(k)(77), the introductory text	Hawaii 24—*Asplenium fragile* var. *insulare*—a	Hawaii 24—*Asplenium peruvianum* var. *insulare*—a.

■ m. Amend paragraph (k) by revising paragraphs (k)(62)(ii), (k)(65)(ii), (k)(70)(ii), and (k)(77)(ii).

■ n. Amend paragraph (k)(104), the Table of Protected Species Within Each Critical Habitat Unit for the Island of Hawaii, by removing the words listed in the ''Remove'' column below in all places that they appear and adding in their place the words listed in the ''Add'' column below:

Column heading	Remove	Add
Unit name	Hawaii 24—*Asplenium fragile* var. *insulare*—a	Hawaii 24—*Asplenium peruvianum* var. *insulare*—a.
Species occupied	*Asplenium fragile* var. *insulare*	*Asplenium peruvianum* var. *insulare.*
Unit name	Hawaii 17—*Diellia erecta*—a	Hawaii 17—*Asplenium dielerectum*—a.
Unit name	Hawaii 18—*Diellia erecta*—b	Hawaii 18—*Asplenium dielerectum*—b.
Species occupied	*Diellia erecta*	*Asplenium dielerectum.*
Unit name	Hawaii 19—*Mariscus fauriei*—a	Hawaii 19—*Cyperus fauriei*—a.
Species occupied	*Mariscus fauriei*	*Cyperus fauriei.*

■ o. Amend paragraph (l)(1) by removing the words listed in the ''Remove'' column below in all places that they appear and adding in their place the words listed in the ''Add'' column below:

Remove	Add
Family Cyperaceae: *Mariscus fauriei* (NCN)	Family Cyperaceae: *Cyperus fauriei* (NCN).
Hawaii 19—*Mariscus fauriei*—a	Hawaii 19—*Cyperus fauriei*—a.
Mariscus fauriei	*Cyperus fauriei.*

■ p. Amend paragraph (l)(2) by removing the words listed in the ''Remove'' column below in all places that they appear and adding in their place the words listed in the ''Add'' column below:

Remove	Add
Family Aspleniaceae: *Asplenium fragile* var. *insulare* (NCN)	Family Aspleniaceae: *Asplenium peruvianum* var. *insulare* (NCN).
Hawaii 24—*Asplenium fragile* var. *insulare*—a	Hawaii 24—*Asplenium peruvianum* var. *insulare*—a.
Asplenium fragile var. *insulare*	*Asplenium peruvianum* var. *insulare.*
Family Aspleniaceae: *Diellia erecta* (asplenium-leaved diellia)	Family Aspleniaceae: *Asplenium dielerectum* (asplenium-leaved diellia).
Hawaii 17—*Diellia erecta*—a	Hawaii 17—*Asplenium dielerectum* —a.
Hawaii 18—*Diellia erecta*—b	Hawaii 18—*Asplenium dielerectum* —b.
Diellia erecta	*Asplenium dielerectum.*

The revisions and additions read as follows:

§ 17.99 Critical habitat; plants on the Hawaiian Islands.

(a) * * *

(1) * * *

(cxxxiv) * * *

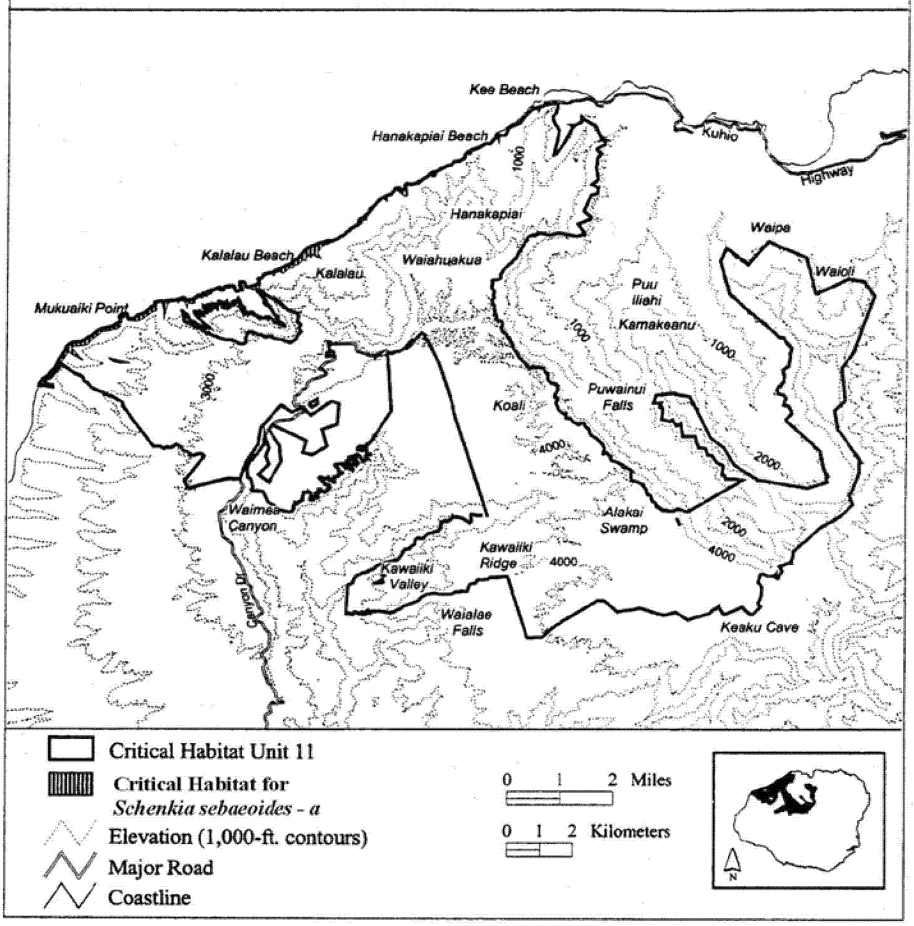
(B) *Note:* Map 67 follows:

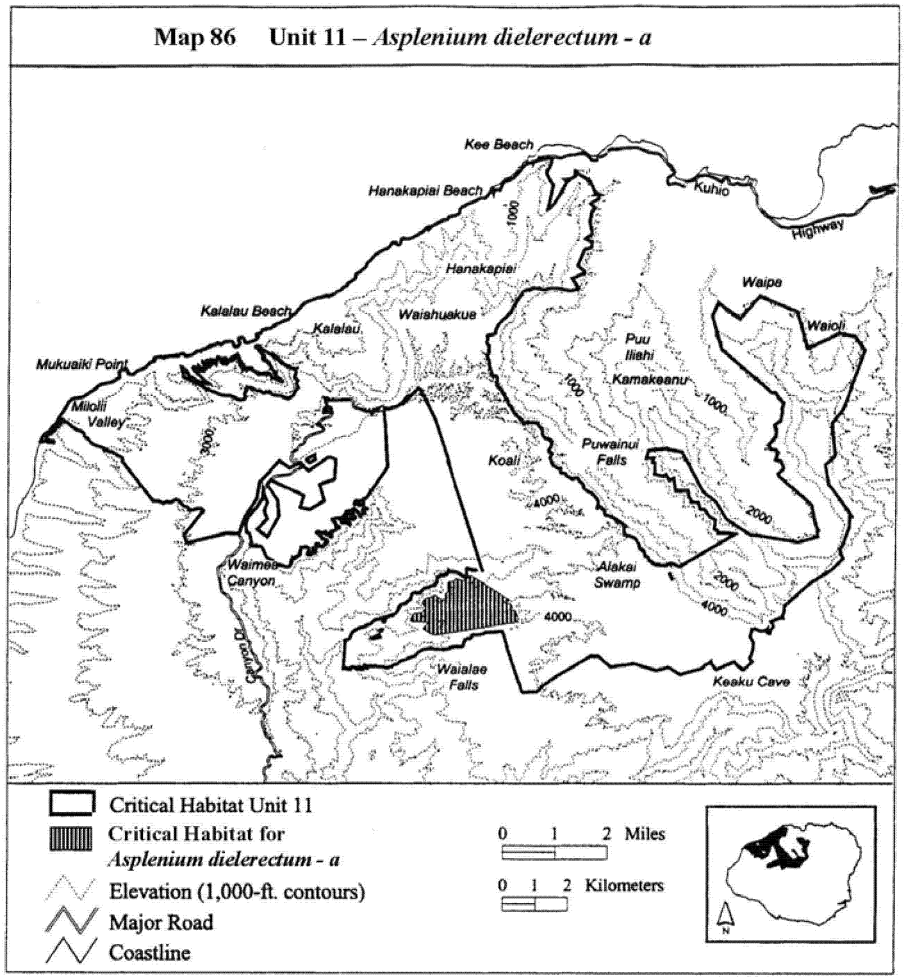
* * * * *

(clxxi) * * *

(B) Note: Map 86 follows:

Map 67 Unit 11 – *Schenkia sebaeoides* - *a*





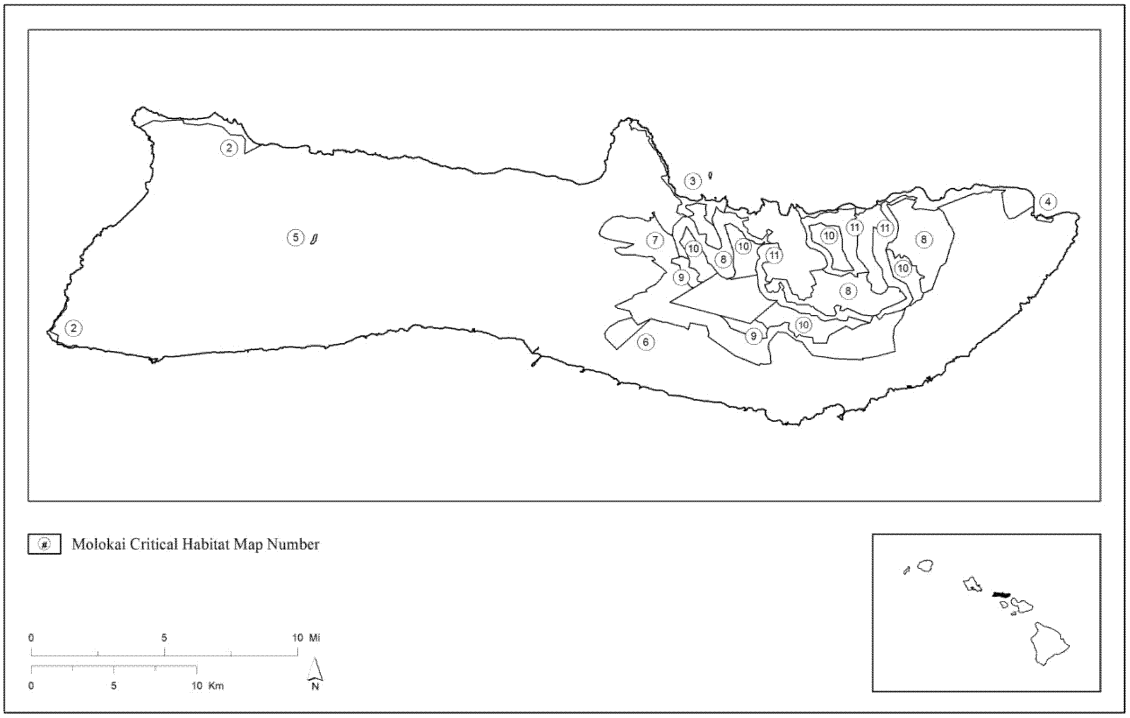
* * * * *

(c) *Maps and critical habitat unit descriptions for the island of Molokai, HI.* Critical habitat units are described below. Coordinates are in UTM Zone 4 with units in meters using North American Datum of 1983 (NAD83). The following map shows the locations of the critical habitat units designated on the island of Molokai. Existing manmade features and structures, such as buildings, roads, railroads, airports, runways, other paved areas, lawns, and other urban landscaped areas, do not contain one or more of the physical and biological features. Federal actions limited to those areas, therefore, would not trigger a consultation under section 7 of the Act unless they may affect the species or physical or biological features in adjacent critical habitat.

(1) NOTE: Map 1—Index map follows:

Map 1

Molokai Critical Habitat—Island Index Map



(2) Molokai—Coastal—Unit 1 (125 ac, 50 ha) and Molokai—Coastal—Unit 2 (977 ac, 396 ha).

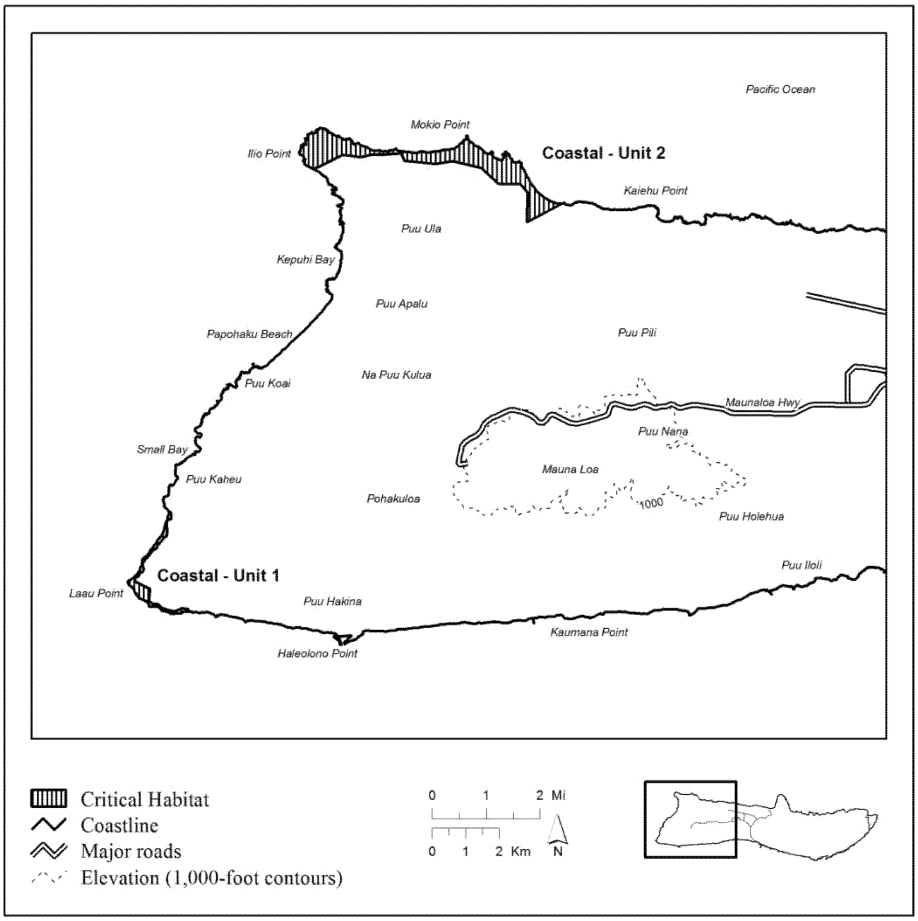
(i) These units are critical habitat for *Bidens wiebkei, Brighamia rockii, Canavalia molokaiensis, Hibiscus arnottianus* ssp. *immaculatus, Hibiscus brackenridgei, Ischaemum byrone, Marsilea villosa, Peucedanum sandwicense, Pittosporum halophilum, Schenkia sebaeoides, Sesbania tomentosa,* and *Tetramolopium rockii.*

(ii) Map of Molokai—Coastal—Unit 1 and Molokai—Coastal—Unit 2 (Map 2) follows:

Map 2

Molokai—Coastal

Unit 1 and Unit 2



(3) Molokai—Coastal—Unit 3 (805 ac, 325 ha), Molokai—Coastal—Unit 4 (10 ac, 4 ha), and Molokai—Coastal—Unit 5 (1 ac, 0.5 ha).

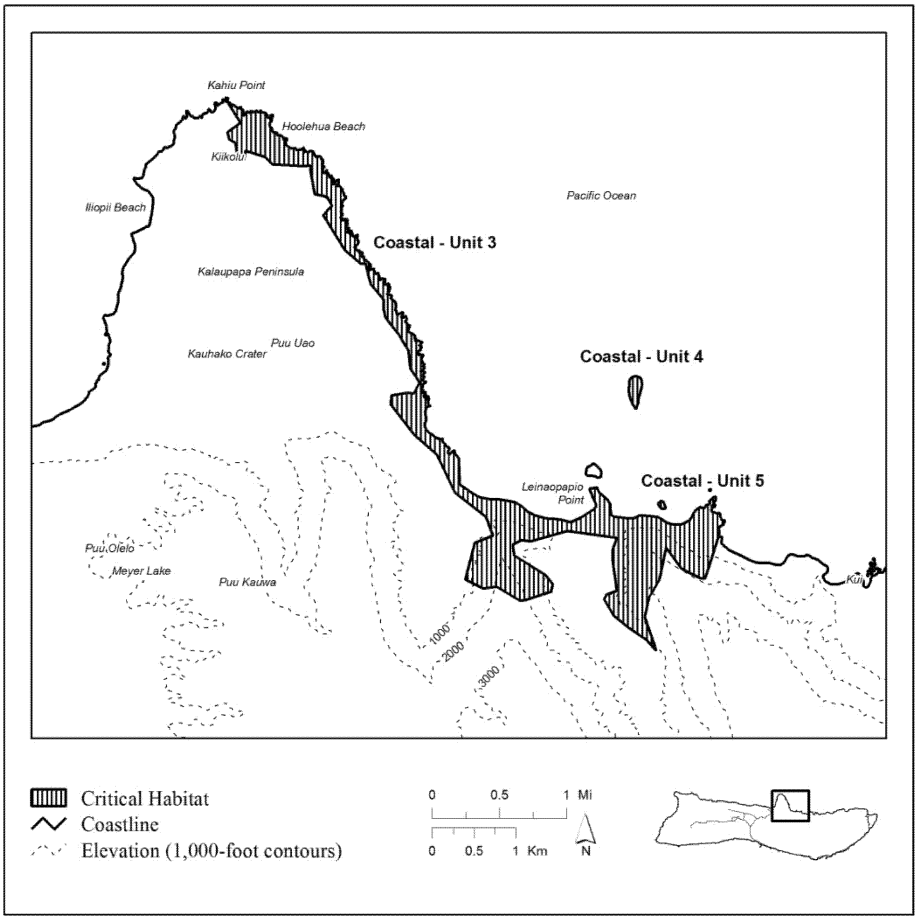
(i) These units are critical habitat for *Bidens wiebkei, Brighamia rockii, Canavalia molokaiensis, Hibiscus arnottianus* ssp. *immaculatus, Hibiscus brackenridgei, Ischaemum byrone, Marsilea villosa, Peucedanum sandwicense, Pittosporum halophilum, Schenkia sebaeoides, Sesbania tomentosa,* and *Tetramolopium rockii.*

(ii) Map of Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, and Molokai—Coastal—Unit 5 (Map 3) follows:

Map 3

Molokai—Coastal

Unit 3, Unit 4, and Unit 5



(4) Molokai—Coastal—Unit 6 (1,884 ac, 762 ha) and Molokai—Coastal—Unit 7 (49 ac, 24 ha).

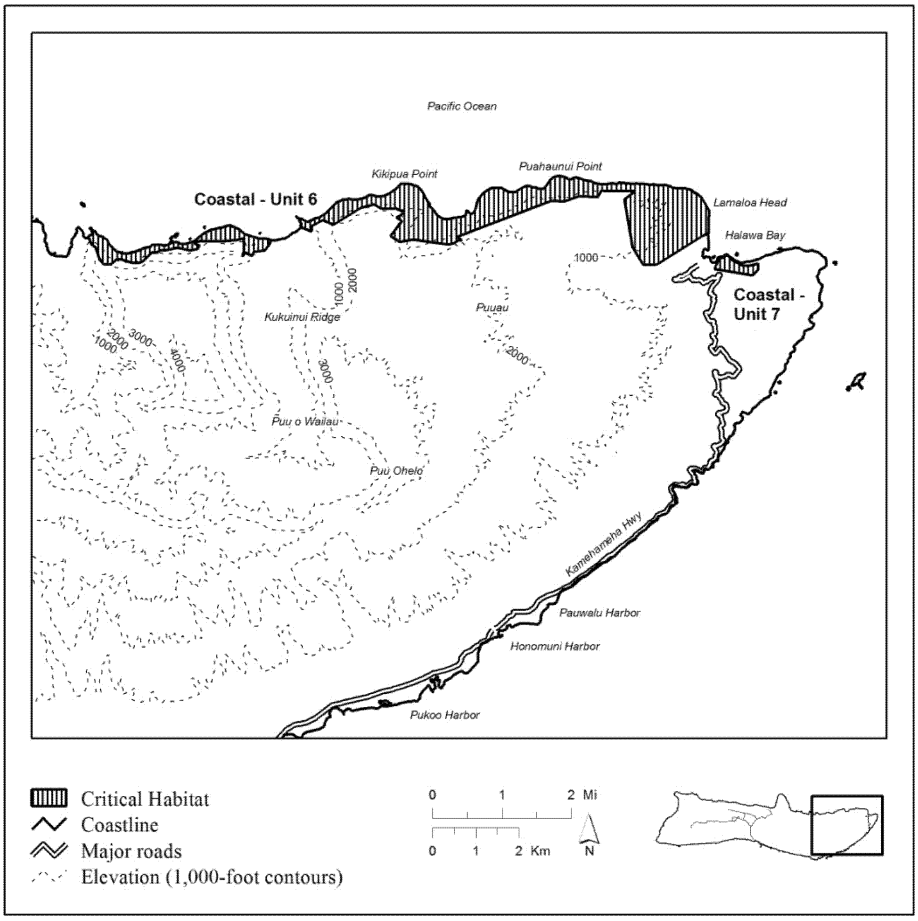
(i) These units are critical habitat for *Bidens wiebkei, Brighamia rockii, Canavalia molokaiensis, Hibiscus arnottianus* ssp. *immaculatus, Hibiscus brackenridgei, Ischaemum byrone, Marsilea villosa, Peucedanum sandwicense, Pittosporum halophilum, Schenkia sebaeoides, Sesbania tomentosa,* and *Tetramolopium rockii.*

(ii) Map of Molokai—Coastal—Unit 6 and Molokai—Coastal—Unit 7 (Map 4) follows:

Map 4

Molokai—Coastal

Unit 6 and Unit 7



(5) Molokai—Lowland Dry—Unit 1 (24 ac, 10 ha).

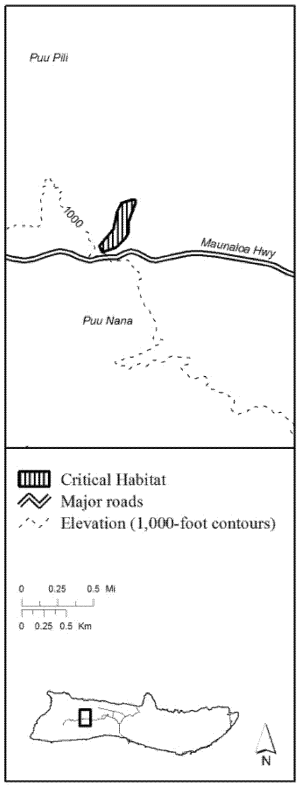
(i) This unit is critical habitat for *Bonamia menziesii, Cyperus trachysanthos, Eugenia koolauensis, Hibiscus brackenridgei, Kokia cookei,* and *Sesbania tomentosa.*

(ii) Map of Molokai—Lowland Dry—Unit 1 (Map 5) follows:

Map 5

Molokai—Lowland Dry

Unit 1



(6) Molokai—Lowland Dry—Unit 2 (589 ac, 238 ha)

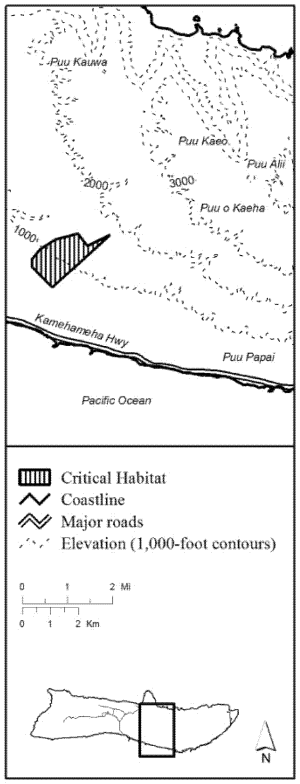
(i) This unit is critical habitat for *Bonamia menziesii, Cyperus trachysanthos, Eugenia koolauensis, Hibiscus brackenridgei, Kokia cookei,* and *Sesbania tomentosa.*

(ii) Map of Molokai—Lowland Dry—Unit 2 (Map 6) follows:

Map 6

Molokai—Lowland Dry

Unit 2



(7) Molokai—Lowland Mesic—Unit 1 (8,770 ac, 3,549 ha).

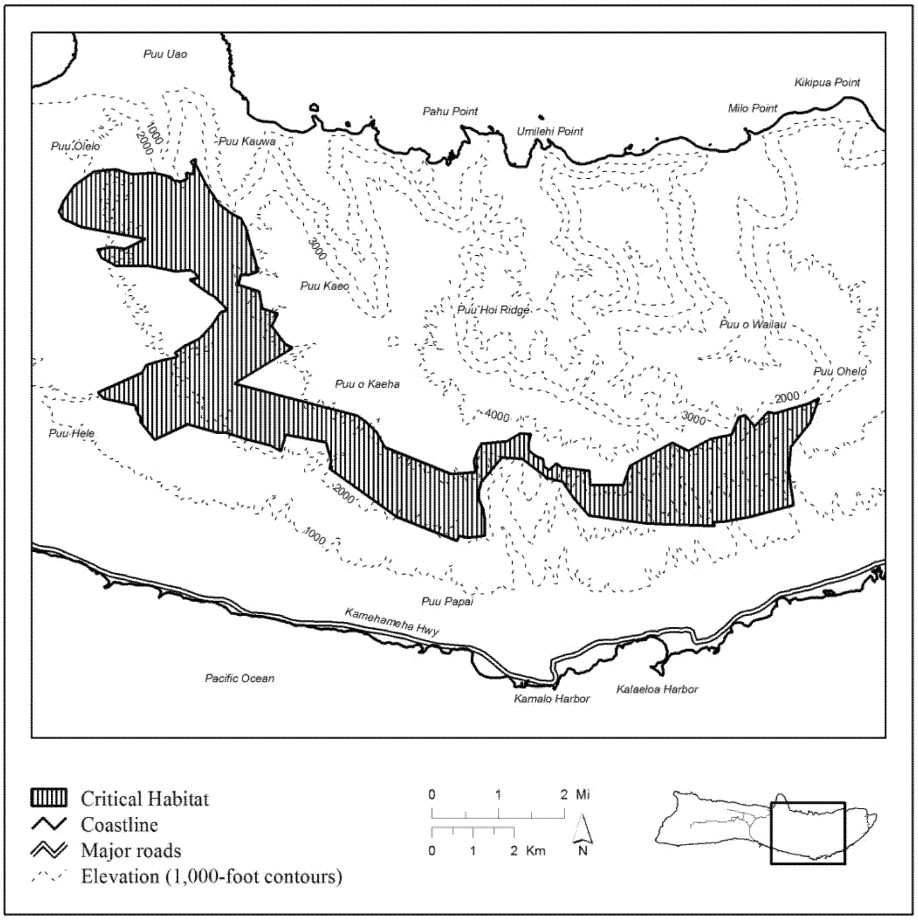
(i) This unit is critical habitat for *Alectryon macrococcus, Asplenium dielerectum, Bonamia menziesii, Canavalia molokaiensis, Clermontia oblongifolia* ssp. *brevipes, Ctenitis squamigera, Cyanea dunbariae, Cyanea mannii, Cyanea procera, Cyanea profuga, Cyanea solanacea, Cyperus fauriei, Cyrtandra filipes, Diplazium molokaiense, Festuca molokaiensis, Flueggea neowawraea, Gouania hillebrandii, Isodendrion pyrifolium, Kadua laxiflora, Labordia triflora, Melicope mucronulata, Melicope munroi, Melicope reflexa, Neraudia sericea, Phyllostegia haliakalae, Phyllostegia mannii, Phyllostegia pilosa, Santalum haleakalae* var. *lanaiense, Schiedea lydgatei, Schiedea sarmentosa, Sesbania tomentosa, Silene alexandri, Silene lanceolata, Spermolepis hawaiiensis, Stenogyne bifida, Vigna o-wahuensis,* and *Zanthoxylum hawaiiense.*

(ii) Map of Molokai—Lowland Mesic—Unit 1 (Map 7) follows:

Map 7

Molokai—Lowland Mesic

Unit 1



(8) Molokai—Lowland Wet—Unit 1 (2,949 ac, 1,193 ha), Molokai—Lowland Wet—Unit 2 (1,950 ac, 789 ha), and Molokai—Lowland Wet—Unit 3 (3,219 ac, 1,303 ha).

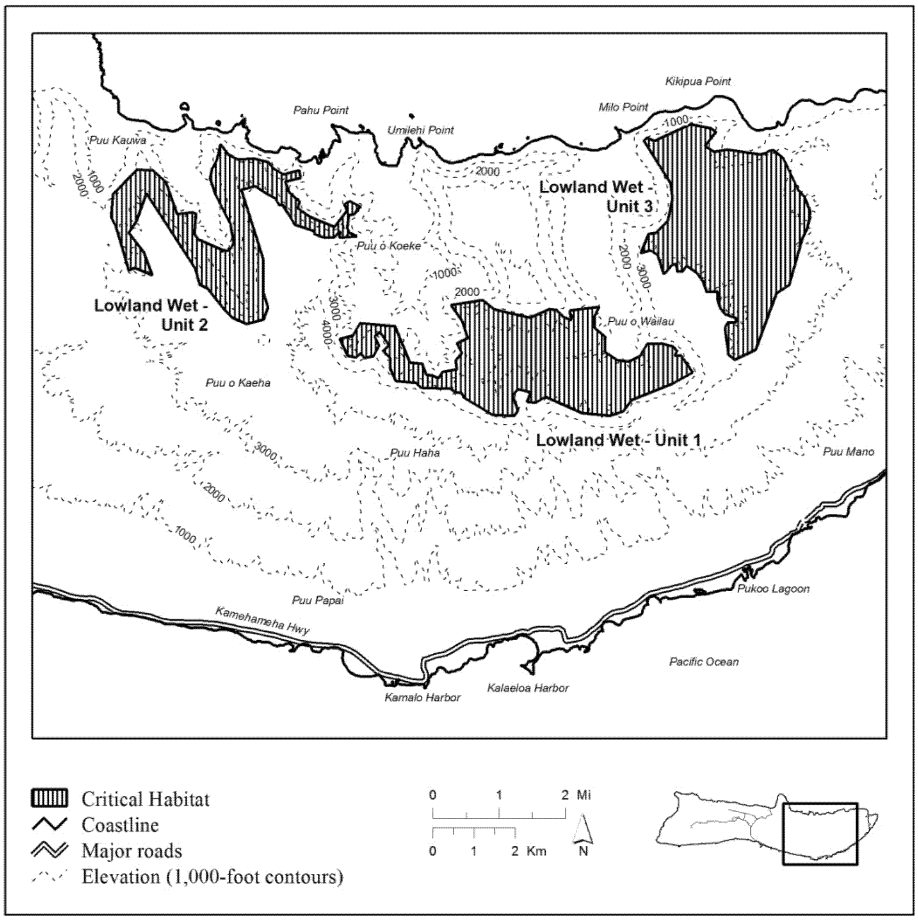
(i) These units are critical habitat for *Asplenium dielerectum, Bidens wiebkei, Canavalia molokaiensis, Clermontia oblongifolia* ssp. *brevipes, Cyanea dunbariae, Cyanea grimesiana* ssp. *grimesiana, Cyanea solanacea, Cyrtandra filipes, Lysimachia maxima, Melicope reflexa, Peucedanum sandwicense, Phyllostegia hispida, Phyllostegia mannii, Plantago princeps, Stenogyne bifida,* and *Zanthoxylum hawaiiense.*

(ii) Map of Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3 (Map 8) follows:

Map 8

Molokai—Lowland Wet

Unit 1, Unit 2, and Unit 3



(9) Molokai—Montane Wet—Unit 1 (3,397 ac, 1,375 ha), Molokai—Montane Wet—Unit 2 (910 ac, 368 ha), and Molokai—Montane Wet—Unit 3 (803 ac, 325 ha).

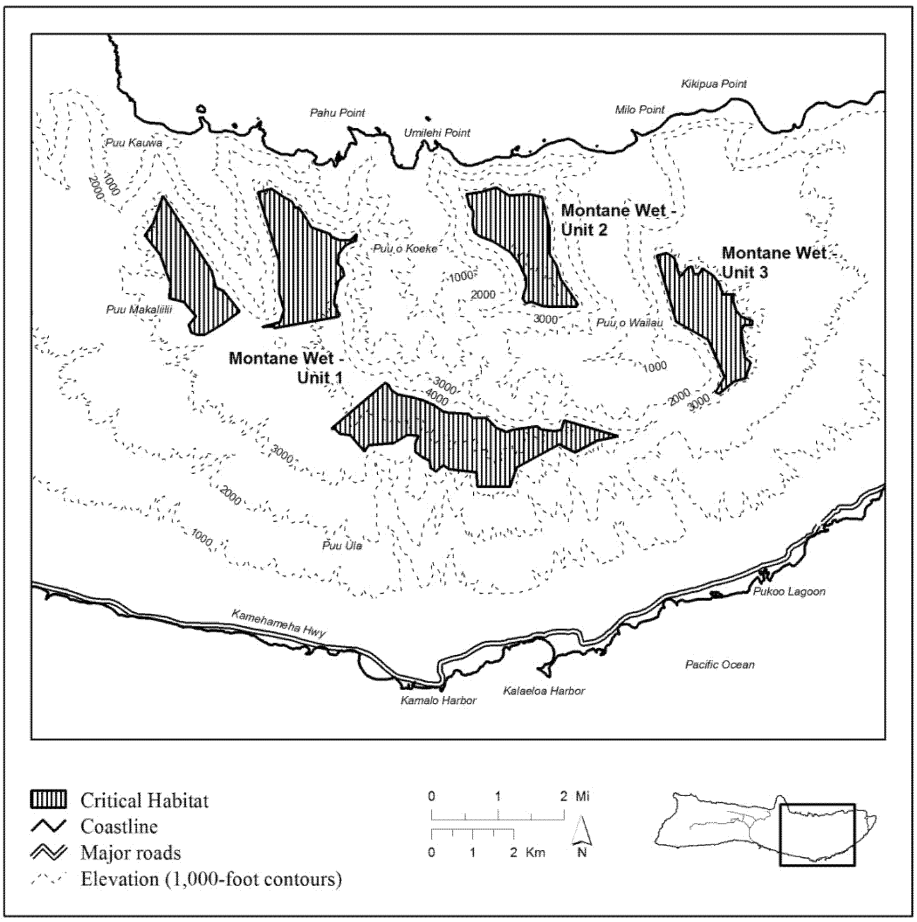
(i) These units are critical habitat for *Adenophorus periens, Bidens wiebkei, Clermontia oblongifolia* ssp. *brevipes, Cyanea mannii, Cyanea procera, Cyanea profuga, Cyanea solanacea, Hesperomannia arborescens, Lysimachia maxima, Melicope reflexa, Phyllostegia hispida, Phyllostegia mannii, Phyllostegia pilosa, Platanthera holochila, Pteris lidgatei, Schiedea laui, Stenogyne bifida,* and *Zanthoxylum hawaiiense.*

(ii) Map of Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3 (Map 9) follows:

Map 9

Molokai—Montane Wet

Unit 1, Unit 2, and Unit 3



(10) Molokai—Montane Mesic—Unit 1 (816 ac, 330 ha).

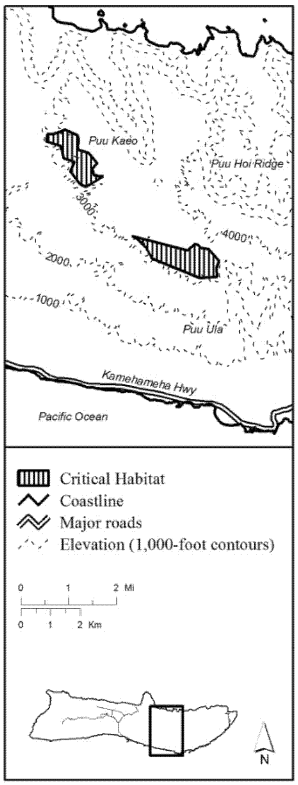
(i) This unit is critical habitat for *Alectryon macrococcus, Asplenium dielerectum, Bidens wiebkei, Cyanea dunbariae, Cyanea mannii, Cyanea procera, Cyanea solanacea, Cyperus fauriei, Kadua laxiflora, Melicope mucronulata, Neraudia sericea, Plantago princeps, Santalum haleakalae* var. *lanaiense, Spermolepis hawaiiensis,* and *Stenogyne bifida.*

(ii) Map of Molokai–Montane Mesic—Unit 1 (Map 10) follows:

Map 10

Molokai—Montane Mesic

Unit 1



(11) Molokai—Wet Cliff—Unit 1 (1,607 ac, 651 ha), Molokai—Wet Cliff—Unit 2 (1,268 ac, 513 ha), and Molokai—Wet Cliff—Unit 3 (1,362 ac, 551 ha).

(i) This unit is critical habitat for *Brighamia rockii, Canavalia molokaiensis, Clermontia oblongifolia* ssp. *brevipes, Cyanea grimesiana* ssp. *grimesiana, Cyanea munroi, Hesperomannia arborescens, Hibiscus arnottianus* ssp. *immaculatus, Phyllostegia hispida, Pteris lidgatei,* and *Stenogyne bifida.*

(ii) Map of Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3 (Map 11) follows:

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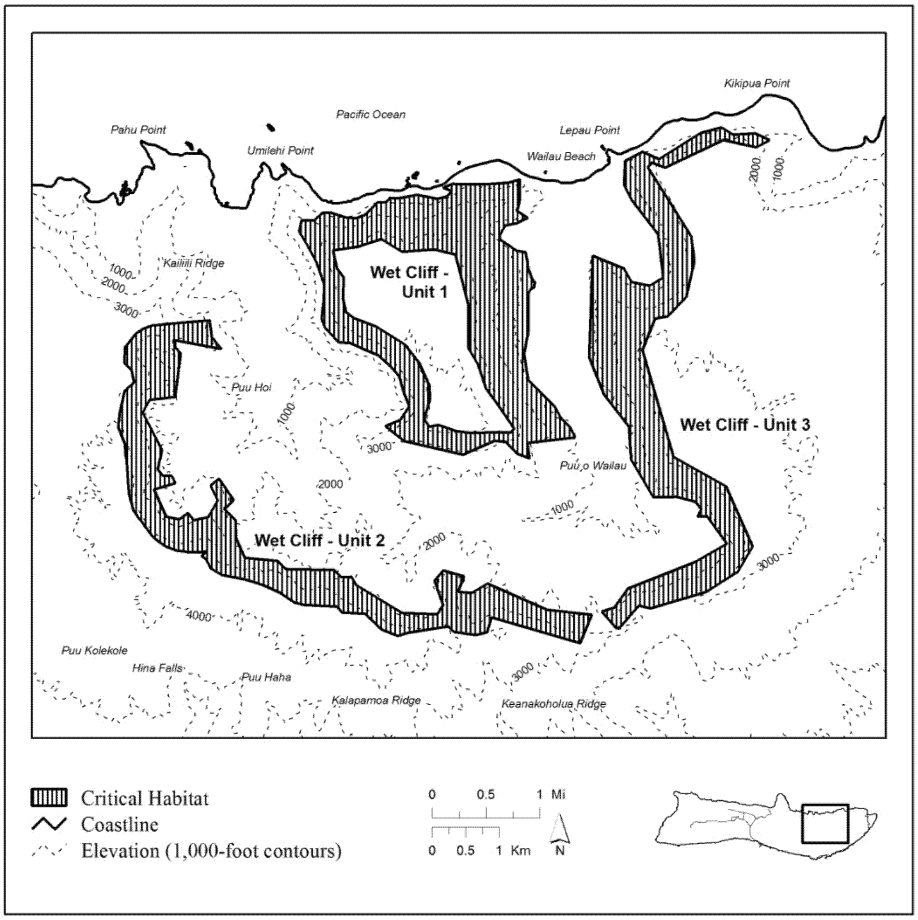
Map 11

Molokai—Wet Cliff

Unit 1, Unit 2, and Unit 3



(12) Occupancy of Species by Designated Critical Habitat Units for Molokai

Unit	Species occupied	Species unoccupied
Molokai—Coastal—Unit 1		*Bidens wiebkei.*
		Brighamia rockii.
		Canavalia molokaiensis.
		Hibiscus arnottianus ssp. *immaculatus.*
		Hibiscus brackenridgei.
		Ischaemum byrone.
	Marsilea villosa.	
		Peucedanum sandwicense.
		Pittosporum halophilum.
		Schenkia sebaeoides.
		Sesbania tomentosa.
		Tetramolopium rockii.
Molokai–Coastal—Unit 2		*Bidens wiebkei.*
		Brighamia rockii.
		Canavalia molokaiensis.
		Hibiscus arnottianus ssp. *immaculatus.*
		Hibiscus brackenridgei.
		Ischaemum byrone.
	Marsilea villosa.	
		Peucedanum sandwicense.
		Pittosporum halophilum.
		Schenkia sebaeoides.
		Sesbania tomentosa.

(12) OCCUPANCY OF SPECIES BY DESIGNATED CRITICAL HABITAT UNITS FOR MOLOKAI—Continued

Unit	Species occupied	Species unoccupied
		Tetramolopium rockii.
Molokai—Coastal—Unit 3	.....	*Bidens wiebkei.*
		Brighamia rockii.
		Canavalia molokaiensis.
		Hibiscus arnottianus ssp. *immaculatus.*
		Hibiscus brackenridgei.
		Ischaemum byrone.
		Marsilea villosa.
		Peucedanum sandwicense.
	Pittosporum halophilum.	
	Schenkia sebaeoides.	
		Sesbania tomentosa.
	Tetramolopium rockii.	
Molokai—Coastal—Unit 4	.....	*Bidens wiebkei.*
		Brighamia rockii.
		Canavalia molokaiensis.
		Hibiscus arnottianus ssp. *immaculatus.*
		Hibiscus brackenridgei.
		Ischaemum byrone.
		Marsilea villosa.
	Peucedanum sandwicense.	
	Pittosporum halophilum.	
		Schenkia sebaeoides.
		Sesbania tomentosa.
		Tetramolopium rockii.
Molokai—Coastal—Unit 5	.....	*Bidens wiebkei.*
	Brighamia rockii.	
		Canavalia molokaiensis.
		Hibiscus arnottianus ssp. *immaculatus.*
		Hibiscus brackenridgei.
		Ischaemum byrone.
		Marsilea villosa.
	Peucedanum sandwicense.	
	Pittosporum halophilum.	
		Schenkia sebaeoides.
		Sesbania tomentosa.
		Tetramolopium rockii.
Molokai—Coastal—Unit 6	*Bidens wiebkei.*	
		Brighamia rockii.
	Canavalia molokaiensis.	
	Hibiscus arnottianus ssp. *immaculatus.*	
		Hibiscus brackenridgei.
	Ischaemum byrone.	
		Marsilea villosa.
		Peucedanum sandwicense.
		Pittosporum halophilum.
		Schenkia sebaeoides.
		Sesbania tomentosa.
		Tetramolopium rockii.
Molokai—Coastal—Unit 7	.....	*Bidens wiebkei.*
		Brighamia rockii.
		Canavalia molokaiensis.
		Hibiscus arnottianus ssp. *immaculatus.*
		Hibiscus brackenridgei.
		Ischaemum byrone.
		Marsilea villosa.
		Peucedanum sandwicense.
		Pittosporum halophilum.
		Schenkia sebaeoides.
		Sesbania tomentosa.
		Tetramolopium rockii.
Molokai—Lowland Dry—Unit 1	.....	*Bonamia menziesii.*
		Cyperus trachysanthos.
		Eugenia koolauensis.
		Hibiscus brackenridgei.
		Kokia cookei.
		Sesbania tomentosa.
Molokai—Lowland Dry—Unit 2	.....	*Bonamia menziesii.*
		Cyperus trachysanthos.
		Eugenia koolauensis.
		Hibiscus brackenridgei.
		Kokia cookei.

(12) OCCUPANCY OF SPECIES BY DESIGNATED CRITICAL HABITAT UNITS FOR MOLOKAI—Continued

Unit	Species occupied	Species unoccupied
		Sesbania tomentosa.
Molokai—Lowland Mesic—Unit 1	*Alectryon macrococcus.*	
		Asplenium dielerectum.
		Bonamia menziesii.
		Canavalia molokaiensis.
		Clermontia oblongifolia ssp. *brevipes.*
	Ctenitis squamigera.	
	Cyanea dunbariae.	
	Cyanea mannii.	
		Cyanea procera.
	Cyanea profuga.	
		Cyanea solanacea.
	Cyperus fauriei.	
	Cyrtandra filipes.	
		Diplazium molokaiense.
		Festuca molokaiensis.
		Flueggea neowawraea.
	Gouania hillebrandii.	
		Isodendrion pyrifolium.
		Kadua laxiflora.
	Labordia triflora.	
		Melicope mucronulata.
		Melicope munroi.
		Melicope reflexa.
	Neraudia sericea.	
		Phyllostegia haliakalae.
		Phyllostegia mannii.
		Phyllostegia pilosa.
	Santalum haleakalae var. *lanaiense.*	
	Schiedea lydgatei.	
	Schiedea sarmentosa.	
		Sesbania tomentosa.
	Silene alexandri.	
	Silene lanceolata.	
	Spermolepis hawaiiensis.	
		Stenogyne bifida.
		Vigna o-wahuensis.
	Zanthoxylum hawaiiense.	
Molokai—Lowland Wet—Unit 1		*Asplenium dielerectum.*
		Bidens wiebkei.
		Canavalia molokaiensis.
		Clermontia oblongifolia ssp. *brevipes.*
		Cyanea dunbariae.
		Cyanea grimesiana ssp. *grimesiana.*
		Cyanea solanacea.
	Cyrtandra filipes.	
		Lysimachia maxima.
		Melicope reflexa.
		Peucedanum sandwicense.
		Phyllostegia hispida.
		Phyllostegia mannii.
		Plantago princeps.
		Stenogyne bifida.
		Zanthoxylum hawaiiense.
Molokai—Lowland Wet—Unit 2	.....	*Asplenium dielerectum.*
		Bidens wiebkei.
		Canavalia molokaiensis.
		Clermontia oblongifolia ssp. *brevipes.*
		Cyanea dunbariae.
		Cyanea grimesiana ssp. *grimesiana.*
		Cyanea solanacea.
		Cyrtandra filipes.
	Lysimachia maxima.	
		Melicope reflexa.
		Peucedanum sandwicense.
		Phyllostegia hispida.
		Phyllostegia mannii.
		Plantago princeps.
		Stenogyne bifida.
		Zanthoxylum hawaiiense.
Molokai—Lowland Wet—Unit 3	.....	*Asplenium dielerectum.*
		Bidens wiebkei.

(12) OCCUPANCY OF SPECIES BY DESIGNATED CRITICAL HABITAT UNITS FOR MOLOKAI—Continued

Unit	Species occupied	Species unoccupied
		Canavalia molokaiensis.
		Clermontia oblongifolia ssp. *brevipes.*
		Cyanea dunbariae.
		Cyanea grimesiana ssp. *grimesiana.*
		Cyanea solanacea.
		Cyrtandra filipes.
		Lysimachia maxima.
		Melicope reflexa.
		Peucedanum sandwicense.
		Phyllostegia hispida.
		Phyllostegia mannii.
		Plantago princeps.
		Stenogyne bifida.
		Zanthoxylum hawaiiense.
Molokai—Montane Wet—Unit 1	.....	*Adenophorus periens*
	Bidens wiebkei.	
	Clermontia oblongifolia ssp. *brevipes.*	
	Cyanea mannii.	
		Cyanea procera.
	Cyanea profuga.	
		Cyanea solanacea.
		Hesperomannia arborescens.
		Lysimachia maxima.
		Melicope reflexa.
	Phyllostegia hispida.	
		Phyllostegia mannii.
		Phyllostegia pilosa.
		Platanthera holochila.
	Pteris lidgatei.	
		Schiedea laui.
		Stenogyne bifida.
		Zanthoxylum hawaiiense.
Molokai—Montane Wet—Unit 2	.....	*Adenophorus periens.*
		Bidens wiebkei.
		Clermontia oblongifolia ssp. *brevipes.*
		Cyanea mannii.
		Cyanea procera.
		Cyanea profuga.
		Cyanea solanacea.
		Hesperomannia arborescens.
		Lysimachia maxima.
		Melicope reflexa.
		Phyllostegia hispida.
		Phyllostegia mannii.
		Phyllostegia pilosa.
		Platanthera holochila.
		Pteris lidgatei.
		Schiedea laui.
		Stenogyne bifida.
		Zanthoxylum hawaiiense.
Molokai—Montane Wet—Unit 3	.....	*Adenophorus periens.*
		Bidens wiebkei.
		Clermontia oblongifolia ssp. *brevipes.*
		Cyanea mannii.
		Cyanea procera.
		Cyanea profuga.
		Cyanea solanacea.
		Hesperomannia arborescens.
		Lysimachia maxima.
	Melicope reflexa.	
		Phyllostegia hispida.
		Phyllostegia mannii.
		Phyllostegia pilosa.
		Platanthera holochila.
		Pteris lidgatei.
		Schiedea laui.
		Stenogyne bifida.
		Zanthoxylum hawaiiense.
Molokai—Montane Mesic—Unit 1	*Alectryon macrococcus.*	
		Asplenium dielerectum.
	Bidens wiebkei.	
		Cyanea dunbariae.

(12) OCCUPANCY OF SPECIES BY DESIGNATED CRITICAL HABITAT UNITS FOR MOLOKAI—Continued

Unit	Species occupied	Species unoccupied
		Cyanea mannii.
		Cyanea procera.
		Cyanea solanacea.
		Cyperus fauriei.
		Kadua laxiflora.
		Melicope mucronulata.
		Neraudia sericea.
		Plantago princeps.
	Santalum haleakalae var. *lanaiense.*	
	Spermolepis hawaiiensis.	
		Stenogyne bifida.
Molokai—Wet Cliff—Unit 1	*Brighamia rockii.*	
	Canavalia molokaiensis.	
	Clermontia oblongifolia ssp. *brevipes.*	
		Cyanea grimesiana ssp. *grimesiana.*
	Cyanea munroi.	
		Hesperomannia arborescens.
	Hibiscus arnottianus ssp. *immaculatus.*	
		Phyllostegia hispida.
		Pteris lidgatei.
		Stenogyne bifida.
Molokai—Wet Cliff—Unit 2	.....	*Brighamia rockii.*
		Canavalia molokaiensis.
	Clermontia oblongifolia ssp. *brevipes.*	
		Cyanea grimesiana ssp. *grimesiana.*
		Cyanea munroi.
		Hesperomannia arborescens.
		Hibiscus arnottianus ssp. *immaculatus.*
	Phyllostegia hispida.	
		Pteris lidgatei.
		Stenogyne bifida.
Molokai—Wet Cliff—Unit 3	.....	*Brighamia rockii.*
		Canavalia molokaiensis.
		Clermontia oblongifolia ssp. *brevipes.*
		Cyanea grimesiana ssp. *grimesiana.*
		Cyanea munroi.
		Hesperomannia arborescens.
		Hibiscus arnottianus ssp. *immaculatus.*
		Phyllostegia hispida.
		Pteris lidgatei.
		Stenogyne bifida.

(d) *Plants on Molokai; Constituent elements.*

(1) *Flowering plants.*

Family Apiaceae

Peucedanum sandwicense (MAKOU)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, Molokai—Coastal—Unit 7, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Peucedanum sandwicense* on Molokai.

(i) In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: Less than 980 ft (300 m).

(B) Annual precipitation: Less than 20 in (50 cm).

(C) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(D) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(E) Subcanopy: *Gossypium, Sida, Vitex.*

(F) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

(ii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

Spermolepis hawaiiensis (NCN)

Molokai—Lowland Mesic—Unit 1 and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Spermolepis hawaiiensis* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Family Asteraceae

Bidens wiebkei (KOOKOOLAU)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, Molokai—Coastal—Unit 7, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, Molokai—Montane Wet—Unit 3, and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Bidens wiebkei* on Molokai.

(i) In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: Less than 980 ft (300 m).

(B) Annual precipitation: Less than 20 in (50 cm).

(C) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(D) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(E) Subcanopy: *Gossypium, Sida, Vitex.*

(F) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

(ii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iv) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Hesperomannia arborescens (NCN)

Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, Molokai—Montane Wet—Unit 3, Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Hesperomannia arborescens* on Molokai.

(i) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(ii) In units Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Tetramolopium rockii (NCN)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Tetramolopium rockii* on Molokai. In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(i) Elevation: Less than 980 ft (300 m).

(ii) Annual precipitation: Less than 20 in (50 cm).

(iii) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(iv) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(v) Subcanopy: *Gossypium, Sida, Vitex.*

(vi) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

Family Campanulaceae

Brighamia rockii (PUA ALA)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—

Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, Molokai—Coastal—Unit 7, Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Brighamia rockii* on Molokai.

(i) In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: Less than 980 ft (300 m).

(B) Annual precipitation: Less than 20 in (50 cm).

(C) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(D) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(E) Subcanopy: *Gossypium, Sida, Vitex.*

(F) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

(ii) In units Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Clermontia oblongifolia ssp. brevipes (OHA WAI)

Molokai—Lowland Mesic—Unit 1, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, Molokai—Montane Wet—Unit 3, Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Clermontia oblongifolia* ssp. *brevipes* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iv) In units Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Cyanea dunbariae (HAHA)

Molokai—Lowland Mesic—Unit 1, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Cyanea dunbariae* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Cyanea grimesiana ssp. grimesiana (HAHA)

Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2,

Molokai—Lowland Wet—Unit 3, Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Cyanea grimesiana* ssp. *grimesiana* on Molokai.

(i) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Cyanea mannii (HAHA)

Molokai—Lowland Mesic—Unit 1, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, Molokai—Montane Wet—Unit 3, and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Cyanea mannii* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Cyanea munroi (HAHA)

Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Cyanea munroi* on Molokai. In units Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, the physical and biological features of critical habitat are:

(i) Elevation: Unrestricted.

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(iv) Canopy: None.

(v) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(vi) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Cyanea procera (HAHA)

Molokai—Lowland Mesic—Unit 1, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, Molokai—Montane Wet—Unit 3, and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Cyanea procera* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Fern, *Carex, Peperomia.*

Cyanea profuga (HAHA)

Molokai—Lowland Mesic—Unit 1, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Cyanea profuga* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Cyanea solanacea (POPOLO, HAHA NUI)

Molokai—Lowland Mesic—Unit 1, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, Molokai—Montane Wet—Unit 3, and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Cyanea solanacea* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iv) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Family Caryophyllaceae

Schiedea laui (NCN)

Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Schiedea laui* on Molokai. In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Schiedea lydgatei (NCN)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Schiedea lydgatei* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Schiedea sarmentosa (NCN)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Schiedea sarmentosa* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Silene alexandri (NCN)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Silene alexandri* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Silene lanceolata (NCN)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Silene lanceolata* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Family Convolvulaceae

Bonamia menziesii (NCN)

Molokai—Lowland Dry—Unit 1, Molokai—Lowland Dry—Unit 2, and Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Bonamia menziesii* on Molokai.

(i) In units Molokai—Lowland Dry—Unit 1 and Molokai—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Family Cyperaceae

Cyperus fauriei (NCN)

Molokai—Lowland Mesic—Unit 1 and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Cyperus fauriei* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Cyperus trachysanthos (PUUKAA)

Molokai—Lowland Dry—Unit 1 and Molokai—Lowland Dry—Unit 2, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Cyperus trachysanthos* on Molokai. In units Molokai—Lowland Dry—Unit 1 and Molokai—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Family Euphorbiaceae

Flueggea neowawraea (MEHAMEHAME)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Flueggea neowawraea* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Family Fabaceae

Canavalia molokaiensis (AWIKIWIKI)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, Molokai—Coastal—Unit 7, Molokai—Lowland Mesic—Unit 1, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Canavalia molokaiensis* on Molokai.

(i) In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: Less than 980 ft (300 m).

(B) Annual precipitation: Less than 20 in (50 cm).

(C) Substrate: Well-drained, calcareous, talus slopes; dunes;

weathered clay soils; ephemeral pools; mudflats.

(D) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(E) Subcanopy: *Gossypium, Sida, Vitex.*

(F) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

(ii) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(iii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iv) In units Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Sesbania tomentosa (OHAI)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, Molokai—Coastal—Unit 7, Molokai—Lowland Dry—Unit 1, Molokai—Lowland Dry—Unit 2, and Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Sesbania tomentosa* on Molokai.

(i) In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: Less than 980 ft (300 m).

(B) Annual precipitation: Less than 20 in (50 cm).

(C) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(D) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(E) Subcanopy: *Gossypium, Sida, Vitex.*

(F) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

(ii) In units Molokai—Lowland Dry—Unit 1 and Molokai—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(iii) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Vigna o-wahuensis (NCN)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Vigna o-wahuensis* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Family Gentianaceae

Schenkia sebaeoides (AWIWI)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Schenkia sebaeoides* on Molokai. In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(i) Elevation: Less than 980 ft (300 m).

(ii) Annual precipitation: Less than 20 in (50 cm).

(iii) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(iv) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(v) Subcanopy: *Gossypium, Sida, Vitex.*

(vi) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

Family Gesneriaceae

Cyrtandra filipes (HAIWALE)

Molokai—Lowland Mesic—Unit 1, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Cyrtandra filipes* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

Family Lamiaceae

Phyllostegia haliakalae (NCN)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Phyllostegia haliakalae* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Phyllostegia hispida (NCN)

Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, Molokai—Montane Wet—Unit 3, Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Phyllostegia hispida* on Molokai.

(i) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In units Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Phyllostegia mannii (NCN)

Molokai—Lowland Mesic—Unit 1, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Phyllostegia mannii* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Phyllostegia pilosa (NCN)

Molokai—Lowland Mesic—Unit 1, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Phyllostegia pilosa* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma,Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Stenogyne bifida (NCN)

Molokai—Lowland Mesic—Unit 1, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, Molokai—Montane Wet—Unit 3, Molokai—Montane Mesic—Unit 1, Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Stenogyne bifida* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iv) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(v) In units Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Family Loganiaceae

Labordia triflora (KAMAKAHALA)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Labordia triflora* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Family Malvaceae

Hibiscus arnottianus ssp. immaculatus (KOKIO KEOKEO)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, Molokai—Coastal—Unit 7, Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Hibiscus arnottianus* ssp. *immaculatus* on Molokai.

(i) In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: Less than 980 ft (300 m).

(B) Annual precipitation: Less than 20 in (50 cm).

(C) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(D) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(E) Subcanopy: *Gossypium, Sida, Vitex.*

(F) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

(ii) In units Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Hibiscus brackenridgei (MAO HAU HELE)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, Molokai—Coastal—Unit 7, Molokai—Lowland Dry—Unit 1, and Molokai—Lowland Dry—Unit 2, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Hibiscus brackenridgei* on Molokai.

(i) In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: Less than 980 ft (300 m).

(B) Annual precipitation: Less than 20 in (50 cm).

(C) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(D) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(E) Subcanopy: *Gossypium, Sida, Vitex.*

(F) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

(ii) In units Molokai—Lowland Dry—Unit 1 and Molokai—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Kokia cookei (COOKE'S KOKIO)

Molokai—Lowland Dry—Unit 1 and Molokai—Lowland Dry—Unit 2, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Kokia cookei* on Molokai. In units Molokai—Lowland Dry—Unit 1 and Molokai—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Family Myrtaceae

Eugenia koolauensis (NIOI)

Molokai—Lowland Dry—Unit 1 and Molokai—Lowland Dry—Unit 2, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Eugenia koolauensis* on Molokai. In units Molokai—Lowland Dry—Unit 1 and Molokai—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Family Orchidaceae

Platanthera holochila (NCN)

Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Platanthera holochila* on Molokai. In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Family Pittosporaceae

Pittosporum halophilum (HOAWA)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Pittosporum halophilum* on Molokai. In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(i) Elevation: Less than 980 ft (300 m).

(ii) Annual precipitation: Less than 20 in (50 cm).

(iii) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(iv) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(v) Subcanopy: *Gossypium, Sida, Vitex.*

(vi) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

Family Plantaginaceae

Plantago princeps (LAUKAHI KUAHIWI)

Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Plantago princeps* on Molokai.

(i) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Family Poaceae

Festuca molokaiensis (NCN)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Festuca molokaiensis* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Ischaemum byrone (HILO ISCHAEMUM)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Ischaemum byrone* on Molokai. In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(i) Elevation: Less than 980 ft (300 m).

(ii) Annual precipitation: Less than 20 in (50 cm).

(iii) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(iv) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(v) Subcanopy: *Gossypium, Sida, Vitex.*

(vi) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

Family Primulaceae

Lysimachia maxima (NCN)

Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Lysimachia maxima* on Molokai.

(i) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Family Rhamnaceae

Gouania hillebrandii (NCN)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Gouania hillebrandii* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Family Rubiaceae

Kadua laxiflora (PILO)

Molokai—Lowland Mesic—Unit 1 and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Kadua laxiflora* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Family Rutaceae

Melicope mucronulata (ALANI)

Molokai—Lowland Mesic—Unit 1 and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Melicope mucronulata* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Melicope munroi (ALANI)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Melicope munroi* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Melicope reflexa (ALANI)

Molokai—Lowland Mesic—Unit 1, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Melicope reflexa* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Zanthoxylum hawaiiense (AE)

Molokai—Lowland Mesic—Unit 1, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Zanthoxylum hawaiiense* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Family Santalaceae

Santalum haleakalae var. *lanaiense* (LANAI SANDALWOOD, ILIAHI)

Molokai—Lowland Mesic—Unit 1 and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Santalum haleakalae* var. *lanaiense* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Family Sapindaceae

Alectryon macrococcus (MAHOE)

Molokai—Lowland Mesic—Unit 1 and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Alectryon macrococcus* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Family Urticaceae

Neraudia sericea (NCN)

Molokai—Lowland Mesic—Unit 1 and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Neraudia sericea* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Family Violaceae

Isodendrion pyrifolium (WAHINE NOHO KULA)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Isodendrion pyrifolium* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(2) *Ferns and fern allies.*

Family Adiantaceae

Pteris lidgatei (NCN)

Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, Molokai—Montane Wet—Unit 3, Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Pteris lidgatei* on Molokai.

(i) In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(ii) In units Molokai—Wet Cliff—Unit 1, Molokai—Wet Cliff—Unit 2, and Molokai—Wet Cliff—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Family Aspleniaceae

Asplenium dielerectum (ASPLENIUM-LEAVED DIELLIA)

Molokai—Lowland Mesic—Unit 1, Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, Molokai—Lowland Wet—Unit 3, and Molokai—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Asplenium dielerectum* on Molokai.

(i) In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Molokai—Lowland Wet—Unit 1, Molokai—Lowland Wet—Unit 2, and Molokai—Lowland Wet—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In unit Molokai—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Ctenitis squamigera (PAUOA)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Ctenitis squamigera* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Diplazium molokaiense (NCN)

Molokai—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (c) of this section, constitutes critical habitat for *Diplazium molokaiense* on Molokai. In unit Molokai—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Shallow soils, little to no herbaceous layer.

(iv) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(v) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(vi) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Family Grammitidaceae

Adenophorus periens (PENDANT KIHI FERN)

Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Adenophorus periens* on Molokai. In units Molokai—Montane Wet—Unit 1, Molokai—Montane Wet—Unit 2, and Molokai—Montane Wet—Unit 3, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Family Marsileaceae

Marsilea villosa (IHI IHI)

Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, identified in the legal descriptions in paragraph (c) of this section, constitute critical habitat for *Marsilea villosa* on Molokai. In units Molokai—Coastal—Unit 1, Molokai—Coastal—Unit 2, Molokai—Coastal—Unit 3, Molokai—Coastal—Unit 4, Molokai—Coastal—Unit 5, Molokai—Coastal—Unit 6, and Molokai—Coastal—Unit 7, the physical and biological features of critical habitat are:

(i) Elevation: Less than 980 ft (300 m).

(ii) Annual precipitation: Less than 20 in (50 cm).

(iii) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(iv) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(v) Subcanopy: *Gossypium, Sida, Vitex.*

(vi) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

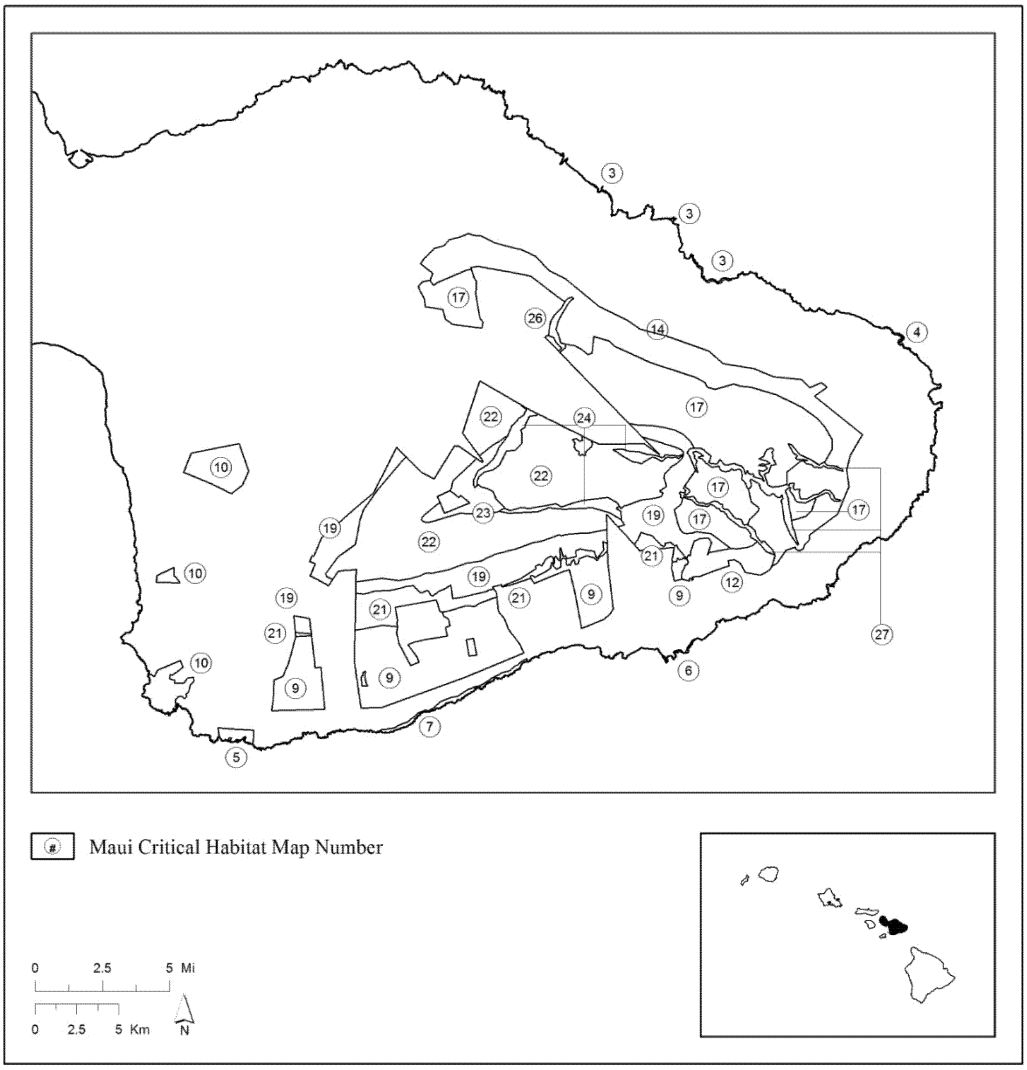
(e) *Maps and critical habitat unit descriptions for the islands of Maui and Kahoolawe, HI.*

(1) *Maui.* Critical habitat units are described below. Coordinates are in UTM Zone 4 with units in meters using North American Datum of 1983 (NAD83). The following maps show the locations of the critical habitat units designated on the island of Maui. Existing manmade features and structures, such as buildings, roads, railroads, airports, runways, other paved areas, lawns, and other urban landscaped areas, do not contain one or more of the physical and biological features. Federal actions limited to those areas, therefore, would not trigger a consultation under section 7 of the Act unless they may affect the species or physical or biological features in adjacent critical habitat.

(i) NOTE: Map 1—East Maui Index map follows:

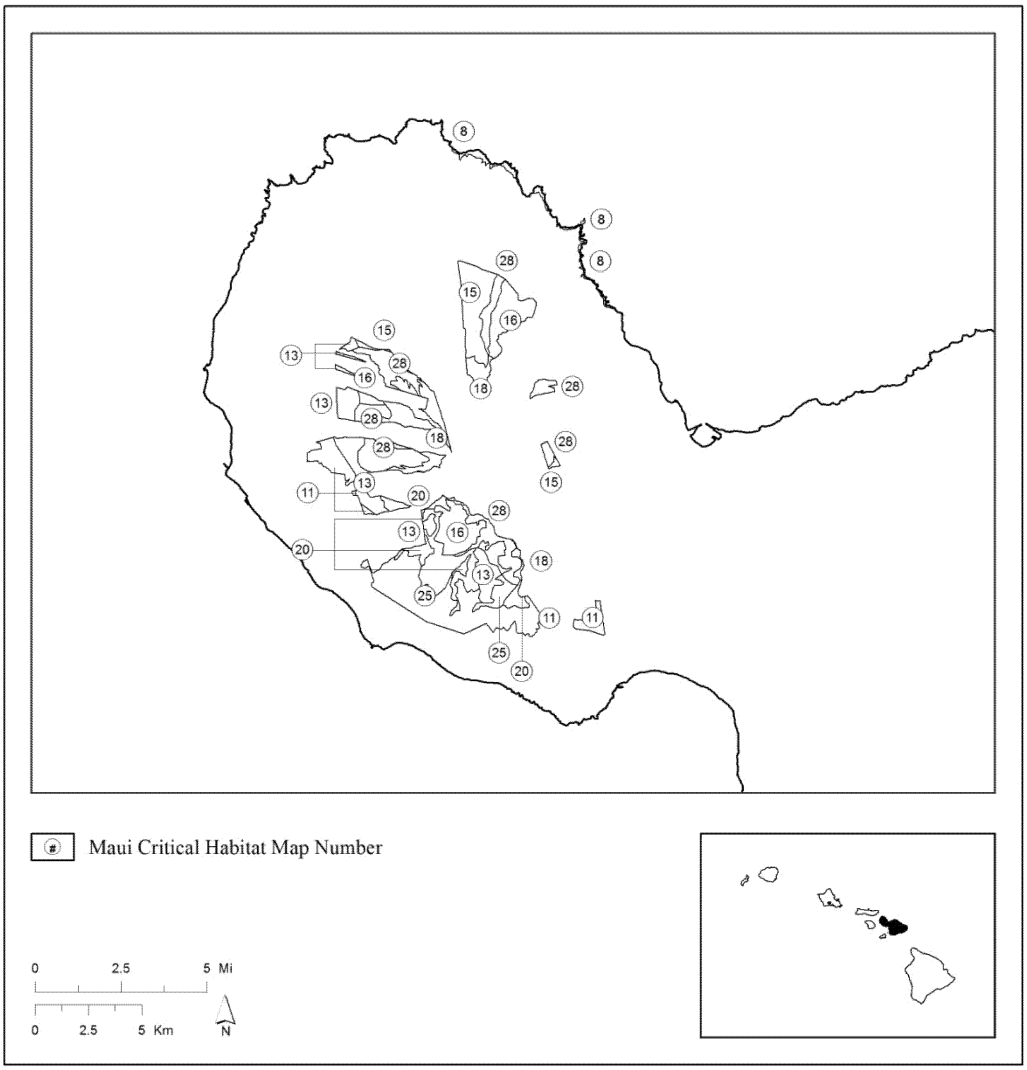
Map 1

Maui Critical Habitat—East Maui Index Map



Map 2

Maui Critical Habitat—West Maui Index Map



(ii) NOTE: Map 2—West Maui Index map follow:

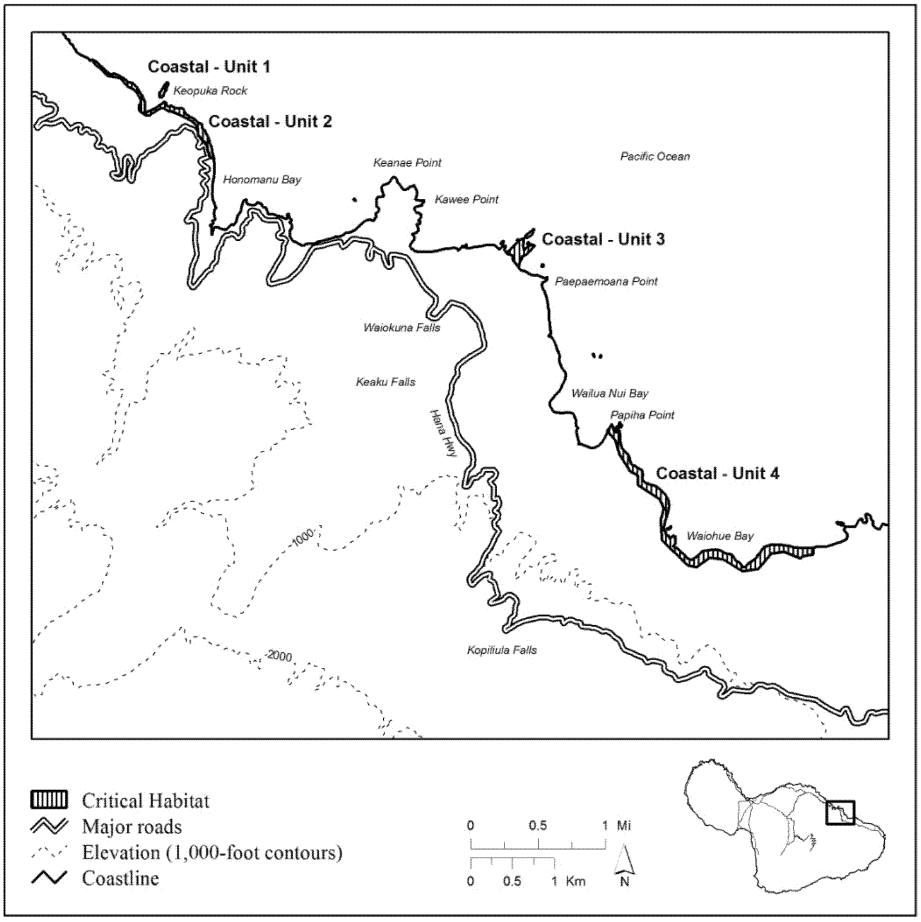
(iii) Maui—Coastal—Unit 1 (2 ac, 1 ha), Maui—Coastal—Unit 2 (25 ac, 10 ha), Maui—Coastal—Unit 3 (10 ac, 4 ha), and Maui—Coastal—Unit 4 (74 ac, 30 ha).

(A) These units are critical habitat for *Brighamia rockii, Cyperus pennatiformis, Ischaemum byrone, Peucedanum sandwicense,* and *Vigna o-wahuensis.*

(B) Map of Maui—Coastal—Unit 1, Maui—Coastal—Unit 2, Maui—Coastal—Unit 3, and Maui—Coastal—Unit 4 (Map 3) follows:

Map 3

Maui—Coastal Unit 1, Unit 2, Unit 3, and Unit 4



(iv) Maui—Coastal—Unit 5 (26 ac, 11 ha).

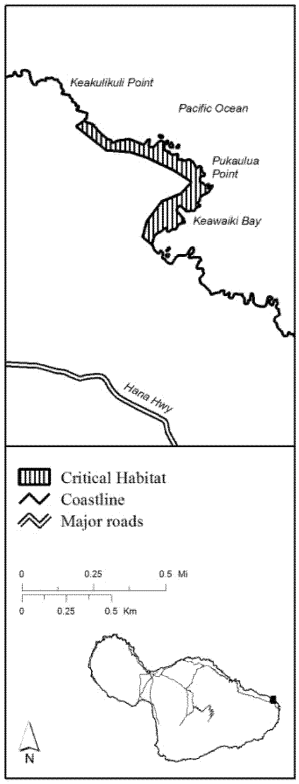
(A) This unit is critical habitat for *Brighamia rockii, Cyperus pennatiformis, Ischaemum byrone, Peucedanum sandwicense,* and *Vigna o-wahuensis.*

(B) Map of Maui—Coastal—Unit 5 (Map 4) follows:

Map 4

Maui—Coastal

Unit 5



(v) Maui—Coastal—Unit 6 (356 ac, 144 ha).

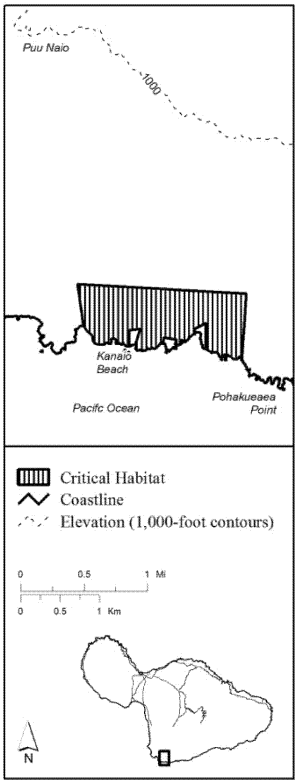
(A) This unit is critical habitat for *Brighamia rockii, Cyperus pennatiformis, Ischaemum byrone, Peucedanum sandwicense,* and *Vigna o-wahuensis.*

(B) Map of Maui—Coastal—Unit 6 (Map 5) follows:

Map 5

Maui—Coastal

Unit 6



(vi) Maui—Coastal—Unit 7 (46 ac, 19 ha).

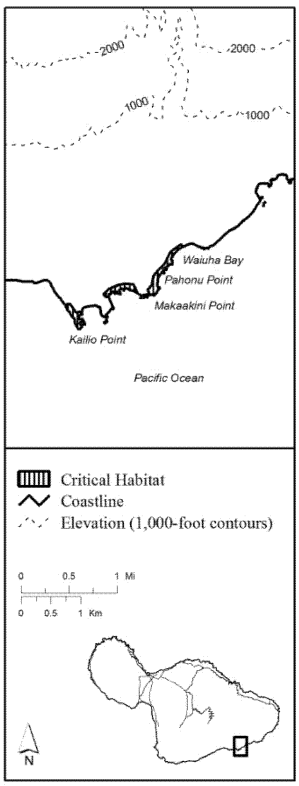
(A) This unit is critical habitat for *Brighamia rockii, Cyperus pennatiformis, Ischaemum byrone, Peucedanum sandwicense,* and *Vigna o-wahuensis.*

(B) Map of Maui—Coastal—Unit 7 (Map 6) follows:

Map 6

Maui—Coastal

Unit 7



(vii) Maui—Coastal—Unit 8 (493 ac, 200 ha).

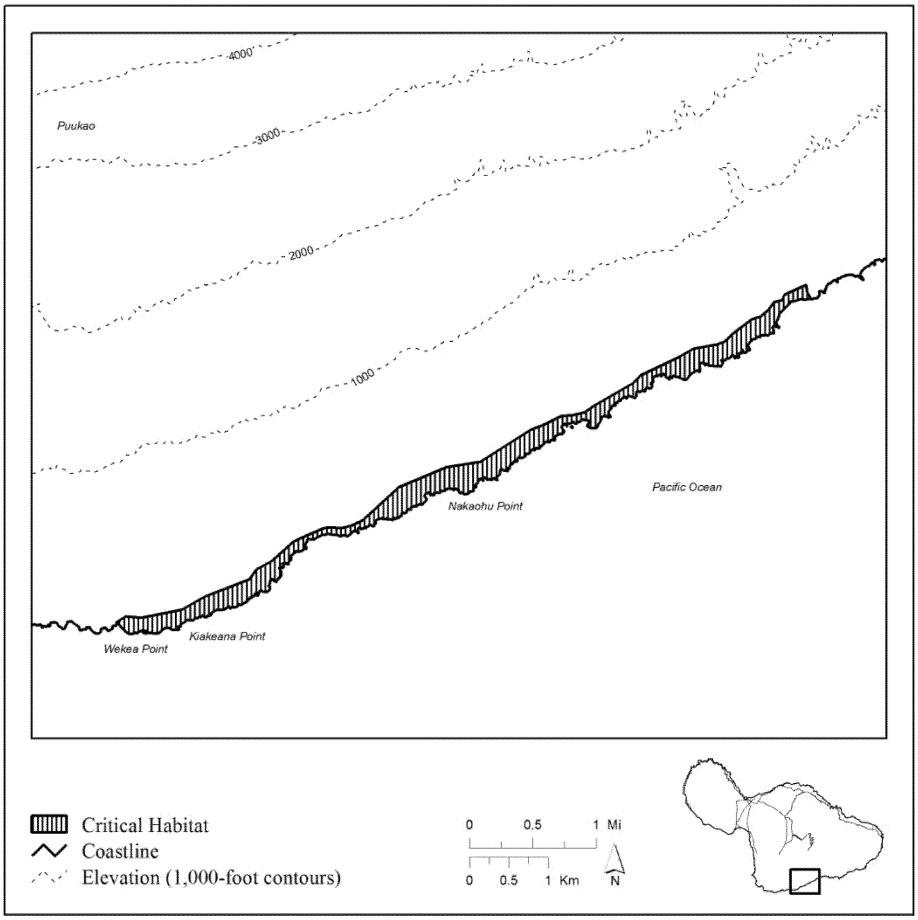
(A) This unit is critical habitat for *Brighamia rockii, Cyperus pennatiformis, Ischaemum byrone, Peucedanum sandwicense,* and *Vigna o-wahuensis.*

(B) Map of Maui—Coastal—Unit 8 (Map 7) follows:

Map 7

Maui—Coastal

Unit 8



(viii) Maui—Coastal—Unit 9 (170 ac, 69 ha), Maui—Coastal—Unit 10 (173 ac, 70 ha), and Maui—Coastal—Unit 11 (6 ac, 3 ha).

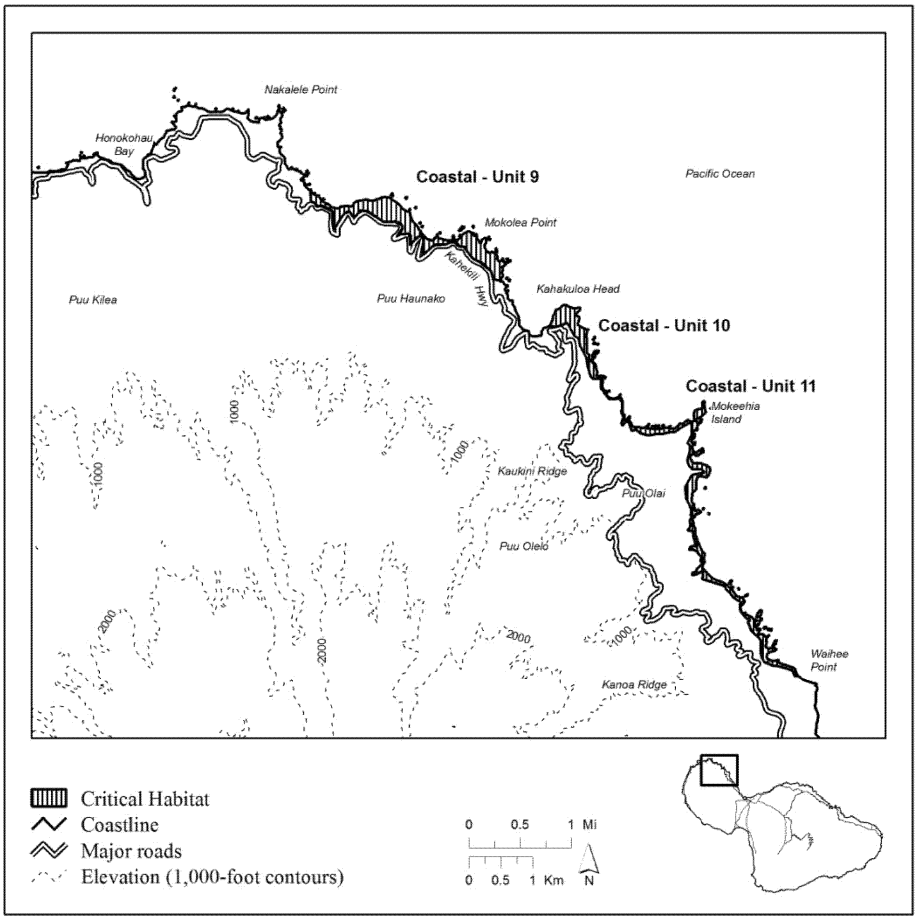
(A) These units are critical habitat for *Brighamia rockii, Schenkia sebaeoides,* and *Sesbania tomentosa.*

(B) Map of Maui—Coastal—Unit 9, Maui—Coastal—Unit 10, and Maui—Coastal—Unit 11 (Map 8) follows:

Map 8

Maui—Coastal

Unit 9, Unit 10, and Unit 11



(ix) Maui—Lowland Dry—Unit 1 (13,537 ac, 5,478 ha).

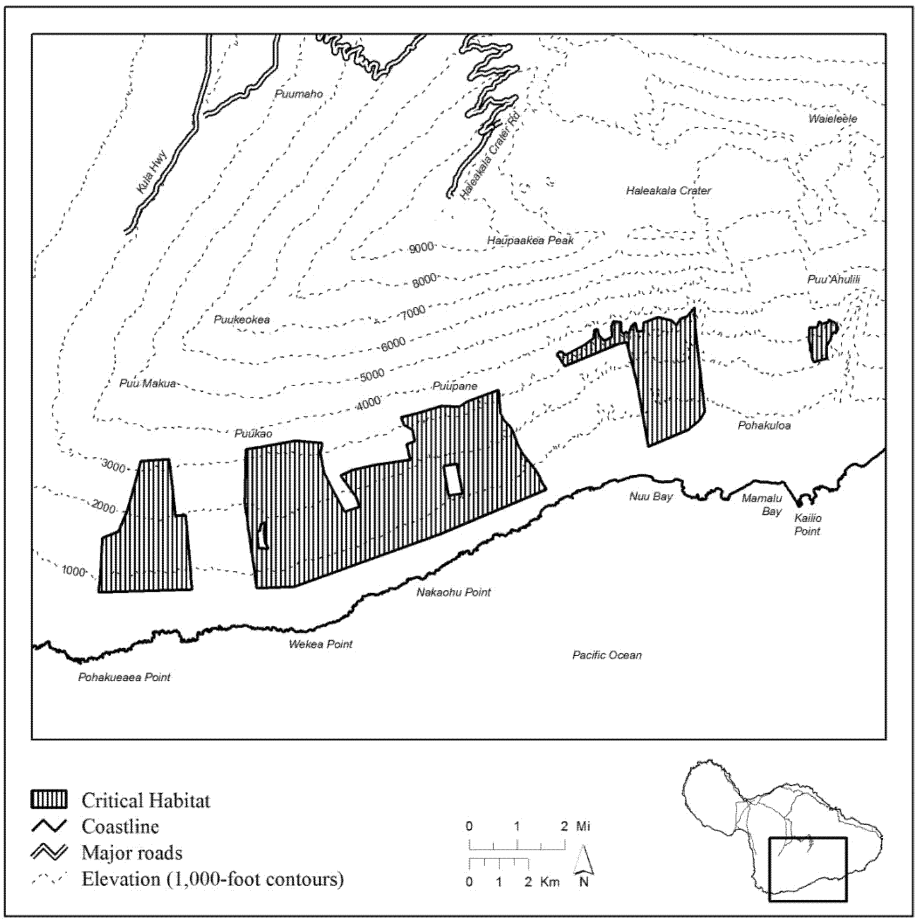
(A) This unit is critical habitat for *Alectryon macrococcus, Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Canavalia pubescens, Cenchrus agrimonioides, Colubrina oppositifolia, Ctenitis squamigera, Flueggea neowawraea, Hibiscus brackenridgei, Melanthera kamolensis, Melicope adscendens, Melicope mucronulata, Neraudia sericea, Nototrichium humile, Santalum haleakalae* var. *lanaiense, Sesbania tomentosa, Solanum incompletum, Spermolepis hawaiiensis,* and *Zanthoxylum hawaiiense.*

(B) Map of Maui—Lowland Dry—Unit 1 (Map 9) follows:

Map 9

Maui—Lowland Dry

Unit 1



(x) Maui—Lowland Dry—Unit 2 (1,851 ac, 749 ha), Maui—Lowland Dry—Unit 3 (188 ac, 76 ha), and Maui—Lowland Dry—Unit 4 (1,266 ac, 512 ha).

(A) Maui—Lowland Dry—Unit 2 is critical habitat for *Alectryon macrococcus, Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Canavalia pubescens, Cenchrus agrimonioides, Colubrina oppositifolia, Ctenitis squamigera, Flueggea neowawraea, Hibiscus brackenridgei, Melanthera kamolensis, Melicope mucronulata, Neraudia sericea, Nototrichium humile, Santalum haleakalae* var. *lanaiense, Sesbania tomentosa, Solanum incompletum, Spermolepis hawaiiensis,* and *Zanthoxylum hawaiiense.*

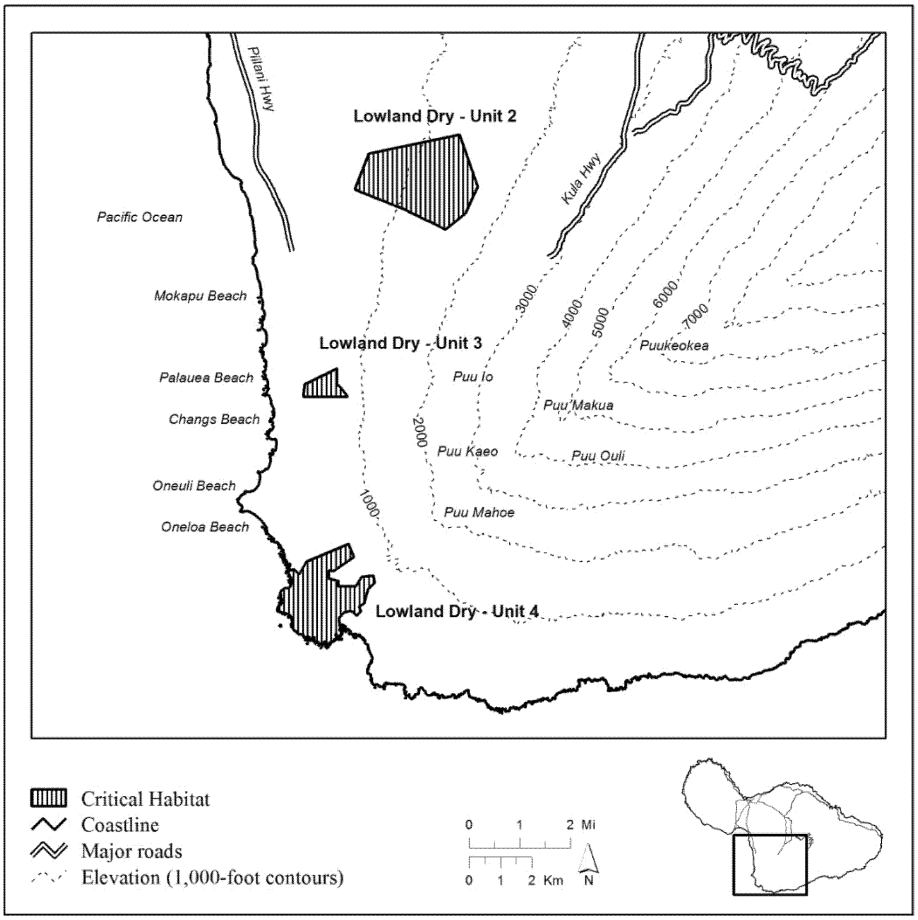
(B) Maui—Lowland Dry—Unit 3 and Maui—Lowland Dry—Unit 4 are critical habitat for *Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Canavalia pubescens, Cenchrus agrimonioides, Colubrina oppositifolia, Ctenitis squamigera, Flueggea neowawraea, Hibiscus brackenridgei, Melanthera kamolensis, Melicope mucronulata, Neraudia sericea, Nototrichium humile, Santalum haleakalae* var. *lanaiense, Sesbania tomentosa, Solanum incompletum, Spermolepis hawaiiensis,* and *Zanthoxylum hawaiiense.*

(C) Map of Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4 (Map 10) follows:

Map 10

Maui—Lowland Dry

Unit 2, Unit 3, and Unit 4



(xi) Maui—Lowland Dry—Unit 5 (3,658 ac, 1,480 ha) and Maui—Lowland Dry—Unit 6 (240 ac, 97 ha).

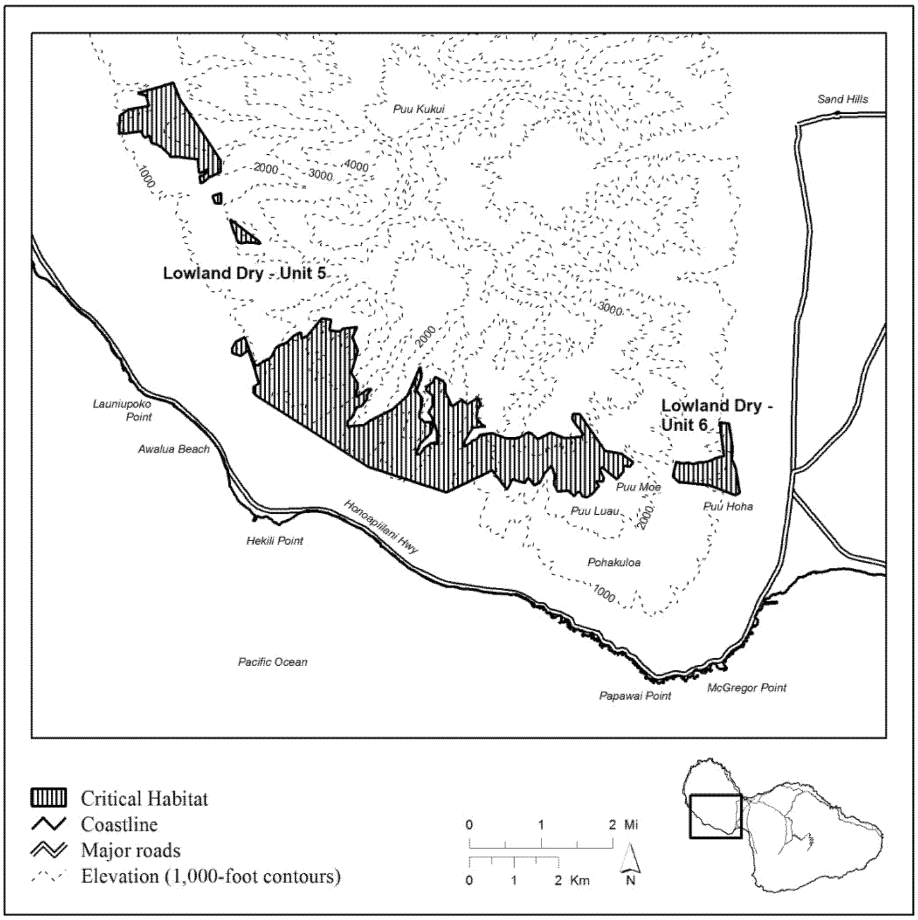
(A) These units are critical habitat for *Asplenium dielerectum, Bidens campylotheca* ssp. *pentamera, Cenchrus agrimonioides, Ctenitis squamigera, Cyanea obtusa, Gouania hillebrandii, Hesperomannia arbuscula, Hibiscus brackenridgei, Kadua coriacea, Lysimachia lydgatei, Neraudia sericea, Remya mauiensis, Santalum haleakalae* var. *lanaiense, Schiedea salicaria, Sesbania tomentosa, Spermolepis hawaiiensis, Tetramolopium capillare,* and *Tetramolopium remyi.*

(B) Map of Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6 (Map 11) follows:

Map 11

Maui—Lowland Dry

Unit 5 and Unit 6



(xii) Maui—Lowland Mesic—Unit 1 (1,882 ac, 762 ha).

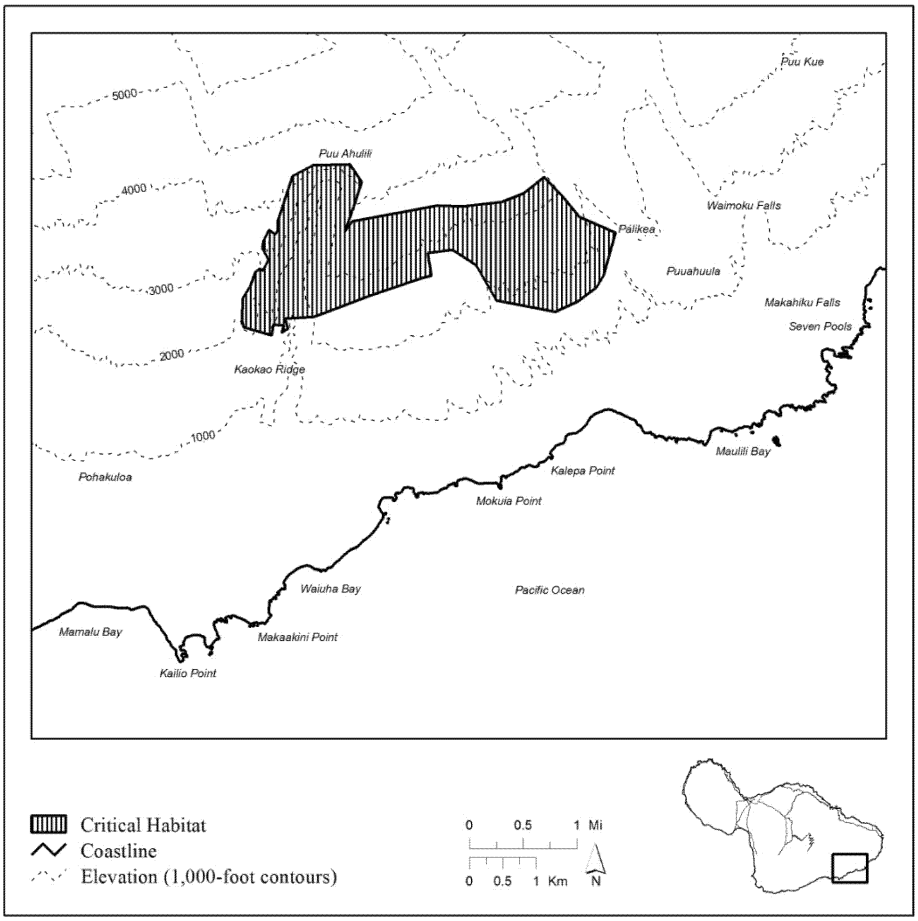
(A) This unit is critical habitat for *Ctenitis squamigera, Cyanea asplenifolia, Cyanea copelandii* ssp. *haleakalaensis, Huperzia mannii,* and *Solanum incompletum.*

(B) Map of Maui—Lowland Mesic—Unit 1 (Map 12) follows:

Map 12

Maui—Lowland Mesic

Unit 1



(xiii) Maui—Lowland Mesic—Unit 2 (1,147 ac, 464 ha) and Maui—Lowland Mesic—Unit 3 (477 ac, 193 ha).

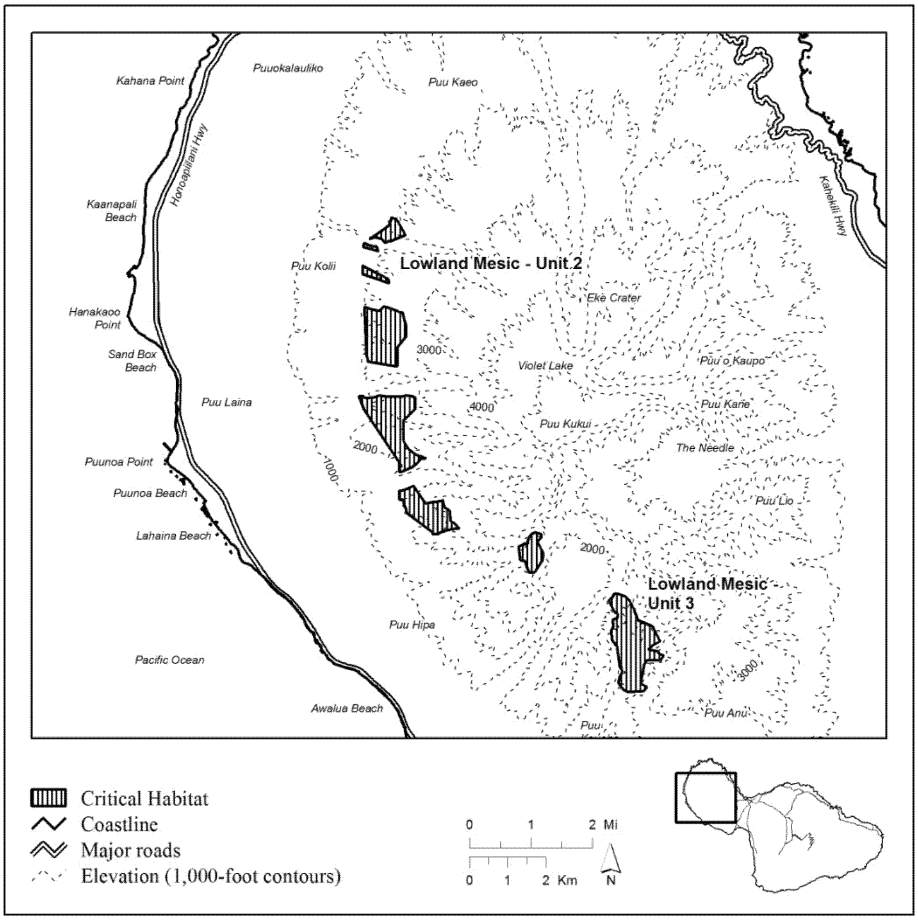
(A) These units are critical habitat for *Asplenium dielerectum, Bidens campylotheca* ssp. *pentamera, Colubrina oppositifolia, Ctenitis squamigera, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* and *Zanthoxylum hawaiiense.*

(B) Map of Maui—Lowland Mesic—Unit 2 and Maui—Lowland Mesic—Unit 3 (Map 13) follows:

Map 13

Maui—Lowland Mesic

Unit 2 and Unit 3



(xiv) Maui—Lowland Wet—Unit 1 (16,079 ac, 6,507 ha).

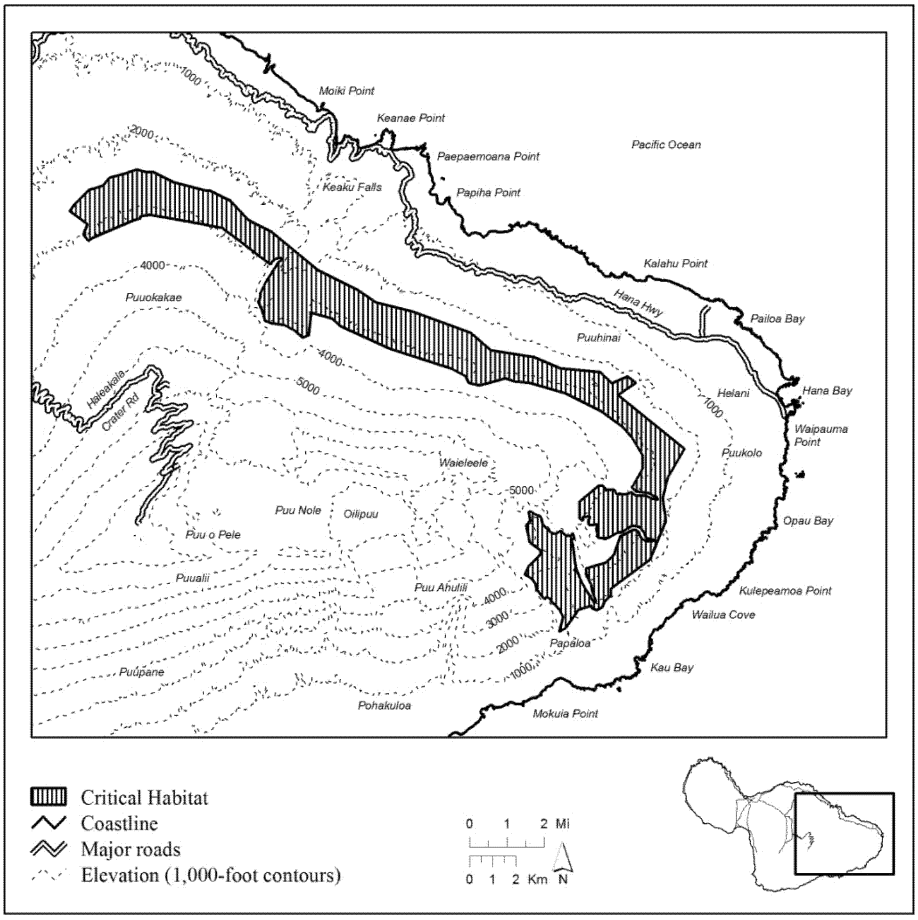
(A) This unit is critical habitat for *Bidens campylotheca* ssp. *waihoiensis, Clermontia oblongifolia* ssp. *mauiensis, Clermontia peleana, Clermontia samuelii, Cyanea asplenifolia, Cyanea copelandii* ssp. *haleakalaensis, Cyanea duvalliorum, Cyanea hamatiflora* ssp. *hamatiflora, Cyanea kunthiana, Cyanea maritae, Cyanea mceldowneyi, Huperzia mannii, Melicope balloui, Melicope ovalis, Mucuna sloanei* var. *persericea, Phyllostegia haliakalae,* and *Wikstroemia villosa.*

(B) Map of Maui—Lowland Wet—Unit 1 (Map 14) follows:

Map 14

Maui—Lowland Wet

Unit 1



(xv) Maui—Lowland Wet—Unit 2 (65 ac, 26 ha), Maui—Lowland Wet—Unit 3 (1,247 ac, 505 ha), Maui—Lowland Wet—Unit 4 (864 ac, 350 ha), and Maui—Lowland Wet—Unit 6 (136 ac, 55 ha).

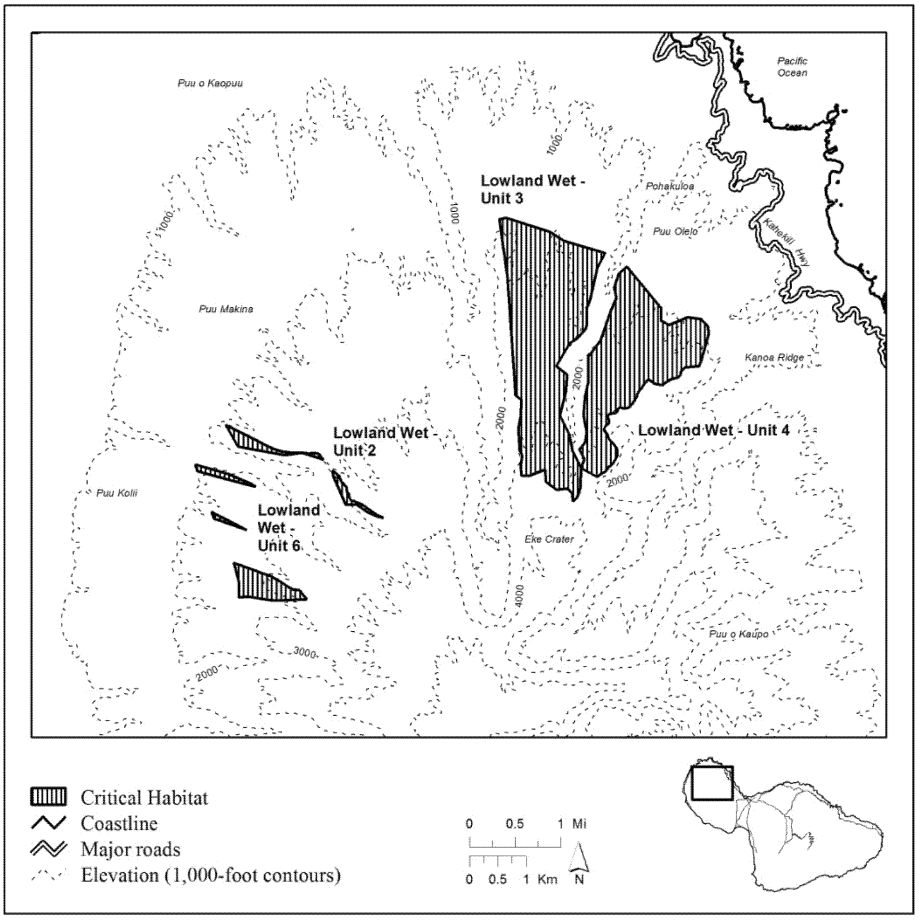
(A) This unit is critical habitat for *Alectryon macrococcus, Asplenium dielerectum, Bidens conjuncta, Bidens micrantha* ssp. *kalealaha, Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyanea asplenifolia, Cyanea glabra, Cyanea kunthiana, Cyanea lobata, Cyanea magnicalyx, Cyrtandra filipes, Cyrtandra munroi, Diplazium molokaiense, Hesperomannia arborescens, Hesperomannia arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Peucedanum sandwicense, Phyllostegia bracteata, Pteris lidgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* and *Wikstroemia villosa.*

(B) Map of Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui——Lowland Wet—Unit 4, and Maui—Lowland Wet—Unit 6 (Map 15) follows:

Map 15

Maui—Lowland Wet

Unit 2, Unit 3, Unit 4, and Unit 6



(xvi) Maui—Lowland Wet—Unit 5 (30 ac, 12 ha), Maui—Lowland Wet—Unit 7 (898 ac, 364 ha), and Maui—Lowland Wet—Unit 8 (230 ac, 93 ha).

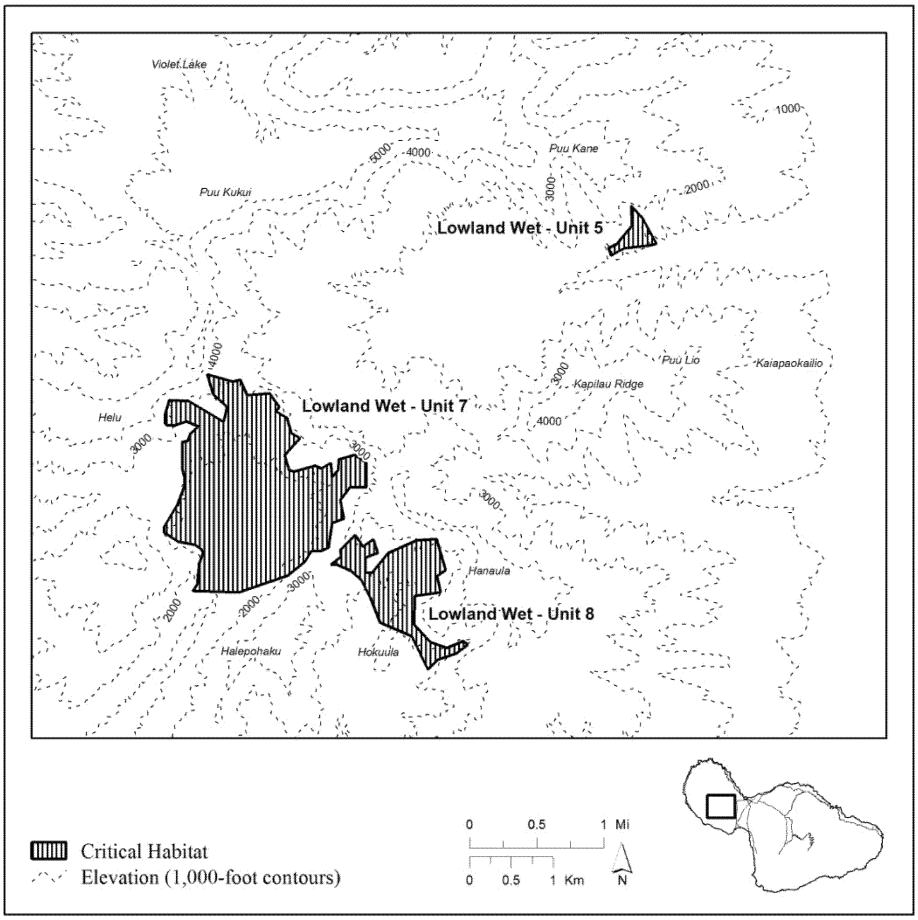
(A) These units are critical habitat for *Alectryon macrococcus, Asplenium dielerectum, Bidens conjuncta, Bidens micrantha* ssp. *kalealaha, Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyanea asplenifolia, Cyanea glabra, Cyanea kunthiana, Cyanea lobata, Cyanea magnicalyx, Cyrtandra filipes, Cyrtandra munroi, Diplazium molokaiense, Hesperomannia arborescens, Hesperomannia arbuscula, Huperzia mannii, Isodendrion pyrifolium, Kadua laxiflora, Peucedanum sandwicense, Phyllostegia bracteata, Pteris lidgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* and *Wikstroemia villosa.*

(B) Map of Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8 (Map 16) follows:

Map 16

Maui—Lowland Wet

Unit 5, Unit 7, and Unit 8



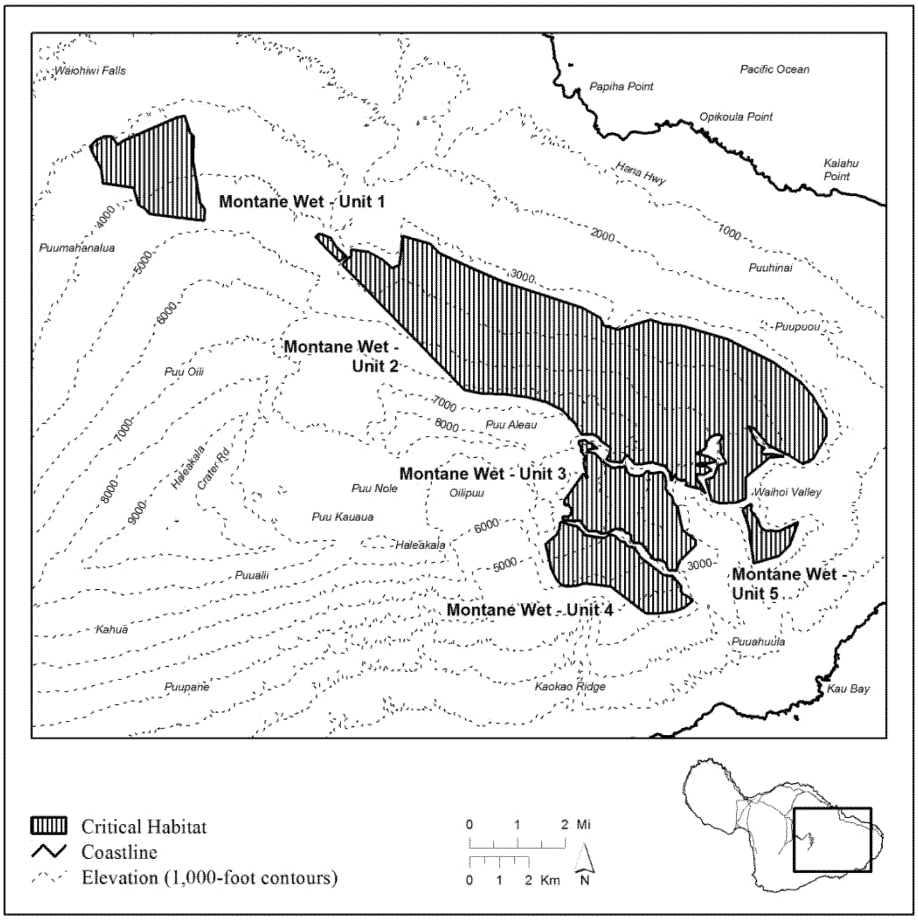
(A) This unit is critical habitat for *Adenophorus periens, Asplenium peruvianum* var. *insulare, Bidens campylotheca* ssp. *pentamera, Bidens campylotheca* ssp. *waihoiensis, Clermontia oblongifolia* ssp. *mauiensis, Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, Cyanea duvalliorum, Cyanea glabra, Cyanea hamatiflora* ssp. *hamatiflora, Cyanea horrida, Cyanea kunthiana, Cyanea maritae, Cyanea mceldowneyi, Cyrtandra ferripilosa, Diplazium molokaiense, Geranium hanaense, Geranium multiflorum, Huperzia mannii, Melicope balloui, Melicope ovalis, Peperomia subpetiolata, Phyllostegia bracteata, Phyllostegia haliakalae, Phyllostegia mannii, Phyllostegia pilosa, Platanthera holochila, Schiedea jacobii,* and *Wikstroemia villosa.*

(B) Map of Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5 (Map 17) follows:

Map 17

Maui—Montane Wet

Unit 1, Unit 2, Unit 3, Unit 4, and Unit 5



(xviii) Maui—Montane Wet—Unit 6 (1,399 ac, 566 ha), and Maui—Montane Wet—Unit 7 (80 ac, 32 ha).

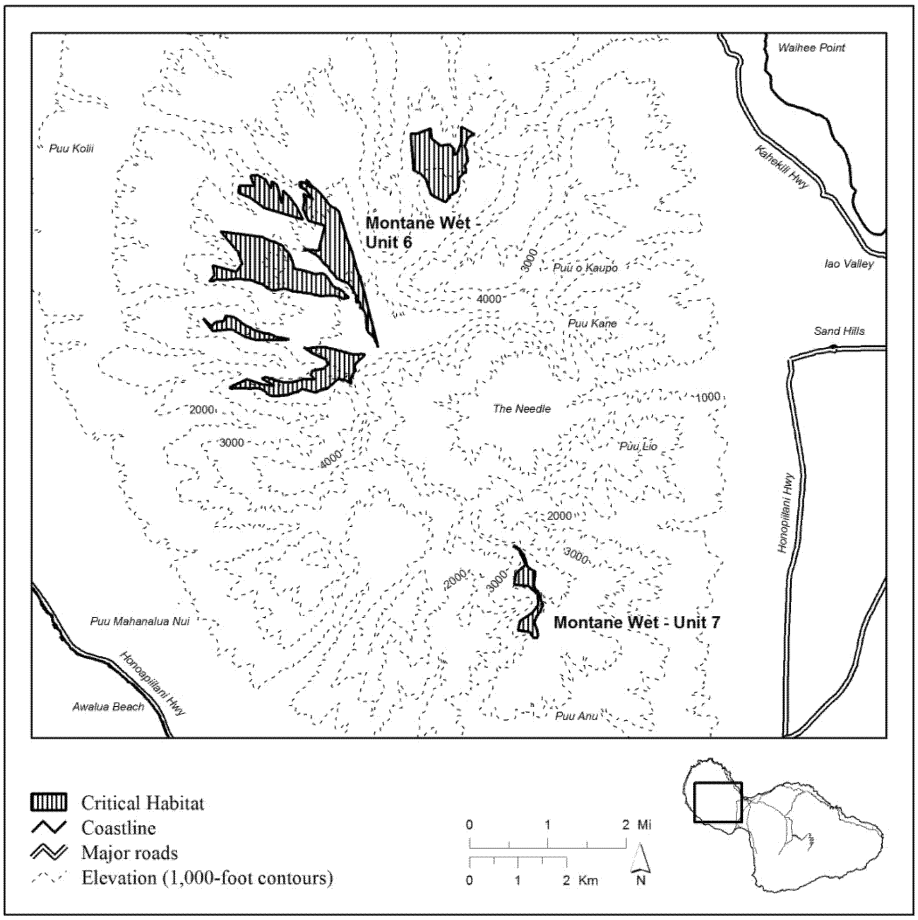
(A) These units are critical habitat for *Acaena exigua, Bidens conjuncta, Calamagrostis hillebrandii, Cyanea kunthiana, Cyrtandra oxybapha, Geranium hillebrandii, Huperzia mannii, Myrsine vaccinioides, Phyllostegia bracteata, Platanthera holochila,* and *Sanicula purpurea.*

(B) Map of Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7 (Map 18) follows:

Map 18

Maui—Montane Wet

Unit 6 and Unit 7



(xix) Maui—Montane Mesic—Unit 1 (10,972 ac, 4,440 ha).

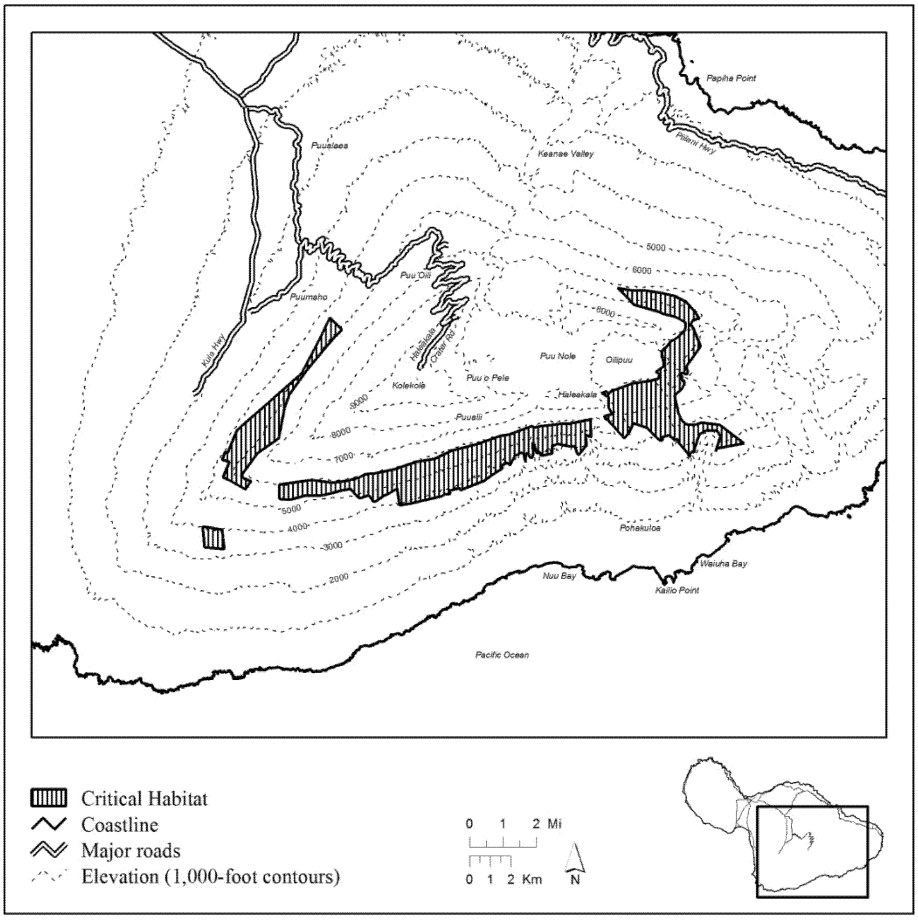
(A) This unit is critical habitat for *Alectryon macrococcus, Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium dielerectum, Asplenium peruvianum* var. *insulare, Bidens campylotheca* ssp. *pentamera, Bidens micrantha* ssp. *kalealaha, Clermontia lindseyana, Cyanea glabra, Cyanea hamatiflora* ssp. *hamatiflora, Cyanea horrida, Cyanea kunthiana, Cyanea mceldowneyi, Cyanea obtusa, Cyrtandra ferripilosa, Cyrtandra oxybapha, Diplazium molokaiense, Geranium arboreum, Geranium multiflorum, Huperzia mannii, Melicope adscendens, Neraudia sericea, Phyllostegia bracteata, Phyllostegia mannii, Santalum haleakalae* var. *lanaiense, Wikstroemia villosa,* and *Zanthoxylum hawaiiense.*

(B) Map of Maui—Montane Mesic—Unit 1 (Map 19) follows:

Map 19

Maui—Montane Mesic

Unit 1



(xx) Maui—Montane Mesic—Unit 2 (124 ac, 50 ha), Maui—Montane Mesic—Unit 3 (174 ac; 70 ha), Maui—Montane Mesic—Unit 4 (72 ac, 29 ha), and Maui—Montane Mesic—Unit 5 (170 ac, 69 ha).

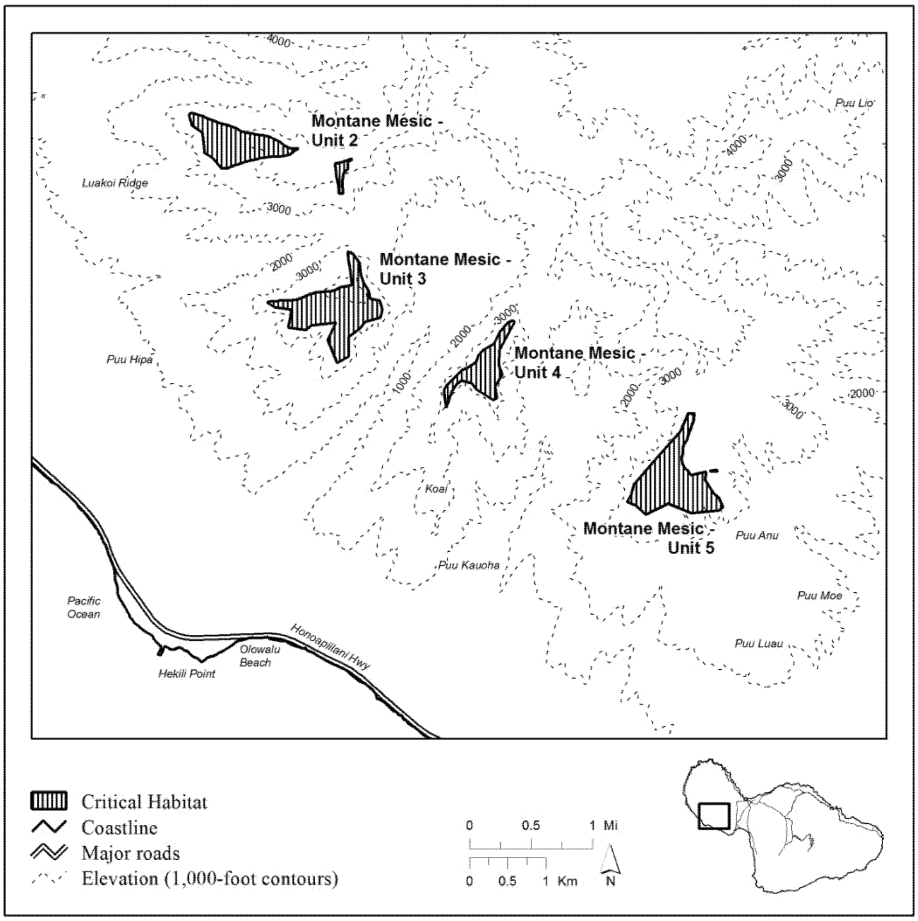
(A) These units are critical habitat for *Ctenitis squamigera, Cyanea magnicalyx, Diplazium molokaiense, Geranium hillebrandii, Huperzia mannii, Lysimachia lydgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense, Stenogyne kauaulaensis,* and *Zanthoxylum hawaiiense.*

(B) Map of Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5 (Map 20) follows:

Map 20

Maui—Montane Mesic

Unit 2, Unit 3, Unit 4, and Unit 5



(xxi) Maui—Montane Dry—Unit 1 (3,524 ac, 1,426 ha).

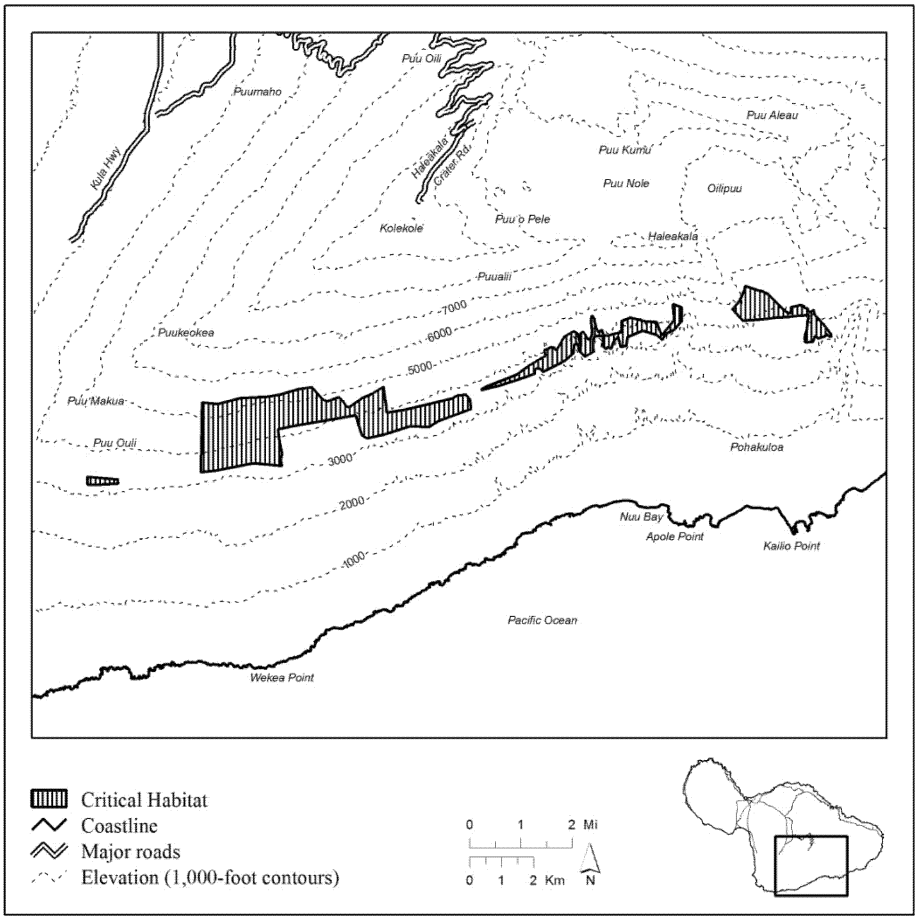
(A) This unit is critical habitat for *Alectryon macrococcus, Geranium arboreum, Melicope knudsenii, Melicope mucronulata, Santalum haleakalae* var. *lanaiense,* and *Zanthoxylum hawaiiense.*

(B) Map of Maui—Montane Dry—Unit 1 (Map 21) follows:

Map 21

Maui—Montane Dry

Unit 1



(xxii) Maui—Subalpine—Unit 1 (15,975 ac, 6,465 ha) and Maui—Subalpine—Unit 2 (9,886 ac, 4,001 ha).

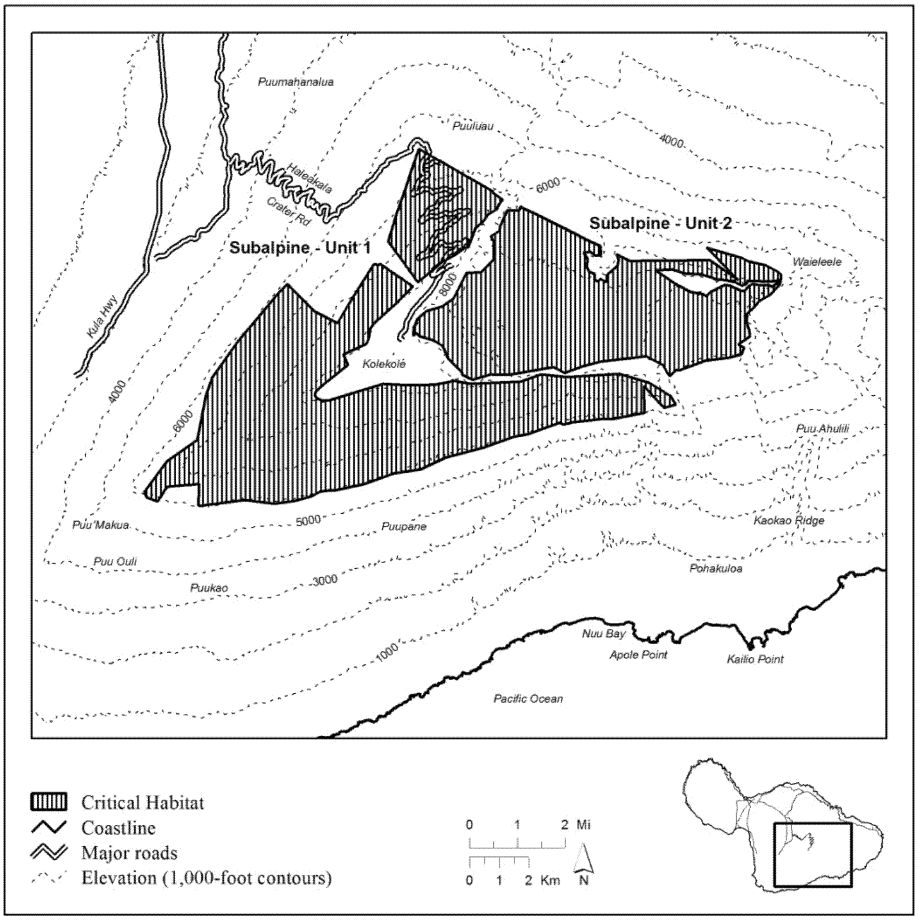
(A) These units are critical habitat for *Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium peruvianum* var. *insulare, Bidens micrantha* ssp. *kalealaha, Geranium arboreum, Geranium multiflorum, Phyllostegia bracteata, Schiedea haleakalensis,* and *Zanthoxylum hawaiiense.*

(B) Map of Maui—Subalpine—Unit 1 and Maui—Subalpine—Unit 2 (Map 22) follows:

Map 22

Maui—Subalpine

Unit 1 and Unit 2



(xxiii) Maui—Alpine—Unit 1 (1,797 ac, 727 ha).

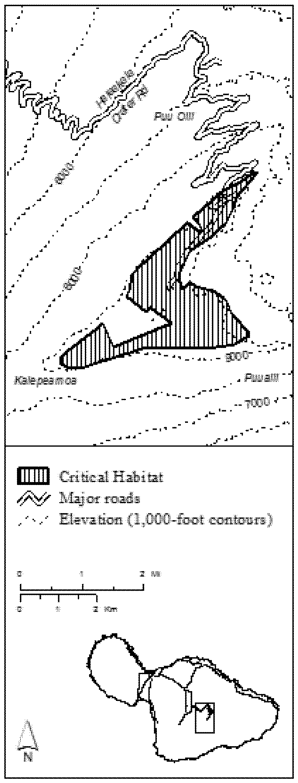
(A) This unit is critical habitat for *Argyroxiphium sandwicense* ssp. *macrocephalum.*

(B) Map of Maui—Alpine—Unit 1 (Map 23) follows:

Map 23

Maui-Alpine

Unit 1



(xxiv) Maui—Dry Cliff—Unit 1 (755 ac, 305 ha), Maui—Dry Cliff—Unit 2 (688 ac, 279 ha), Maui—Dry Cliff—Unit 3 (200 ac, 81 ha), and Maui—;Dry Cliff—Unit 4 (315 ac, 127 ha).

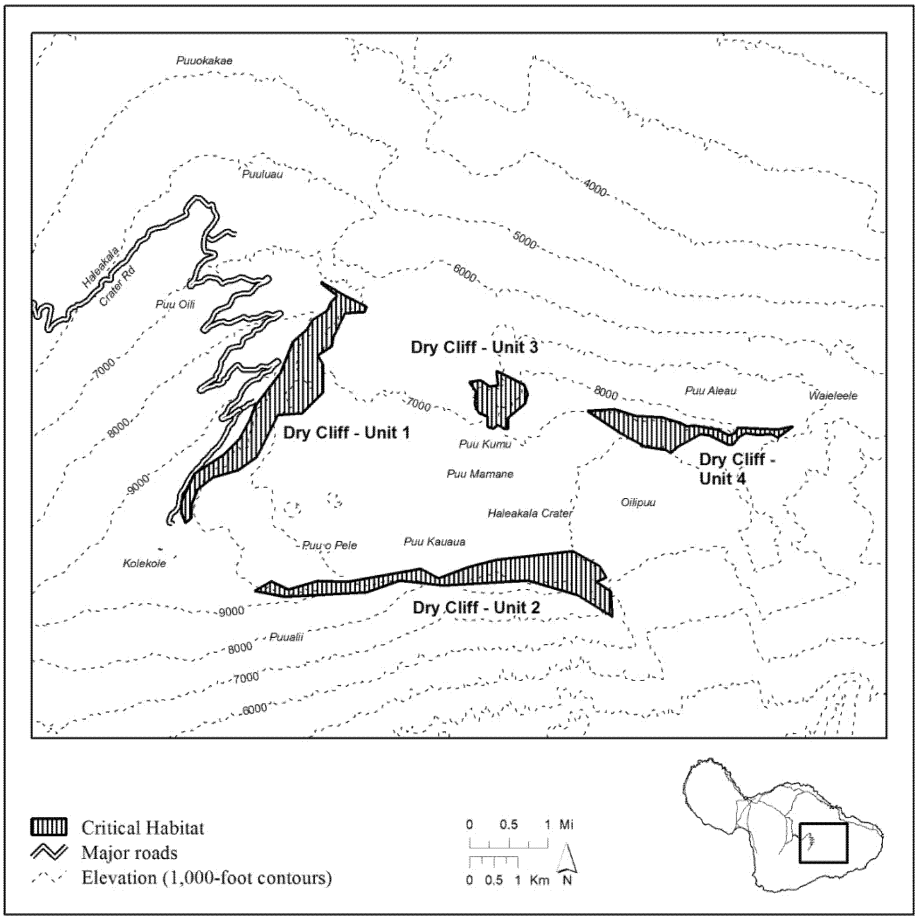
(A) These units are critical habitat for *Argyroxiphium sandwicense* ssp. *macrocephalum, Bidens campylotheca* ssp. *pentamera, Bidens micrantha* ssp. *kalealaha, Diplazium molokaiense, Geranium multiflorum, Plantago princeps,* and *Schiedea haleakalensis.*

(B) Map of Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, and Maui—Dry Cliff—Unit 4 (Map 24) follows:

Map 24

Maui—Dry Cliff

Unit 1, Unit 2, Unit 3, and Unit 4



(xxv) Maui—Dry Cliff—Unit 5 (1,298 ac, 525 ha) and Maui—Dry Cliff—Unit 6 (279 ac, 113 ha).

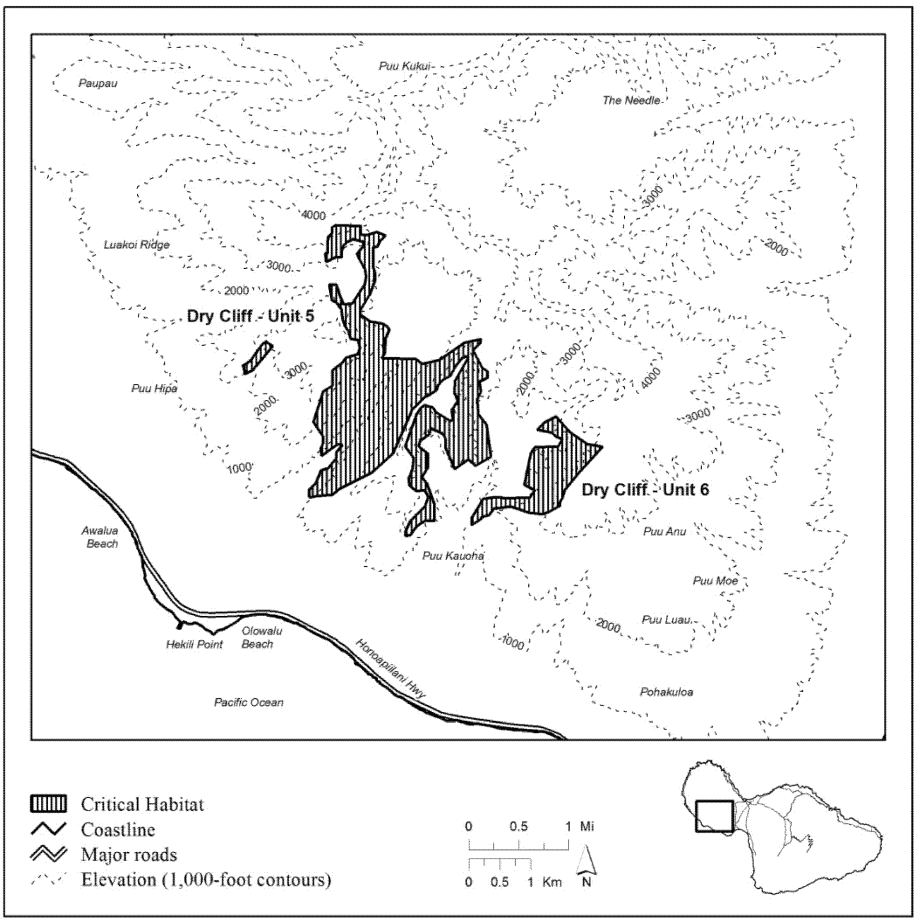
(A) These units are critical habitat for *Bonamia menziesii, Diplazium molokaiense, Hesperomannia arbuscula, Isodendrion pyrifolium, Kadua laxiflora, Neraudia sericea,* and *Tetramolopium capillare.*

(B) Map of Maui—Dry Cliff—Unit 5 and Maui—Dry Cliff—Unit 6 (Map 25) follows:

Map 25

Maui—Dry Cliff

Unit 5 and Unit 6



(xxvi) Maui—Wet Cliff—Unit 1 (290 ac, 117 ha).

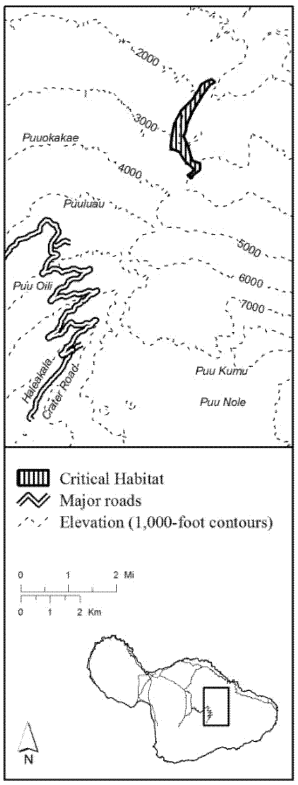
(A) This unit is critical habitat for *Bidens campylotheca* ssp. *pentamera, Bidens campylotheca* ssp. *waihoiensis, Cyanea copelandii* ssp. *haleakalaensis, Cyanea horrida, Melicope ovalis, Phyllostegia bracteata, Phyllostegia haliakalae,* and *Plantago princeps.*

(B) Map of Maui—Wet Cliff—Unit 1 (Map 26) follows:

Map 26

Maui—Wet Cliff

Unit 1



(xxvii) Maui—Wet Cliff—Unit 2 (1,407 ac, 569 ha), Maui—Wet Cliff—Unit 3 (438 ac, 177 ha), and Maui—Wet Cliff—Unit 4 (184 ac, 75 ha).

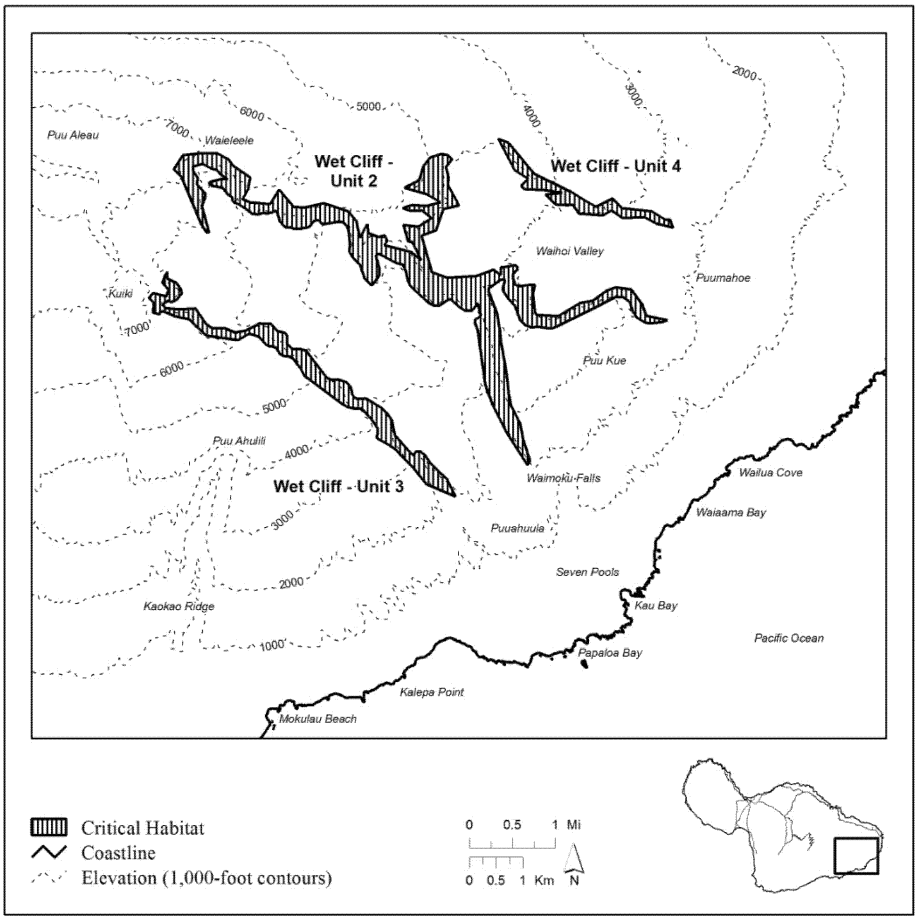
(A) These units are critical habitat for *Bidens campylotheca* ssp. *pentamera, Bidens campylotheca* ssp. *waihoiensis, Cyanea copelandii* ssp. *haleakalaensis, Cyanea horrida, Melicope ovalis, Phyllostegia bracteata, Phyllostegia haliakalae,* and *Plantago princeps.*

(D) Map of Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4 (Map 27) follows:

Map 27

Maui—Wet Cliff

Unit 2, Unit 3, and Unit 4



(xxviii) Maui—Wet Cliff—Unit 6 (2,111 ac, 854 ha), Maui—Wet Cliff—Unit 7 (557 ac, 225 ha), and Maui—Wet Cliff—Unit 8 (337 ac, 137 ha).

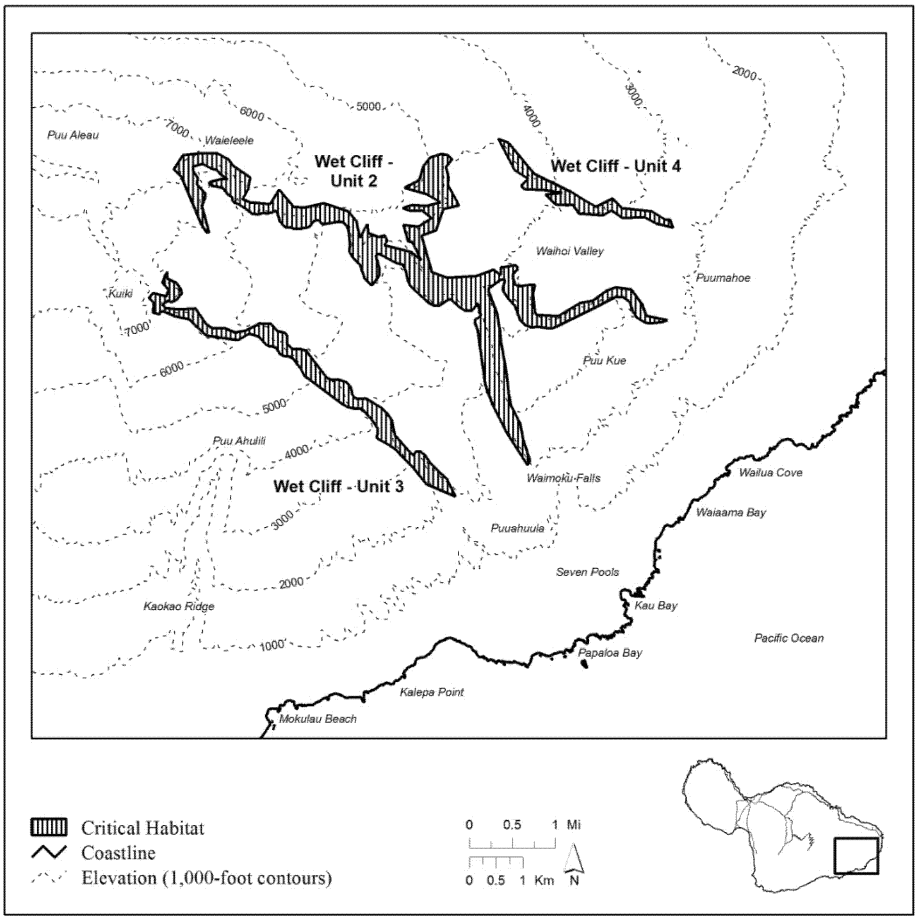
(A) These units are critical habitat for *Alectryon macrococcus, Bidens campylotheca* ssp. *pentamera, Bidens conjuncta, Bonamia menziesii, Ctenitis squamigera, Cyanea glabra, Cyanea lobata, Cyanea magnicalyx, Cyrtandra filipes, Cyrtandra munroi, Dubautia plantaginea* ssp. *humilis, Gouania vitifolia, Hesperomannia arborescens, Hesperomannia arbuscula, Isodendrion pyrifolium, Kadua laxiflora, Lysimachia lydgatei, Plantago princeps, Platanthera holochila, Pteris lidgatei, Remya mauiensis, Santalum haleakalae* var. *lanaiense,* and *Tetramolopium capillare.*

(B) Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8 (Map 28) follows:

Map 27

Maui—Wet Cliff

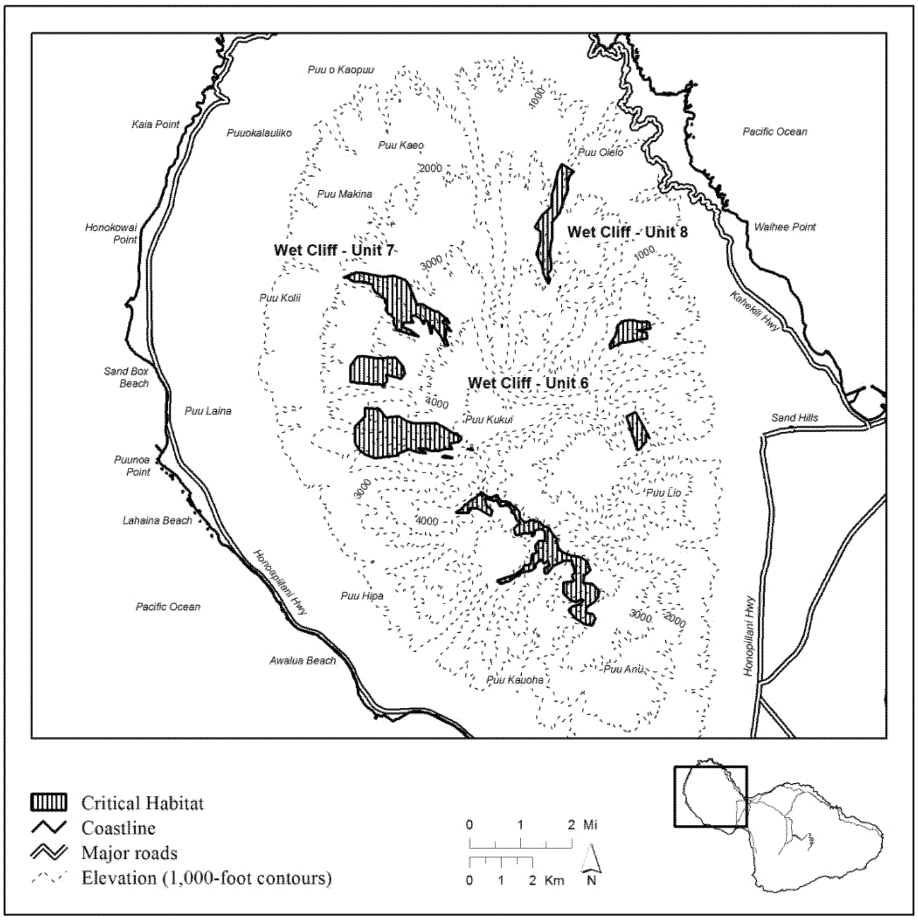
Unit 2, Unit 3, and Unit 4



Map 28

Maui—Wet Cliff

Unit 6, Unit 7, and Unit 8



(xxix) OCCUPANCY OF SPECIES BY DESIGNATED CRITICAL HABITAT UNITS FOR MAUI

Unit name	Species occupied	Species unoccupied
Maui—Coastal—Unit 1	*Peucedanum sandwicense.*	*Brighamia rockii.* *Cyperus pennatiformis.* *Ischaemum byrone.* *Vigna o-wahuensis.*
Maui—Coastal—Unit 2		*Brighamia rockii.* *Cyperus pennatiformis.* *Ischaemum byrone.* *Peucedanum sandwicense.* *Vigna o-wahuensis.*
Maui—Coastal—Unit 3	*Ischaemum byrone.*	*Brighamia rockii.* *Cyperus pennatiformis.* *Peucedanum sandwicense.* *Vigna o-wahuensis.*
Maui—Coastal—Unit 4	*Cyperus pennatiformis.*	*Brighamia rockii.* *Ischaemum byrone.* *Peucedanum sandwicense.* *Vigna o-wahuensis.*

Unit name	Species occupied	Species unoccupied
Maui—Coastal—Unit 5	.....	*Brighamia rockii.*
		Cyperus pennatiformis.
	Ischaemum byrone.	
		Peucedanum sandwicense.
		Vigna o-wahuensis.
Maui—Coastal—Unit 6	.....	*Brighamia rockii.*
		Cyperus pennatiformis.
		Ischaemum byrone.
		Peucedanum sandwicense.
	Vigna o-wahuensis.	
Maui—Coastal—Unit 7	.....	*Brighamia rockii.*
		Cyperus pennatiformis.
		Ischaemum byrone.
		Peucedanum sandwicense.
		Vigna o-wahuensis.
Maui—Coastal—Unit 8	.....	*Brighamia rockii.*
		Cyperus pennatiformis.
		Ischaemum byrone.
		Peucedanum sandwicense.
		Vigna o-wahuensis.
Maui—Coastal—Unit 9	.....	*Brighamia rockii.*
	Schenkia sebaeoides.	
	Sesbania tomentosa.	
Maui—Coastal—Unit 10	.....	*Brighamia rockii.*
	Schenkia sebaeoides.	
		Sesbania tomentosa.
Maui—Coastal—Unit 11	.....	*Brighamia rockii.*
		Schenkia sebaeoides.
		Sesbania tomentosa.
Maui—Lowland Dry—Unit 1	.....	*Alectryon macrococcus.*
		Bidens micrantha ssp. *kalealaha.*
	Bonamia menziesii.	
		Canavalia pubescens.
	Cenchrus agrimonioides.	
		Colubrina oppositifolia.
		Ctenitis squamigera.
	Flueggea neowawraea.	
		Hibiscus brackenridgei.
		Melanthera kamolensis.
	Melicope adscendens.	
		Melicope mucronulata.
		Neraudia sericea.
		Nototrichium humile.
	Santalum haleakalae var. *lanaiense*	
		Sesbania tomentosa.
		Solanum incompletum.
	Spermolepis hawaiiensis.	
		Zanthoxylum hawaiiense.
Maui—Lowland Dry—Unit 2	.....	*Alectryon macrococcus.*
		Bidens micrantha ssp. *kalealaha.*
	Bonamia menziesii.	
	Canavalia pubescens.	
		Cenchrus agrimonioides.
		Colubrina oppositifolia.
		Ctenitis squamigera.
		Flueggea neowawraea.
	Hibiscus brackenridgei.	
		Melanthera kamolensis.
		Melicope mucronulata.
		Neraudia sericea.
		Nototrichium humile.
		Santalum haleakalae var. *lanaiense.*
		Sesbania tomentosa.
		Solanum incompletum.
		Spermolepis hawaiiensis.
		Zanthoxylum hawaiiense.
Maui—Lowland Dry—Unit 3	.....	*Bidens micrantha* ssp. *kalealaha.*
		Bonamia menziesii.
	Canavalia pubescens.	
		Cenchrus agrimonioides.
		Colubrina oppositifolia.
		Ctenitis squamigera.
		Flueggea neowawraea.
		Hibiscus brackenridgei.

Unit name	Species occupied	Species unoccupied
		Melanthera kamolensis.
		Melicope mucronulata.
		Neraudia sericea.
		Nototrichium humile.
		Santalum haleakalae var. *lanaiense.*
		Sesbania tomentosa.
		Solanum incompletum.
		Spermolepis hawaiiensis.
		Zanthoxylum hawaiiense.
Maui—Lowland Dry—Unit 4		*Bidens micrantha* ssp. *kalealaha.*
		Bonamia menziesii.
		Canavalia pubescens.
		Cenchrus agrimonioides.
		Colubrina oppositifolia.
		Ctenitis squamigera.
		Flueggea neowawraea.
		Hibiscus brackenridgei.
		Melanthera kamolensis.
		Melicope mucronulata.
		Neraudia sericea.
		Nototrichium humile.
		Santalum haleakalae var. *lanaiense.*
		Sesbania tomentosa.
		Solanum incompletum.
		Spermolepis hawaiiensis.
		Zanthoxylum hawaiiense.
Maui—Lowland Dry—Unit 5	*Asplenium dielerectum.*	
	Bidens campylotheca ssp. *pentamera.*	
	Cenchrus agrimonioides.	
		Ctenitis squamigera.
		Cyanea obtusa.
	Gouania hillebrandii.	
		Hesperomannia arbuscula.
		Hibiscus brackenridgei.
	Kadua coriacea.	
		Lysimachia lydgatei.
		Neraudia sericea.
	Remya mauiensis.	
	Santalum haleakalae var. *lanaiense.*	
		Schiedea salicaria.
		Sesbania tomentosa.
	Spermolepis hawaiiensis.	
	Tetramolopium capillare.	
		Tetramolopium remyi.
Maui—Lowland Dry—Unit 6		*Asplenium dielerectum.*
		Bidens campylotheca ssp. *pentamera.*
		Cenchrus agrimonioides.
		Ctenitis squamigera.
		Cyanea obtusa.
		Gouania hillebrandii.
		Hesperomannia arbuscula.
	Hibiscus brackenridgei.	
		Kadua coriacea.
		Lysimachia lydgatei.
		Neraudia sericea.
		Remya mauiensis.
		Santalum haleakalae var. *lanaiense.*
	Schiedea salicaria.	
		Sesbania tomentosa.
		Spermolepis hawaiiensis.
		Tetramolopium capillare.
		Tetramolopium remyi.
Maui—Lowland Mesic—Unit 1		*Ctenitis squamigera.*
	Cyanea asplenifolia.	
	Cyanea copelandii ssp. *haleakalaensis.*	
	Huperzia mannii.	
		Solanum incompletum.
Maui—Lowland Mesic—Unit 2		*Asplenium dielerectum.*
		Bidens campylotheca ssp. *pentamera.*
		Colubrina oppositifolia.
	Ctenitis squamigera.	
	Remya mauiensis.	
	Santalum haleakalae var. *lanaiense.*	
	Zanthoxylum hawaiiense.	

Unit name	Species occupied	Species unoccupied
Maui—Lowland Mesic—Unit 3	.....	*Asplenium dielerectum.*
		Bidens campylotheca ssp. *pentamera.*
		Colubrina oppositifolia.
		Ctenitis squamigera.
		Remya mauiensis.
		Santalum haleakalae var. *lanaiense.*
		Zanthoxylum hawaiiense.
Maui—Lowland Wet—Unit 1	*Bidens campylotheca* ssp. *waihoiensis.*	
		Clermontia oblongifolia ssp. *mauiensis.*
		Clermontia peleana.
	Clermontia samuelii.	
	Cyanea asplenifolia.	
	Cyanea copelandii ssp. *haleakalaensis.*	
	Cyanea duvalliorum.	
	Cyanea hamatiflora ssp. *hamatiflora.*	
	Cyanea kunthiana.	
	Cyanea maritae.	
	Cyanea mceldowneyi.	
	Huperzia mannii.	
	Melicope balloui.	
	Melicope ovalis.	
		Mucuna sloanei var. *persericea.*
		Phyllostegia haliakalae.
		Wikstroemia villosa.
Maui—Lowland Wet—Unit 2	.....	*Alectryon macrococcus.*
		Asplenium dielerectum.
		Bidens conjuncta.
		Bidens micrantha ssp. *kalealaha.*
		Clermontia oblongifolia ssp. *mauiensis.*
		Ctenitis squamigera.
		Cyanea asplenifolia.
		Cyanea glabra.
		Cyanea kunthiana.
		Cyanea lobata.
		Cyanea magnicalyx.
		Cyrtandra filipes.
		Cyrtandra munroi.
		Diplazium molokaiense.
		Hesperomannia arborescens.
		Hesperomannia arbuscula.
		Huperzia mannii.
		Isodendrion pyrifolium.
		Kadua laxiflora.
		Peucedanum sandwicense.
		Phyllostegia bracteata.
		Pteris lidgatei.
		Remya mauiensis.
	Santalum haleakalae var. *lanaiense.*	
		Wikstroemia villosa.
Maui—Lowland Wet—Unit 3	.....	*Alectryon macrococcus.*
		Asplenium dielerectum.
	Bidens conjuncta.	
		Bidens micrantha ssp. *kalealaha.*
		Clermontia oblongifolia ssp. *mauiensis.*
		Ctenitis squamigera.
	Cyanea asplenifolia.	
		Cyanea glabra.
		Cyanea kunthiana.
		Cyanea lobata.
		Cyanea magnicalyx.
		Cyrtandra filipes.
		Cyrtandra munroi.
		Diplazium molokaiense.
		Hesperomannia arborescens.
		Hesperomannia arbuscula.
		Huperzia mannii.
		Isodendrion pyrifolium.
		Kadua laxiflora.
		Peucedanum sandwicense.
		Phyllostegia bracteata.
	Pteris lidgatei.	
		Remya mauiensis.
		Santalum haleakalae var. *lanaiense.*
		Wikstroemia villosa.

Unit name	Species occupied	Species unoccupied
Maui—Lowland Wet—Unit 4	.....	*Alectryon macrococcus.*
		Asplenium dielerectum.
		Bidens conjuncta.
		Bidens micrantha ssp. *kalealaha.*
		Clermontia oblongifolia ssp. *mauiensis.*
		Ctenitis squamigera.
	Cyanea asplenifolia.	
		Cyanea glabra.
		Cyanea kunthiana.
		Cyanea lobata.
		Cyanea magnicalyx.
		Cyrtandra filipes.
		Cyrtandra munroi.
		Diplazium molokaiense.
		Hesperomannia arborescens.
		Hesperomannia arbuscula.
		Huperzia mannii.
		Isodendrion pyrifolium.
		Kadua laxiflora.
		Peucedanum sandwicense.
		Phyllostegia bracteata.
		Pteris lidgatei.
		Remya mauiensis.
		Santalum haleakalae var. *lanaiense.*
		Wikstroemia villosa.
Maui—Lowland Wet—Unit 5	.....	*Alectryon macrococcus.*
		Asplenium dielerectum.
		Bidens conjuncta.
		Bidens micrantha ssp. *kalealaha.*
		Clermontia oblongifolia ssp. *mauiensis.*
		Ctenitis squamigera.
		Cyanea asplenifolia.
		Cyanea glabra.
		Cyanea kunthiana.
		Cyanea lobata.
		Cyanea magnicalyx.
		Cyrtandra filipes.
		Cyrtandra munroi.
		Diplazium molokaiense.
		Hesperomannia arborescens.
		Hesperomannia arbuscula.
		Huperzia mannii.
		Isodendrion pyrifolium.
		Kadua laxiflora.
		Peucedanum sandwicense.
		Phyllostegia bracteata.
		Pteris lidgatei.
		Remya mauiensis.
		Santalum haleakalae var. lanaiense.
		Wikstroemia villosa.
Maui—Lowland Wet—Unit 6	.....	*Alectryon macrococcus.*
		Asplenium dielerectum.
		Bidens conjuncta.
		Bidens micrantha ssp. *kalealaha.*
		Clermontia oblongifolia ssp. *mauiensis.*
		Ctenitis squamigera.
		Cyanea asplenifolia.
		Cyanea glabra.
		Cyanea kunthiana.
		Cyanea lobata.
		Cyanea magnicalyx.
		Cyrtandra filipes.
		Cyrtandra munroi.
		Diplazium molokaiense.
		Hesperomannia arborescens.
		Hesperomannia arbuscula.
		Huperzia mannii.
		Isodendrion pyrifolium.
		Kadua laxiflora.
		Peucedanum sandwicense.
		Phyllostegia bracteata.
		Pteris lidgatei.
		Remya mauiensis.
	Santalum haleakalae var. *lanaiense.*	

Unit name	Species occupied	Species unoccupied
		Wikstroemia villosa.
Maui—Lowland Wet—Unit 7	*Alectryon macrococcus*	
		Asplenium dielerectum.
		Bidens conjuncta.
		Bidens micrantha ssp. *kalealaha.*
		Clermontia oblongifolia ssp. *mauiensis.*
		Ctenitis squamigera.
		Cyanea asplenifolia.
		Cyanea glabra.
		Cyanea kunthiana.
		Cyanea lobata.
		Cyanea magnicalyx.
		Cyrtandra filipes.
		Cyrtandra munroi.
		Diplazium molokaiense.
		Hesperomannia arborescens.
		Hesperomannia arbuscula.
		Huperzia mannii.
		Isodendrion pyrifolium.
		Kadua laxiflora.
		Peucedanum sandwicense.
		Phyllostegia bracteata.
		Pteris lidgatei.
		Remya mauiensis.
		Santalum haleakalae var. *lanaiense.*
		Wikstroemia villosa.
Maui—Lowland Wet—Unit 8	.....	*Alectryon macrococcus.*
		Asplenium dielerectum.
		Bidens conjuncta.
		Bidens micrantha ssp. *kalealaha.*
		Clermontia oblongifolia ssp. *mauiensis.*
		Ctenitis squamigera.
		Cyanea asplenifolia.
		Cyanea glabra.
		Cyanea kunthiana.
		Cyanea lobata.
		Cyanea magnicalyx.
		Cyrtandra filipes.
		Cyrtandra munroi.
		Diplazium molokaiense.
		Hesperomannia arborescens.
		Hesperomannia arbuscula.
		Huperzia mannii.
		Isodendrion pyrifolium.
		Kadua laxiflora.
		Peucedanum sandwicense.
		Phyllostegia bracteata.
		Pteris lidgatei.
		Remya mauiensis.
		Santalum haleakalae var. *lanaiense.*
		Wikstroemia villosa.
Maui—Montane Wet—Unit 1	.....	*Adenophorus periens.*
		Asplenium peruvianum var. *insulare.*
		Bidens campylotheca ssp. *pentamera.*
		Bidens campylotheca ssp. *waihoiensis.*
		Clermontia oblongifolia ssp. *mauiensis.*
		Clermontia samuelii.
		Cyanea copelandii ssp. *haleakalaensis.*
	Cyanea duvalliorum.	
		Cyanea glabra.
		Cyanea hamatiflora ssp. *hamatiflora.*
		Cyanea horrida.
		Cyanea kunthiana.
	Cyanea maritae.	
	Cyanea mceldowneyi.	
		Cyrtandra ferripilosa.
		Diplazium molokaiense.
		Geranium hanaense.
		Geranium multiflorum.
	Huperzia mannii.	
	Melicope balloui.	
		Melicope ovalis.
		Peperomia subpetiolata.
		Phyllostegia bracteata.

Unit name	Species occupied	Species unoccupied
		Phyllostegia haliakalae.
		Phyllostegia mannii.
	Phyllostegia pilosa.	
		Platanthera holochila.
		Schiedea jacobii.
		Wikstroemia villosa.
Maui—Montane Wet—Unit 2	.....	*Adenophorus periens.*
		Asplenium peruvianum var. *insulare.*
	Bidens campylotheca ssp. *pentamera.*	
		Bidens campylotheca ssp. *waihoiensis.*
		Clermontia oblongifolia ssp. *mauiensis.*
	Clermontia samuelii.	
	Cyanea copelandii ssp. *haleakalaensis.*	
	Cyanea duvalliorum.	
		Cyanea glabra.
	Cyanea hamatiflora ssp. *hamatiflora.*	
	Cyanea horrida.	
	Cyanea kunthiana.	
		Cyanea maritae.
	Cyanea mceldowneyi.	
		Cyrtandra ferripilosa.
		Diplazium molokaiense.
	Geranium hanaense.	
	Geranium multiflorum.	
		Huperzia mannii.
		Melicope balloui.
		Melicope ovalis.
		Peperomia subpetiolata.
		Phyllostegia bracteata.
		Phyllostegia haliakalae.
		Phyllostegia mannii.
		Phyllostegia pilosa.
		Platanthera holochila.
		Schiedea jacobii.
	Wikstroemia villosa.	
Maui—Montane Wet—Unit 3	.....	*Adenophorus periens.*
		Asplenium peruvianum var. *insulare.*
	Bidens campylotheca ssp. *pentamera.*	
	Bidens campylotheca ssp. *waihoiensis.*	
		Clermontia oblongifolia ssp. *mauiensis.*
		Clermontia samuelii.
	Cyanea copelandii ssp. *haleakalaensis.*	
		Cyanea duvalliorum.
		Cyanea glabra.
	Cyanea hamatiflora ssp. *hamatiflora.*	
		Cyanea horrida.
		Cyanea kunthiana.
	Cyanea maritae.	
		Cyanea mceldowneyi.
		Cyrtandra ferripilosa.
		Diplazium molokaiense.
		Geranium hanaense.
		Geranium multiflorum.
		Huperzia mannii.
		Melicope balloui.
	Melicope ovalis.	
		Peperomia subpetiolata.
		Phyllostegia bracteata.
		Phyllostegia haliakalae.
		Phyllostegia mannii.
		Phyllostegia pilosa.
		Platanthera holochila.
		Schiedea jacobii.
		Wikstroemia villosa.
Maui—Montane Wet—Unit 4	.....	*Adenophorus periens.*
		Asplenium peruvianum var. *insulare.*
		Bidens campylotheca ssp. *pentamera.*
		Bidens campylotheca ssp. *waihoiensis.*
		Clermontia oblongifolia ssp. *mauiensis.*
	Clermontia samuelii.	
	Cyanea copelandii ssp. *haleakalaensis.*	
		Cyanea duvalliorum.
		Cyanea glabra.
	Cyanea hamatiflora ssp. *hamatiflora.*	

Unit name	Species occupied	Species unoccupied
	Cyanea horrida.	
	Cyanea kunthiana.	
	Cyanea maritae.	
		Cyanea mceldowneyi.
	Cyrtandra ferripilosa.	
		Diplazium molokaiense.
		Geranium hanaense.
		Geranium multiflorum.
	Huperzia mannii.	
		Melicope balloui.
		Melicope ovalis.
		Peperomia subpetiolata.
		Phyllostegia bracteata.
		Phyllostegia haliakalae.
		Phyllostegia mannii.
		Phyllostegia pilosa.
		Platanthera holochila.
		Schiedea jacobii.
		Wikstroemia villosa.
Maui—Montane Wet—Unit 5		*Adenophorus periens.*
		Asplenium peruvianum var. *insulare.*
	Bidens campylotheca ssp. *pentamera.*	
		Bidens campylotheca ssp. *waihoiensis.*
		Clermontia oblongifolia ssp. *mauiensis.*
		Clermontia samuelii.
		Cyanea copelandii ssp. *haleakalaensis.*
		Cyanea duvalliorum.
		Cyanea glabra.
		Cyanea hamatiflora ssp. *hamatiflora.*
		Cyanea horrida.
		Cyanea kunthiana.
		Cyanea maritae.
		Cyanea mceldowneyi.
		Cyrtandra ferripilosa.
		Diplazium molokaiense.
		Geranium hanaense.
		Geranium multiflorum.
		Huperzia mannii.
		Melicope balloui.
		Melicope ovalis.
		Peperomia subpetiolata.
		Phyllostegia bracteata.
		Phyllostegia haliakalae.
		Phyllostegia mannii.
		Phyllostegia pilosa.
		Platanthera holochila.
		Schiedea jacobii.
		Wikstroemia villosa.
Maui—Montane Wet—Unit 6		*Acaena exigua.*
	Bidens conjuncta.	
	Calamagrostis hillebrandii.	
	Cyanea kunthiana.	
		Cyrtandra oxybapha.
	Geranium hillebrandii.	
		Huperzia mannii.
	Myrsine vaccinioides.	
		Phyllostegia bracteata.
		Platanthera holochila.
	Sanicula purpurea.	
Maui—Montane Wet—Unit 7		*Acaena exigua.*
		Bidens conjuncta.
		Calamagrostis hillebrandii.
		Cyanea kunthiana.
	Cyrtandra oxybapha.	
		Geranium hillebrandii.
		Huperzia mannii.
		Myrsine vaccinioides.
		Phyllostegia bracteata.
	Platanthera holochila.	
		Sanicula purpurea.
Maui—Montane Mesic—Unit 1		*Alectryon macrococcus.*
	Argyroxiphium sandwicense ssp. *macrocephalum.*	
	Asplenium dielerectum.	

Unit name	Species occupied	Species unoccupied
	Asplenium peruvianum var. *insulare*.	
		Bidens campylotheca ssp. *pentamera*.
		Bidens micrantha ssp. *kalealaha*.
	Clermontia lindseyana.	
		Cyanea glabra.
		Cyanea hamatiflora ssp. *hamatiflora*.
	Cyanea horrida.	
		Cyanea kunthiana.
		Cyanea mceldowneyi.
	Cyanea obtusa.	
	Cyrtandra ferripilosa.	
	Cyrtandra oxybapha.	
	Diplazium molokaiense.	
	Geranium arboreum.	
	Geranium multiflorum.	
	Huperzia mannii.	
	Melicope adscendens.	
	Neraudia sericea.	
		Phyllostegia bracteata.
		Phyllostegia mannii.
		Santalum haleakalae var. *lanaiense*.
		Wikstroemia villosa.
		Zanthoxylum hawaiiense.
Maui—Montane Mesic—Unit 2	*Ctenitis squamigera*.	
	Cyanea magnicalyx.	
	Diplazium molokaiense.	
		Geranium hillebrandii.
		Huperzia mannii.
	Lysimachia lydgatei.	
	Remya mauiensis.	
	Santalum haleakalae var. *lanaiense*.	
		Stenogyne kauaulaensis.
		Zanthoxylum hawaiiense.
Maui—Montane Mesic—Unit 3	.....	*Ctenitis squamigera*.
		Cyanea magnicalyx.
		Diplazium molokaiense.
	Geranium hillebrandii.	
		Huperzia mannii.
		Lysimachia lydgatei.
		Remya mauiensis.
		Santalum haleakalae var. *lanaiense*.
		Stenogyne kauaulaensis.
		Zanthoxylum hawaiiense.
Maui—Montane Mesic—Unit 4	.....	*Ctenitis squamigera*.
		Cyanea magnicalyx.
		Diplazium molokaiense.
		Geranium hillebrandii.
		Huperzia mannii.
		Lysimachia lydgatei.
		Remya mauiensis.
		Santalum haleakalae var. *lanaiense*.
		Stenogyne kauaulaensis.
		Zanthoxylum hawaiiense.
Maui—Montane Mesic—Unit 5	.....	*Ctenitis squamigera*.
		Cyanea magnicalyx.
		Diplazium molokaiense.
		Geranium hillebrandii.
		Huperzia mannii.
		Lysimachia lydgatei.
	Remya mauiensis.	
	Santalum haleakalae var. *lanaiense*.	
		Stenogyne kauaulaensis.
		Zanthoxylum hawaiiense.
Maui—Montane Dry—Unit 1	.....	*Alectryon macrococcus*.
		Geranium arboreum.
		Melicope knudsenii.
		Melicope mucronulata.
		Santalum haleakalae var. *lanaiense*.
		Zanthoxylum hawaiiense.
Maui—Subalpine—Unit 1	.....	*Argyroxiphium sandwicense* ssp. *macrocephalum*.
		Asplenium peruvianum var. *insulare*.
	Bidens micrantha ssp. *kalealaha*.	
	Geranium arboreum.	

Unit name	Species occupied	Species unoccupied
		Geranium multiflorum. *Phyllostegia bracteata.* *Schiedea haleakalensis.* *Zanthoxylum hawaiiense.*
Maui—Subalpine—Unit 2	*Argyroxiphium sandwicense* ssp. *macrocephalum.* *Geranium multiflorum.* *Schiedea haleakalensis.*	*Asplenium peruvianum* var. *insulare.* *Bidens micrantha* ssp. *kalealaha.* *Geranium arboreum.* *Phyllostegia bracteata.* *Zanthoxylum hawaiiense.*
Maui—Alpine—Unit 1	*Argyroxiphium sandwicense* ssp. *macrocephalum.*	
Maui—Dry Cliff—Unit 1		*Argyroxiphium sandwicense* ssp. *macrocephalum.* *Bidens campylotheca* ssp. *pentamera.* *Bidens micrantha* ssp. *kalealaha.* *Diplazium molokaiense.* *Geranium multiflorum.* *Plantago princeps.* *Schiedea haleakalensis.*
Maui—Dry Cliff—Unit 2	*Argyroxiphium sandwicense* ssp. *macrocephalum.* *Geranium multiflorum.* *Plantago princeps.* *Schiedea haleakalensis.*	*Bidens campylotheca* ssp. *pentamera.* *Bidens micrantha* ssp. *kalealaha.* *Diplazium molokaiense.*
Maui—Dry Cliff—Unit 3		*Argyroxiphium sandwicense* ssp. *macrocephalum.* *Bidens campylotheca* ssp. *pentamera.* *Bidens micrantha* ssp. *kalealaha.* *Diplazium molokaiense.* *Geranium multiflorum.* *Plantago princeps.* *Schiedea haleakalensis.*
Maui—Dry Cliff—Unit 4		*Argyroxiphium sandwicense* ssp. *macrocephalum.* *Bidens campylotheca* ssp. *pentamera.* *Bidens micrantha* ssp. *kalealaha.* *Diplazium molokaiense.* *Geranium multiflorum.* *Plantago princeps.* *Schiedea haleakalensis.*
Maui—Dry Cliff—Unit 5	*Tetramolopium capillare.*	*Bonamia menziesii.* *Diplazium molokaiense.* *Hesperomannia arbuscula.* *Isodendrion pyrifolium.* *Kadua laxiflora.* *Neraudia sericea.*
Maui—Dry Cliff—Unit 6		*Bonamia menziesii.* *Diplazium molokaiense.* *Hesperomannia arbuscula.* *Isodendrion pyrifolium.* *Kadua laxiflora.* *Neraudia sericea.* *Tetramolopium capillare.*
Maui—Wet Cliff—Unit 1		*Bidens campylotheca* ssp. *pentamera.* *Bidens campylotheca* ssp. *waihoiensis.* *Cyanea copelandii* ssp. *haleakalaensis.* *Cyanea horrida.* *Melicope ovalis.* *Phyllostegia bracteata.* *Phyllostegia haliakalae.* *Plantago princeps.*
Maui—Wet Cliff—Unit 2	*Bidens campylotheca* ssp. *waihoiensis.* *Cyanea copelandii* ssp. *haleakalaensis.* *Melicope ovalis.*	*Bidens campylotheca* ssp. *pentamera.* *Cyanea horrida.*

Unit name	Species occupied	Species unoccupied
	Phyllostegia bracteata.	
		Phyllostegia haliakalae.
	Plantago princeps.	
Maui—Wet Cliff—Unit 3	.....	*Bidens campylotheca* ssp. *pentamera.*
		Bidens campylotheca ssp. *waihoiensis.*
		Cyanea copelandii ssp. *haleakalaensis.*
		Cyanea horrida.
		Melicope ovalis.
		Phyllostegia bracteata.
		Phyllostegia haliakalae.
		Plantago princeps.
Maui—Wet Cliff—Unit 4	*Bidens campylotheca* ssp. *pentamera.*	
	Bidens campylotheca ssp. *waihoiensis.*	
		Cyanea copelandii ssp. *haleakalaensis.*
		Cyanea horrida.
		Melicope ovalis.
		Phyllostegia bracteata.
		Phyllostegia haliakalae.
		Plantago princeps.
Maui—Wet Cliff—Unit 6	*Alectryon macrococcus.*	
		Bidens campylotheca ssp. *pentamera.*
		Bidens conjuncta.
		Bonamia menziesii.
	Ctenitis squamigera.	
		Cyanea glabra.
		Cyanea lobata.
		Cyanea magnicalyx.
		Cyrtandra filipes.
	Cyrtandra munroi.	
		Dubautia plantaginea ssp. *humilis.*
		Gouania vitifolia.
		Hesperomannia arborescens.
		Hesperomannia arbuscula.
		Isodendrion pyrifolium.
		Kadua laxiflora.
		Lysimachia lydgatei.
		Plantago princeps.
		Platanthera holochila.
		Pteris lidgatei.
	Remya mauiensis.	
	Santalum haleakalae var. *lanaiense.*	
		Tetramolopium capillare.
Maui—Wet Cliff—Unit 7	.....	*Alectryon macrococcus.*
		Bidens campylotheca ssp. *pentamera.*
		Bidens conjuncta.
		Bonamia menziesii.
		Ctenitis squamigera.
		Cyanea glabra.
		Cyanea lobata.
		Cyanea magnicalyx.
	Cyrtandra filipes.	
	Cyrtandra munroi.	
		Dubautia plantaginea ssp. *humilis.*
		Gouania vitifolia.
		Hesperomannia arborescens.
		Hesperomannia arbuscula.
		Isodendrion pyrifolium.
		Kadua laxiflora.
		Lysimachia lydgatei.
		Plantago princeps.
		Platanthera holochila.
		Pteris lidgatei.
		Remya mauiensis.
		Santalum haleakalae var. *lanaiense.*
		Tetramolopium capillare.
Maui—Wet Cliff—Unit 8	.....	*Alectryon macrococcus.*
		Bidens campylotheca ssp. *pentamera.*
		Bidens conjuncta.
		Bonamia menziesii.
		Ctenitis squamigera.
		Cyanea glabra.
		Cyanea lobata.
		Cyanea magnicalyx.
		Cyrtandra filipes.

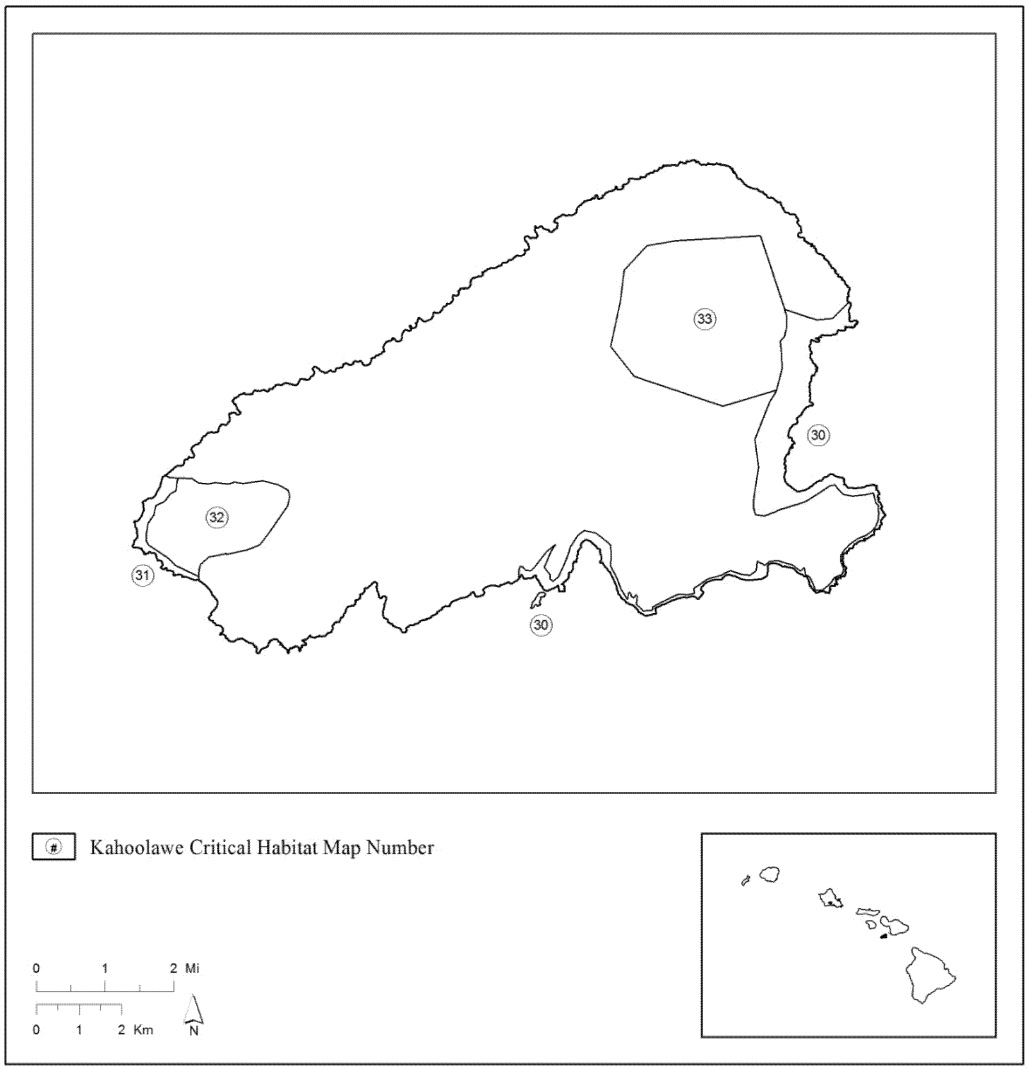
Unit name	Species occupied	Species unoccupied
		Cyrtandra munroi. *Dubautia plantaginea* ssp. *humilis.* *Gouania vitifolia.* *Hesperomannia arborescens.* *Hesperomannia arbuscula.* *Isodendrion pyrifolium.* *Kadua laxiflora.* *Lysimachia lydgatei.* *Plantago princeps.* *Platanthera holochila.* *Pteris lidgatei.* *Remya mauiensis.* *Santalum haleakalae* var. *lanaiense.* *Tetramolopium capillare.*

(2) *Kahoolawe.* Critical habitat units are described below. Coordinates are in UTM Zone 4 with units in meters using North American Datum of 1983 (NAD83). The following maps shows the locations of the critical habitat units designated on the island of Kahoolawe. Existing manmade features and structures, such as buildings, roads, railroads, airports, runways, other paved areas, lawns, and other urban landscaped areas, do not contain one or more of the physical and biological features. Federal actions limited to those areas, therefore, would not trigger a consultation under section 7 of the Act unless they may affect the species or physical or biological features in adjacent critical habitat.

(i) NOTE: Map 29, Kahoolawe Index Map, follows:

Map 29

Kahoolawe Critical Habitat—Island Index Map



(ii) Kahoolawe—Coastal—Unit 1 (1,516 ac, 613 ha) and Kahoolawe—Coastal—Unit 2 (12 ac, 5 ha).

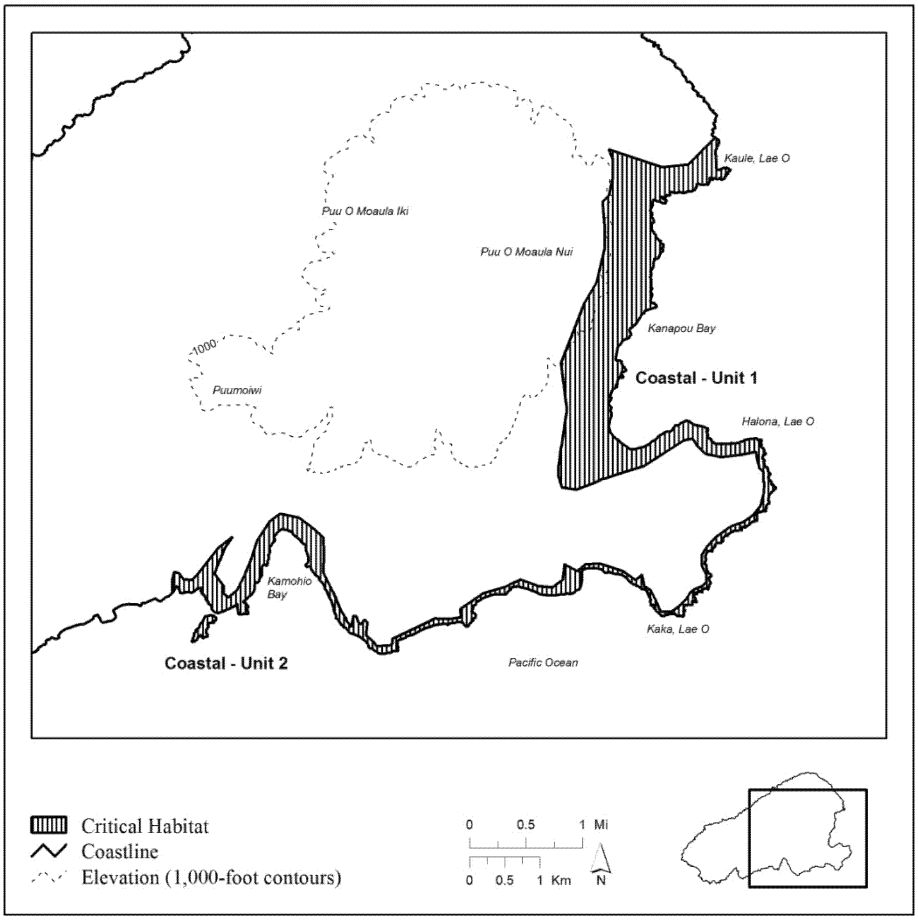
(A) These units are critical habitat for *Kanaloa kahoolawensis, Sesbania tomentosa,* and *Vigna o-wahuensis.*

(B) Map of Kahoolawe—Coastal—Unit 1 and Kahoolawe—Coastal—Unit 2 (Map 30) follows:

Map 30

Kahoolawe—Coastal

Unit 1 and Unit 2



(iii) Kahoolawe—Coastal—Unit 3 (189 ac, 76 ha).

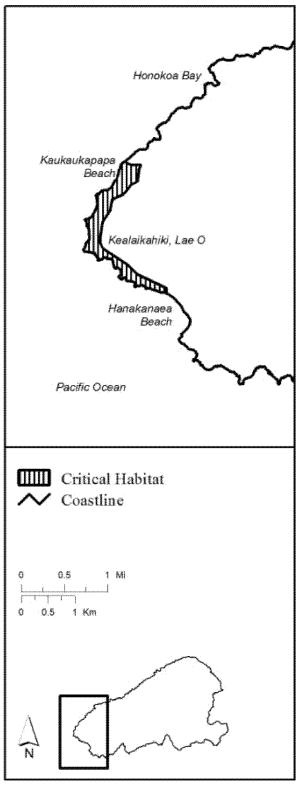
(A) This unit is critical habitat for *Kanaloa kahoolawensis, Sesbania tomentosa,* and *Vigna o-wahuensis.*

(B) Map of Kahoolawe—Coastal—Unit 3 (Map 31) follows:

Map 31

Kahoolawe—Coastal

Unit 3



(iv) Kahoolawe—Lowland Dry—Unit 1 (1,220 ac, 494 ha).

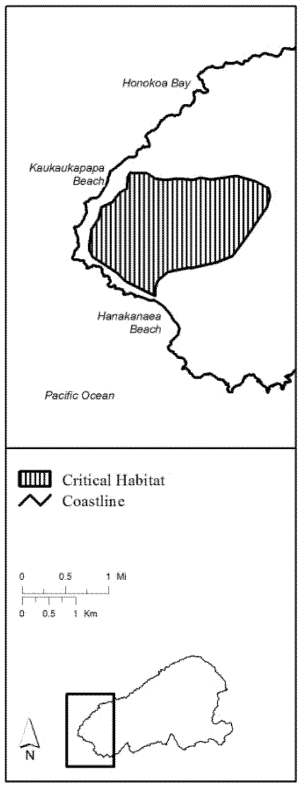
(A) This unit is critical habitat for *Gouania hillebrandii, Hibiscus brackenridgei, Kanaloa kahoolawensis, Neraudia sericea, Sesbania tomentosa,* and *Vigna o-wahuensis.*

(B) Map of Kahoolawe—Lowland Dry—Unit 1 (Map 32) follows:

Map 32

Kahoolawe—Lowland Dry

Unit 1



(v) Kahoolawe—Lowland Dry—Unit 2 (3,205 ac, 1,297 ha).

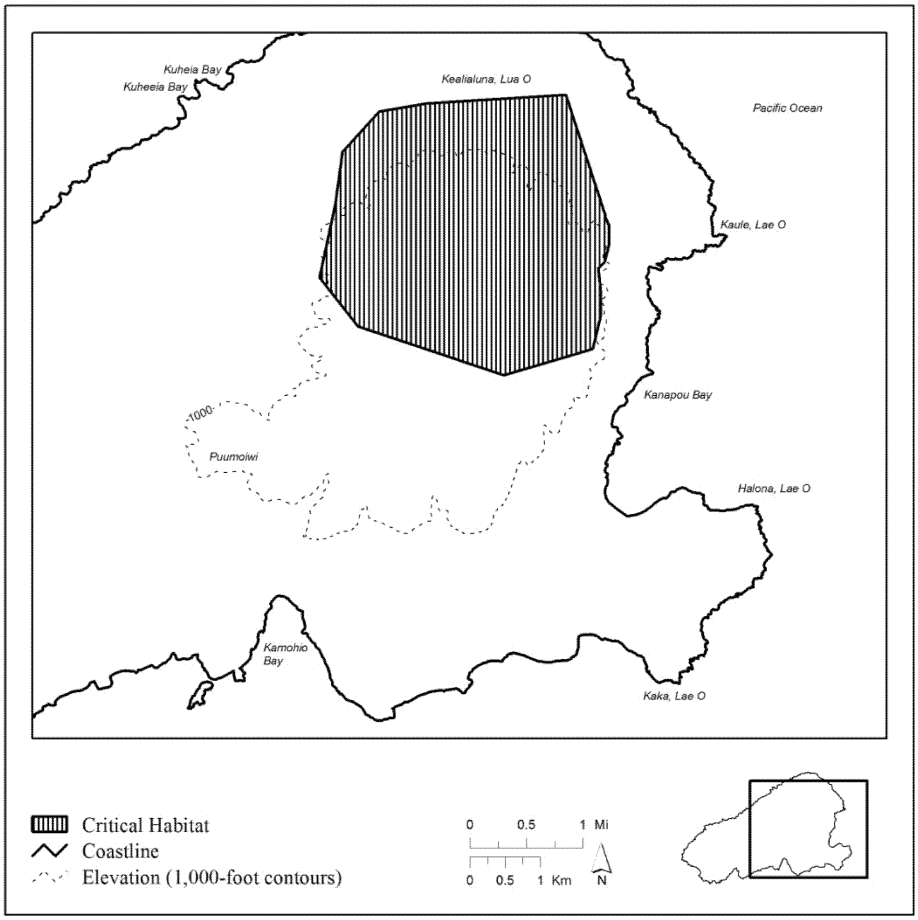
(A) This unit is critical habitat for *Gouania hillebrandii, Hibiscus brackenridgei, Kanaloa kahoolawensis, Neraudia sericea, Sesbania tomentosa,* and *Vigna o-wahuensis.*

(B) Map of Kahoolawe—Lowland Dry—Unit 2 (Map 33) follows:

Map 33

Kahoolawe—Lowland Dry

Unit 2



(VI) OCCUPANCY OF SPECIES BY DESIGNATED CRITICAL HABITAT UNITS FOR KAHOOLAWE

Unit name	Species occupied	Species unoccupied
Kahoolawe—Coastal—Unit 1	*Kanaloa kahoolawensis*.	*Sesbania tomentosa*. *Vigna o-wahuensis*.
Kahoolawe—Coastal—Unit 2	*Sesbania tomentosa*.	*Kanaloa kahoolawensis*. *Vigna o-wahuensis*.
Kahoolawe—Coastal—Unit 3		*Kanaloa kahoolawensis*. *Sesbania tomentosa*. *Vigna o-wahuensis*.
Kahoolawe—Lowland Dry—Unit 1		*Gouania hillebrandii*. *Hibiscus brackenridgei*. *Kanaloa kahoolawensis*. *Neraudia sericea*. *Sesbania tomentosa*. *Vigna o-wahuensis*.
Kahoolawe—Lowland Dry—Unit 2		*Gouania hillebrandii*. *Hibiscus brackenridgei*. *Kanaloa kahoolawensis*. *Neraudia sericea*. *Sesbania tomentosa*. *Vigna o-wahuensis*.

(f) *Plants on Maui and Kahoolawe; Constituent elements*—(1) *Flowering plants.*

Family Amaranthaceae

Nototrichium humile (KULUI)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Nototrichium humile* on Maui. In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Family Apiaceae

Peucedanum sandwicense (MAKOU)

Maui—Coastal—Unit 1, Maui—Coastal—Unit 2, Maui—Coastal—Unit 3, Maui—Coastal—Unit 4, Maui—Coastal—Unit 5, Maui—Coastal—Unit 6, Maui—Coastal—Unit 7, Maui—Coastal—Unit 8, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Peucedanum sandwicense* on Maui.

(i) In units Maui—Coastal—Unit 1, Maui—Coastal—Unit 2, Maui—Coastal—Unit 3, Maui—Coastal—Unit 4, Maui—Coastal—Unit 5, Maui—Coastal—Unit 6, Maui—Coastal—Unit 7, and Maui—Coastal—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 980 ft (300 m).

(B) Annual precipitation: Less than 20 in (50 cm).

(C) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(D) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(E) Subcanopy: *Gossypium, Sida, Vitex.*

(F) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

(ii) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

Sanicula purpurea (NCN)

Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Sanicula purpurea* on Maui. In units Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Spermolepis hawaiiensis (NCN)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, and Maui—Lowland Dry—Unit 6, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Spermolepis hawaiiensis* on Maui. In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Family Asteraceae

Argyroxiphium sandwicense ssp. *macrocephalum* (AHINAHINA)

Maui—Montane Mesic—Unit 1, Maui—Subalpine—Unit 1, Maui—Subalpine—Unit 2, Maui—Alpine—Unit 1, Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, and Maui—Dry Cliff—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Argyroxiphium sandwicense* ssp. *macrocephalum* on Maui.

(i) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(ii) In units Maui—Subalpine—Unit 1 and Maui—Subalpine—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: 6,500 to 9,800 ft (2,000 to 3,000 m).

(B) Annual precipitation: 15 to 40 in (38 to 100 cm).

(C) Substrate: Dry ash; sandy loam; rocky, undeveloped soils; weathered lava.

(D) Canopy: *Chamaesyce, Chenopodium, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Coprosma, Dodonaea, Dubautia, Geranium, Leptecophylla, Vaccinium, Wikstroemia.*

(F) Understory: Ferns, *Bidens, Carex, Deschampsia, Eragrostis, Gahnia, Luzula, Panicum, Pseudognaphalium, Sicyos, Tetramolopium.*

(iii) In unit Maui—Alpine–Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Greater than 9,800 ft (3,000 m).

(B) Annual precipitation: 30 to 50 in (75 to 125 cm).

(C) Substrate: Barren gravel, debris, cinders.

(D) Canopy: None.

(E) Subcanopy: *Argyroxiphium, Dubautia, Silene, Tetramolopium.*

(F) Understory: None.

(iv) In units Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, and Maui—Dry Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

Bidens campylotheca ssp. *pentamera* (KOOKOOLAU)

Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Maui—Lowland Mesic—Unit 2, Maui—Lowland Mesic—Unit 3, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Mesic—Unit 1, Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, Maui—Dry Cliff—Unit 4, Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, Maui—Wet Cliff—Unit 4, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Bidens campylotheca* ssp. *pentamera* on Maui.

(i) In units Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Lowland Mesic—Unit 2 and Maui—Lowland Mesic—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(iii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iv) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(v) In units Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, and Maui—Dry Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

(vi) In units Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, Maui—Wet Cliff—Unit 4, Maui—Wet Cliff—Unit 6, Maui–Wet Cliff—Unit 7, and Maui—Wet Cliff–Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Bidens campylotheca ssp. *waihoiensis* (KOOKOOLAU)

Maui–Lowland Wet—Unit 1, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Bidens campylotheca* ssp. *waihoiensis* on Maui.

(i) In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, and the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In units Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Bidens conjuncta (KOOKOOLAU)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Wet—Unit 6, Maui—Montane Wet—Unit 7, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Bidens conjuncta* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Bidens micrantha ssp. *kalealaha* (KOOKOOLAU)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Mesic—Unit 1, Maui—Subalpine—Unit 1, Maui—Subalpine—Unit 2, Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, and Maui—Dry Cliff—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Bidens micrantha* ssp. *kalealaha* on Maui.

(i) In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(iv) In units Maui—Subalpine—Unit 1 and Maui—Subalpine—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: 6,500 to 9,800 ft (2,000 to 3,000 m).

(B) Annual precipitation: 15 to 40 in (38 to 100 cm).

(C) Substrate: Dry ash; sandy loam; rocky, undeveloped soils; weathered lava.

(D) Canopy: *Chamaesyce, Chenopodium, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Coprosma, Dodonaea, Dubautia, Geranium, Leptecophylla, Vaccinium, Wikstroemia.*

(F) Understory: Ferns, *Bidens, Carex, Deschampsia, Eragrostis, Gahnia, Luzula, Panicum, Pseudognaphalium, Sicyos, Tetramolopium.*

(v) In units Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, and Maui—Dry Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

Dubautia plantaginea ssp. *humilis* (NAENAE)

Maui—Wet Cliff–Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal

descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Dubautia plantaginea* ssp. *humilis* on Maui. In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(i) Elevation: Unrestricted.

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(iv) Canopy: None.

(v) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(vi) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Hesperomannia arborescens (NCN)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Hesperomannia arborescens* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Hesperomannia arbuscula (NCN)

Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Dry Cliff—Unit 5, Maui—Dry Cliff—Unit 6, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Hesperomannia arbuscula* on Maui.

(i) In units Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units Maui—Dry Cliff—Unit 5 and Maui—Dry Cliff—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

(iv) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Melanthera kamolensis (NEHE)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Melanthera kamolensis* on Maui. In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Remya mauiensis (MAUI REMYA)

Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Maui—Lowland Mesic—Unit 2, Maui—Lowland Mesic—Unit 3, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, Maui—Montane Mesic—Unit 5, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Remya mauiensis* on Maui.

(i) In units Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Lowland Mesic—Unit 2 and Maui—Lowland Mesic—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(iii) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iv) In units Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui–Montane Mesic—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(v) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Tetramolopium capillare (PAMAKANI)

Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Maui—Dry Cliff—Unit 5, Maui—Dry Cliff—Unit 6, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Tetramolopium capillare* on Maui.

(i) In units Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Dry Cliff—Unit 5 and Maui—Dry Cliff—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

(iii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Tetramolopium remyi (NCN)

Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Tetramolopium remyi* on Maui. In units Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Family Campanulaceae:

Brighamia rockii (PUA ALA)

Maui—Coastal—Unit 1, Maui—Coastal—Unit 2, Maui—Coastal—Unit 3, Maui—Coastal—Unit 4, Maui—Coastal—Unit 5, Maui—Coastal—Unit 6, Maui—Coastal—Unit 7, Maui—Coastal—Unit 8, Maui—Coastal—Unit 9, Maui—Coastal—Unit 10, and Maui—Coastal—Unit 11, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Brighamia rockii* on Maui. In units Maui—Coastal—Unit 1, Maui—Coastal—Unit 2, Maui—Coastal—Unit 3, Maui—Coastal—Unit 4, Maui—Coastal—Unit 5, Maui—Coastal—Unit 6, Maui—Coastal—Unit 7, Maui—Coastal—Unit 8, Maui—Coastal—Unit 9, Maui—Coastal—Unit 10, and Maui—Coastal—Unit 11, the physical and biological features of critical habitat are:

(i) Elevation: Less than 980 ft (300 m).

(ii) Annual precipitation: Less than 20 in (50 cm).

(iii) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(iv) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(v) Subcanopy: *Gossypium, Sida, Vitex.*

(vi) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

Clermontia lindseyana (OHA WAI)

Maui—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitutes critical habitat for *Clermontia lindseyana* on Maui. In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(ii) Substrate: Deep ash deposits, thin silty loams.

(iv) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(v) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(vi) Understory: Ferns, *Carex, Peperomia.*

Clermontia oblongifolia ssp. *mauiensis* (OHA WAI)

Maui—Lowland Wet—Unit 1, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Clermontia oblongifolia* ssp. *mauiensis* on Maui.

(i) In units Maui—Lowland Wet–Unit 1, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui–Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Clermontia peleana (OHA WAI)

Maui—Lowland Wet—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitutes critical habitat for *Clermontia peleana* on Maui. In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(iv) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(v) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(vi) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

Clermontia samuelii (OHA WAI)

Maui—Lowland Wet—Unit 1, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Clermontia samuelii* on Maui.

(i) In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Cyanea asplenifolia (HAHA)

Maui—Lowland Mesic—Unit 1, Maui—Lowland Wet—Unit 1, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea asplenifolia* on Maui.

(i) In unit Maui—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Maui—Lowland Wet—Unit 1, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

Cyanea copelandii ssp. *haleakalaensis* (HAHA)

Maui—Lowland Mesic—Unit 1, Maui—Lowland Wet—Unit 1, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea copelandii* ssp. *haleakalaensis* on Maui.

(i) In unit Maui—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iv) In units Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Cyanea duvalliorum (HAHA)

Maui—Lowland Wet—Unit 1, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea duvalliorum* on Maui.

(i) In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Cyanea glabra (HAHA)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Mesic—Unit 1, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea glabra* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(iv) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Cyanea hamatiflora ssp. *hamatiflora* (HAHA)

Maui—Lowland Wet—Unit 1, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, and Maui—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea hamatiflora* ssp. *hamatiflora* on Maui.

(i) In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Cyanea horrida (HAHA NUI)

Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Mesic—Unit 1, Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea horrida* on Maui.

(i) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(ii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(iii) In units Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Cyanea kunthiana (HAHA)

Maui—Lowland Wet—Unit 1, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Wet—Unit 6, Maui—Montane Wet—Unit 7, and Maui—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea kunthiana* on Maui.

(i) In units Maui—Lowland Wet—Unit 1, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Wet—Unit 6, and Maui—Montane Wet—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Cyanea lobata (HAHA)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea lobata* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Cyanea magnicalyx (HAHA)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, Maui—Montane Mesic—Unit 5, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea magnicalyx* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(iii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Cyanea maritae (HAHA)

Maui—Lowland Wet—Unit 1, Maui––Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea maritae* on Maui.

(i) In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Cyanea mceldowneyi (HAHA)

Maui—Lowland Wet—Unit 1, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, and Maui—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea mceldowneyi* on Maui.

(i) In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Cyanea obtusa (HAHA)

Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, and Maui—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyanea obtusa* on Maui.

(i) In units Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Family Caryophyllaceae

Schiedea haleakalensis (NCN)

Maui—Subalpine—Unit 1, Maui—Subalpine—Unit 2, Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, and Maui—Dry Cliff—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Schiedea haleakalensis* on Maui.

(i) In units Maui—Subalpine—Unit 1 and Maui—Subalpine—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: 6,500 to 9,800 ft (2,000 to 3,000 m).

(B) Annual precipitation: 15 to 40 in (38 to 100 cm).

(C) Substrate: Dry ash; sandy loam; rocky, undeveloped soils; weathered lava.

(D) Canopy: *Chamaesyce, Chenopodium, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Coprosma, Dodonaea, Dubautia, Geranium, Leptecophylla, Vaccinium, Wikstroemia.*

(F) Understory: Ferns, *Bidens, Carex, Deschampsia, Eragrostis, Gahnia, Luzula, Panicum, Pseudognaphalium, Sicyos, Tetramolopium.*

(ii) In units Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, and Maui—Dry Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

Schiedea jacobii (NCN)

Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Schiedea jacobii* on Maui. In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Schiedea salicaria (NCN)

Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Schiedea salicaria* on Maui. In units Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Family Convolvulaceae

Bonamia menziesii (NCN)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Dry Cliff—Unit 5, Maui—Dry Cliff—Unit 6, Maui—Wet Cliff—

Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Bonamia menziesii* on Maui.

(i) In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Dry Cliff—Unit 5 and Maui—Dry Cliff—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

(iii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Family Cyperaceae

Cyperus pennatiformis (NCN)

Maui—Coastal—Unit 1, Maui—Coastal—Unit 2, Maui—Coastal—Unit 3, Maui—Coastal—Unit 4, Maui—Coastal—Unit 5, Maui—Coastal—Unit 6, Maui—Coastal—Unit 7, and Maui—Coastal—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyperus pennatiformis* on Maui. In units Maui—Coastal—Unit 1, Maui—Coastal—Unit 2, Maui—Coastal—Unit 3, Maui—Coastal—Unit 4, Maui—Coastal—Unit 5, Maui—Coastal—Unit 6, Maui—Coastal—Unit 7, and Maui—Coastal—Unit 8, the physical and biological features of critical habitat are:

(i) Elevation: Less than 980 ft (300 m).

(ii) Annual precipitation: Less than 20 in (50 cm).

(iii) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(iv) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(v) Subcanopy: *Gossypium, Sida, Vitex.*

(vi) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

Family Euphorbiaceae

Flueggea neowawraea (MEHAMEHAME)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Flueggea neowawraea* on Maui. In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum..*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Family Fabaceae

Canavalia pubescens (AWIKIWIKI)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Canavalia pubescens* on Maui. In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum..*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Kanaloa kahoolawensis (KOHE MALAMA MALAMA O KANALOA)

Kahoolawe—Coastal—Unit 1, Kahoolawe—Coastal—Unit 2, Kahoolawe—Coastal—Unit 3, Kahoolawe—Lowland Dry—Unit 1, and Kahoolawe—Lowland Dry—Unit 2, identified in the legal descriptions in paragraph (e)(2) of this section, constitute critical habitat for *Kanaloa kahoolawensis* on Kahoolawe.

(i) In units Kahoolawe—Coastal—Unit 1, Kahoolawe—Coastal—Unit 2, and Kahoolawe—Coastal—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 980 ft (300 m).

(B) Annual precipitation: Less than 20 in (50 cm).

(C) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(D) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(E) Subcanopy: *Gossypium, Sida, Vitex.*

(F) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

(ii) In units Kahoolawe—Lowland Dry—Unit 1 and Kahoolawe—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Mucuna sloanei var. persericea (SEA BEAN)

Maui—Lowland Wet—Unit 1, identified in the legal descriptions in

paragraph (e)(1) of this section, constitutes critical habitat for *Mucuna sloanei* var. *persericea* on Maui. In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(iv) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(v) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(vi) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

Sesbania tomentosa (OHAI)

Maui—Coastal—Unit 9, Maui—Coastal—Unit 10, Maui—Coastal—Unit 11, Kahoolawe—Coastal—Unit 1, Kahoolawe—Coastal—Unit 2, Kahoolawe–Coastal—Unit 3, Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, Maui—Lowland Dry–Unit 6, Kahoolawe—Lowland Dry–Unit 1, and Kahoolawe–Lowland Dry—Unit 2, identified in the legal descriptions in paragraphs (e)(1) and (e)(2) of this section, constitute critical habitat for *Sesbania tomentosa* on Maui and Kahoolawe.

(i) In units Maui—Coastal—Unit 9, Maui—Coastal–Unit 10, Maui—Coastal—Unit 11, Kahoolawe—Coastal––Unit 1, Kahoolawe—Coastal—Unit 2, and Kahoolawe—Coastal—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 980 ft (300 m).

(B) Annual precipitation: Less than 20 in (50 cm).

(C) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(D) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(E) Subcanopy: *Gossypium, Sida, Vitex.*

(F) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

(ii) In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Kahoolawe—Lowland Dry—Unit 1, and Kahoolawe—Lowland Dry––Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Vigna o-wahuensis (NCN)

Maui—Coastal—Unit 1, Maui—Coastal—Unit 2, Maui—Coastal—Unit 3, Maui—Coastal—Unit 4, Maui—Coastal—Unit 5, Maui—Coastal—Unit 6, Maui—Coastal—Unit 7, Maui—Coastal—Unit 8, Kahoolawe—Coastal—Unit 1, Kahoolawe—Coastal—Unit 2, Kahoolawe—Coastal—Unit 3, Kahoolawe—Lowland Dry—Unit 1, and Kahoolawe—Lowland Dry—Unit 2, identified in the legal descriptions in paragraphs (e)(1) and (e)(2) of this section, constitute critical habitat for *Vigna o-wahuensis* on Maui and Kahoolawe.

(i) In units Maui—Coastal—Unit 1, Maui—Coastal—Unit 2, Maui—Coastal—Unit 3, Maui—Coastal—Unit 4, Maui—Coastal—Unit 5, Maui—Coastal—Unit 6, Maui—Coastal—Unit 7, Maui—Coastal—Unit 8, Kahoolawe–Coastal–Unit 1, Kahoolawe–Coastal–Unit 2, and Kahoolawe–Coastal–Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 980 ft (300 m).

(B) Annual precipitation: Less than 20 in (50 cm).

(C) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(D) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(E) Subcanopy: *Gossypium, Sida, Vitex.*

(F) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

(ii) In units Kahoolawe—Lowland Dry—Unit 1 and Kahoolawe—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum..*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Family Gentianaceae

Schenkia sebaeoides (AWIWI)

Maui—Coastal—Unit 9, Maui—Coastal—Unit 10, and Maui—Coastal—Unit 11, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Schenkia sebaeoides* on Maui. In units Maui—Coastal—Unit 9, Maui—Coastal—Unit 10, and Maui–Coastal—Unit—11, the physical and biological features of critical habitat are:

(i) Elevation: Less than 980 ft (300 m).

(ii) Annual precipitation: Less than 20 in (50 cm).

(iii) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(iv) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(v) Subcanopy: *Gossypium, Sida, Vitex.*

(vi) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

Family Geraniaceae

Geranium arboreum (HAWAIIAN RED–FLOWERED GERANIUM)

Maui—Montane Mesic—Unit 1, Maui—Montane Dry—Unit 1, Maui—Subalpine—Unit 1, and Maui—Subalpine—Unit 2, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Geranium arboreum* on Maui.

(i) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(ii) In unit Maui—Montane Dry—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Dry cinder or ash soils, loamy volcanic sands, blocky lava, rock outcroppings.

(D) Canopy: *Acacia, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Chamaesyce, Coprosma, Dodonaea, Dubautia, Leptecophylla, Osteomeles, Wikstroemia.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Vaccinium.*

(iii) In units Maui—Subalpine—Unit 1 and Maui—Subalpine—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: 6,500 to 9,800 ft (2,000 to 3,000 m).

(B) Annual precipitation: 15 to 40 in (38 to 100 cm).

(C) Substrate: Dry ash; sandy loam; rocky, undeveloped soils; weathered lava.

(D) Canopy: *Chamaesyce, Chenopodium, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Coprosma, Dodonaea, Dubautia, Geranium, Leptecophylla, Vaccinium, Wikstroemia.*

(F) Understory: Ferns, *Bidens, Carex, Deschampsia, Eragrostis, Gahnia, Luzula, Panicum, Pseudognaphalium, Sicyos, Tetramolopium.*

Geranium hanaense (NOHOANU)

Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Geranium hanaense* on Maui. In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Geranium hillebrandii (NOHOANU)

Maui—Montane Wet—Unit 6, Maui—Montane Wet—Unit 7, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Geranium hillebrandii* on Maui.

(i) In units Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(ii) In units Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Geranium multiflorum (NOHOANU)

Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Mesic—Unit 1, Maui—Subalpine—Unit 1, Maui—Subalpine—Unit 2, Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, and Maui—Dry Cliff—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Geranium multiflorum* on Maui.

(i) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(ii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(iii) In units Maui—Subalpine—Unit 1 and Maui—Subalpine—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: 6,500 to 9,800 ft (2,000 to 3,000 m).

(B) Annual precipitation: 15 to 40 in (38 to 100 cm).

(C) Substrate: Dry ash; sandy loam; rocky, undeveloped soils; weathered lava.

(D) Canopy: *Chamaesyce, Chenopodium, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Coprosma, Dodonaea, Dubautia, Geranium, Leptecophylla, Vaccinium, Wikstroemia.*

(F) Understory: Ferns, *Bidens, Carex, Deschampsia, Eragrostis, Gahnia, Luzula, Panicum, Pseudognaphalium, Sicyos, Tetramolopium.*

(iv) In units Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, and Maui—Dry Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

Family Gesneriaceae

Cyrtandra ferripilosa (HAIWALE)

Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, and Maui—Montane Mesic—Unit 1, identified in the legal descriptions in

paragraph (e)(1) of this section, constitute critical habitat for *Cyrtandra ferripilosa* on Maui.

(i) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(ii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Cyrtandra filipes (HAIWALE)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyrtandra filipes* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Cyrtandra munroi (HAIWALE)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyrtandra munroi* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Cyrtandra oxybapha (HAIWALE)

Maui—Montane Wet—Unit 6, Maui—Montane Wet—Unit 7, and Maui—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cyrtandra oxybapha* on Maui.

(i) In units Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(ii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Family Lamiaceae

Phyllostegia bracteata (NCN)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Wet—Unit 6, Maui—Montane Wet—Unit 7, Maui—Montane Mesic—Unit 1, Maui—Subalpine—Unit 1, Maui—Subalpine—Unit 2, Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Phyllostegia bracteata* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Wet—Unit 6, and Maui—Montane Wet—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(iv) In units Maui—Subalpine—Unit 1 and Maui—Subalpine—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: 6,500 to 9,800 ft (2,000 to 3,000 m).

(B) Annual precipitation: 15 to 40 in (38 to 100 cm).

(C) Substrate: Dry ash; sandy loam; rocky, undeveloped soils; weathered lava.

(D) Canopy: *Chamaesyce, Chenopodium, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Coprosma, Dodonaea, Dubautia, Geranium, Leptecophylla, Vaccinium, Wikstroemia.*

(F) Understory: Ferns, *Bidens, Carex, Deschampsia, Eragrostis, Gahnia, Luzula, Panicum, Pseudognaphalium, Sicyos, Tetramolopium.*

(v) In units Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Phyllostegia haliakalae (NCN)

Maui—Lowland Wet—Unit 1, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Phyllostegia haliakalae* on Maui.

(i) In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In units Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Phyllostegia mannii (NCN)

Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, and Maui—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Phyllostegia mannii* on Maui.

(i) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(ii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Phyllostegia pilosa (NCN)

Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Phyllostegia pilosa* on Maui. In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Stenogyne kauaulaensis (NCN)

Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Stenogyne kauaulaensis* on Maui. In unit Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: 50 to 75 in (130 to 190 cm).

(iii) Substrate: Deep ash deposits, thin silty loams.

(iv) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(v) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(vi) Understory: Ferns, *Carex, Peperomia.*

Family Malvaceae:

Hibiscus brackenridgei (MAO HAU HELE)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Kahoolawe—Lowland Dry—Unit 1, and Kahoolawe—Lowland Dry—Unit 2, identified in the legal descriptions in paragraphs (e)(1) and (e)(2) of this section, constitute critical habitat for *Hibiscus brackenridgei* on Maui and Kahoolawe. In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Kahoolawe—Lowland Dry—Unit 1, and Kahoolawe—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Family Myrsinaceae

Myrsine vaccinioides (KOLEA)

Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Myrsine vaccinioides* on Maui. In units Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Family Orchidaceae

Platanthera holochila (NCN)

Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Wet—Unit 6, Maui—Montane Wet—Unit 7, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Platanthera holochila* on Maui.

(i) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Wet—Unit 6, and Maui—Montane Wet—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(ii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Family Piperaceae

Peperomia subpetiolata (ALAALA WAI NUI)

Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Peperomia subpetiolata* on Maui. In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Family Plantaginaceae

Plantago princeps (LAUKAHI KUAHIWI)

Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, Maui—Dry Cliff—Unit 4, Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, Maui—Wet Cliff—Unit 4, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Plantago princeps* on Maui.

(i) In units Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, and Maui—Dry Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

(ii) In units Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, Maui—Wet Cliff—Unit 4, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Family Poaceae

Calamagrostis hillebrandii (NCN)

Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Calamagrostis hillebrandii* on Maui. In units Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Cenchrus agrimonioides (KAMANOMANO (= SANDBUR, AGRIMONY))

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, and Maui—Lowland Dry—Unit 6, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Cenchrus agrimonioides* on Maui. In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Ischaemum byrone (HILO ISCHAEMUM)

Maui—Coastal—Unit 1, Maui—Coastal—Unit 2, Maui—Coastal—Unit 3, Maui—Coastal—Unit 4, Maui—Coastal—Unit 5, Maui—Coastal—Unit 6, Maui—Coastal—Unit 7, and Maui—Coastal—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Ischaemum byrone* on Maui. In units Maui—Coastal—Unit 1, Maui—Coastal—Unit 2, Maui—Coastal—Unit 3, Maui—Coastal—Unit 4, Maui—Coastal—Unit 5, Maui—Coastal—Unit 6, Maui—Coastal—Unit 7, and Maui—Coastal—Unit 8, the physical and biological features of critical habitat are:

(i) Elevation: Less than 980 ft (300 m).

(ii) Annual precipitation: Less than 20 in (50 cm).

(iii) Substrate: Well-drained, calcareous, talus slopes; dunes; weathered clay soils; ephemeral pools; mudflats.

(iv) Canopy: *Hibiscus, Myoporum, Santalum, Scaevola.*

(v) Subcanopy: *Gossypium, Sida, Vitex.*

(vi) Understory: *Eragrostis, Jacquemontia, Lyceum, Nama, Sesuvium, Sporobolus, Vigna.*

Family Primulaceae

Lysimachia lydgatei (NCN)

Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, Maui—Montane Mesic—Unit 5, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Lysimachia lydgatei* on Maui.

(i) In units Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(iii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff–Unit 7, and Maui–Wet

Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Family Rhamnaceae

Colubrina oppositifolia (KAUILA)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Mesic—Unit 2, and Maui—Lowland Mesic—Unit 3, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Colubrina oppositifolia* on Maui.

(i) In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Lowland Mesic—Unit 2 and Maui—Lowland Mesic—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Gouania hillebrandii (NCN)

Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Kahoolawe—Lowland Dry—Unit 1, and Kahoolawe—Lowland Dry—Unit 2, identified in the legal descriptions in paragraphs (e)(1) and (e)(2) of this section, constitute critical habitat for *Gouania hillebrandii* on Maui and Kahoolawe. In units Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Kahoolawe—Lowland Dry—Unit 1, and Kahoolawe—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Gouania vitifolia (NCN)

Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Gouania vitifolia* on Maui. In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(i) Elevation: Unrestricted.

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(iv) Canopy: None.

(v) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(vi) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Family Rosaceae

Acaena exigua (LILIWAI)

Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Acaena exigua* on Maui. In units Maui—Montane Wet—Unit 6 and Maui—Montane Wet—Unit 7, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Family Rubiaceae

Kadua coriacea (KIOELE)

Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Kadua coriacea* on Maui. In units Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(i) Elevation: Less than 3,300 ft (1,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(iii) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(iv) Canopy: *Diospyros, Myoporum, Pleomele, Santalum..*

(v) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(vi) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

Kadua laxiflora (PILO)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Dry Cliff—Unit 5, Maui—Dry Cliff—Unit 6, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Kadua laxiflora* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Dry Cliff—Unit 5 and Maui—Dry Cliff—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

(iii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Family Rutaceae

Melicope adscendens (ALANI)

Maui—Lowland Dry—Unit 1 and Maui—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Melicope adscendens* on Maui.

(i) In unit Maui—Lowland Dry—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m), but greater than 3,200 ft (914 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Melicope balloui (ALANI)

Maui—Lowland Wet—Unit 1, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Melicope balloui* on Maui.

(i) In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Melicope knudsenii (ALANI)

Maui—Montane Dry—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitutes critical habitat for *Melicope knudsenii* on Maui. In unit Maui—Montane Dry—Unit 1, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Less than 50 in (130 cm).

(ii) Substrate: Dry cinder or ash soils, loamy volcanic sands, blocky lava, rock outcroppings.

(iv) Canopy: *Acacia, Metrosideros, Myoporum, Santalum, Sophora.*

(v) Subcanopy: *Chamaesyce, Coprosma, Dodonaea, Dubautia, Leptecophylla, Osteomeles, Wikstroemia.*

(vi) Understory: *Bidens, Eragrostis, Melanthera, Vaccinium.*

Melicope mucronulata (ALANI)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, and Maui—Montane Dry—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Melicope mucronulata* on Maui.

(i) In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum..*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In unit Maui—Montane Dry—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Dry cinder or ash soils, loamy volcanic sands, blocky lava, rock outcroppings.

(D) Canopy: *Acacia, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Chamaesyce, Coprosma, Dodonaea, Dubautia, Leptecophylla, Osteomeles, Wikstroemia.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Vaccinium.*

Melicope ovalis (ALANI)

Maui—Lowland Wet—Unit 1, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, identified in

the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Melicope ovalis* on Maui.

(i) In unit Maui—Lowland Wet—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In units Maui—Wet Cliff—Unit 1, Maui—Wet Cliff—Unit 2, Maui—Wet Cliff—Unit 3, and Maui—Wet Cliff—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Zanthoxylum hawaiiense (AE)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Mesic—Unit 2, Maui—Lowland Mesic—Unit 3, Maui—Montane Mesic—Unit 1, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, Maui—Montane Mesic—Unit 5, Maui—Montane Dry—Unit 1, Maui—Subalpine—Unit 1, and Maui—Subalpine—Unit 2, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Zanthoxylum hawaiiense* on Maui.

(i) In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Lowland Mesic—Unit 2 and Maui—Lowland Mesic—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(iii) In units Maui—Montane Mesic—Unit 1, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(iv) In unit Maui—Montane Dry—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Dry cinder or ash soils, loamy volcanic sands, blocky lava, rock outcroppings.

(D) Canopy: *Acacia, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Chamaesyce, Coprosma, Dodonaea, Dubautia, Leptecophylla, Osteomeles, Wikstroemia.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Vaccinium.*

(v) In units Maui—Subalpine—Unit 1 and Maui—Subalpine—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: 6,500 to 9,800 ft (2,000 to 3,000 m).

(B) Annual precipitation: 15 to 40 in (38 to 100 cm).

(C) Substrate: Dry ash; sandy loam; rocky, undeveloped soils; weathered lava.

(D) Canopy: *Chamaesyce, Chenopodium, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Coprosma, Dodonaea, Dubautia, Geranium, Leptecophylla, Vaccinium, Wikstroemia.*

(F) Understory: Ferns, *Bidens, Carex, Deschampsia, Eragrostis, Gahnia, Luzula, Panicum, Pseudognaphalium, Sicyos, Tetramolopium.*

Family Santalaceae

Santalum haleakalae var. *lanaiense* (LANAI SANDALWOOD, ILIAHI)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Maui—Lowland Mesic—Unit 2, Maui—Lowland Mesic—Unit 3, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Mesic—Unit 1, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, Maui—Montane Mesic—Unit 5, Maui—Montane Dry—Unit 1, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Santalum haleakalae* var. *lanaiense* on Maui.

(i) In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Lowland Mesic—Unit 2 and Maui—Lowland Mesic—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(iii) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iv) In units Maui—Montane Mesic—Unit 1, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(v) In unit Maui—Montane Dry—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Dry cinder or ash soils, loamy volcanic sands, blocky lava, rock outcroppings.

(D) Canopy: *Acacia, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Chamaesyce, Coprosma, Dodonaea, Dubautia, Leptecophylla, Osteomeles, Wikstroemia.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Vaccinium.*

(vi) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Family Sapindaceae

Alectryon macrococcus (MAHOE)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Mesic—Unit 1, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Mesic—Unit 1, Maui—Montane Dry—Unit 1, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Alectryon macrococcus* on Maui.

(i) In units Maui—Lowland Dry—Unit 1 and Maui—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In unit Maui—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(iii) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iv) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(v) In unit Maui—Montane Dry—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Dry cinder or ash soils, loamy volcanic sands, blocky lava, rock outcroppings.

(D) Canopy: *Acacia, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Chamaesyce, Coprosma, Dodonaea, Dubautia, Leptecophylla, Osteomeles, Wikstroemia.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Vaccinium.*

(vi) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Family Solanaceae

Solanum incompletum (POPOLO KU MAI)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, and Maui—Lowland Mesic—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Solanum incompletum* on Maui.

(i) In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, and Maui—Lowland Dry—Unit 4, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In unit Maui—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

Family Thymelaeaceae

Wikstroemia villosa (AKIA)

Maui—Lowland Wet—Unit 1, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, and Maui—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Wikstroemia villosa* on Maui.

(i) In units Maui—Lowland Wet—Unit 1, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Family Urticaceae

Neraudia sericea (NCN)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Kahoolawe—Lowland Dry—Unit 1, Kahoolawe—Lowland Dry—Unit 2, Maui—Montane Mesic—Unit 1, Maui—Dry Cliff—Unit 5, and Maui—Dry Cliff—Unit 6, identified in the legal descriptions in paragraphs (e)(1) and (e)(2) of this section, constitute critical habitat for *Neraudia sericea* on Maui and Kahoolawe.

(i) In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Kahoolawe—Lowland Dry—Unit 1, and Kahoolawe—Lowland Dry—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis,*

Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(iii) In units Maui—Dry Cliff—Unit 5 and Maui—Dry Cliff—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

Family Violaceae

Isodendrion pyrifolium (WAHINE NOHO KULA)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Dry Cliff—Unit 5, Maui—Dry Cliff—Unit 6, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Isodendrion pyrifolium* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Dry Cliff—Unit 5 and Maui—Dry Cliff—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

(iii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

(2) *Ferns and allies.*

Family Adiantaceae

Pteris lidgatei (NCN)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Pteris lidgatei* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Family Aspleniaceae

Asplenium dielerectum (ASPLENIUM–LEAVED DIELLIA)

Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Maui—Lowland Mesic—Unit 2, Maui—Lowland Mesic—Unit 3, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, and Maui—Montane Mesic—Unit 1, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Asplenium dielerectum* on Maui.

(i) In units Maui—Lowland Dry—Unit 5 and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Lowland Mesic—Unit 2 and Maui—Lowland Mesic—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(iii) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iv) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

Asplenium peruvianum var. *insulare* (NCN)

Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Mesic—Unit 1, Maui—Subalpine—Unit 1, and Maui—Subalpine—Unit 2, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Asplenium peruvianum* var. *insulare* on Maui.

(i) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(ii) In unit Maui—Montane Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(iii) In units Maui—Subalpine—Unit 1 and Maui—Subalpine—Unit 2, the physical and biological features of critical habitat are:

(A) Elevation: 6,500 to 9,800 ft (2,000 to 3,000 m).

(B) Annual precipitation: 15 to 40 in (38 to 100 cm).

(C) Substrate: Dry ash; sandy loam; rocky, undeveloped soils; weathered lava.

(D) Canopy: *Chamaesyce, Chenopodium, Metrosideros, Myoporum, Santalum, Sophora.*

(E) Subcanopy: *Coprosma, Dodonaea, Dubautia, Geranium, Leptecophylla, Vaccinium, Wikstroemia.*

(F) Understory: Ferns, *Bidens, Carex, Deschampsia, Eragrostis, Gahnia, Luzula, Panicum, Pseudognaphalium, Sicyos, Tetramolopium.*

Ctenitis squamigera (PAUOA)

Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, Maui—Lowland Dry—Unit 6, Maui—Lowland Mesic—Unit 1, Maui—Lowland Mesic—Unit 2, Maui—Lowland Mesic—Unit 3, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, Maui—Montane Mesic—Unit 5, Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Ctenitis squamigera* on Maui.

(i) In units Maui—Lowland Dry—Unit 1, Maui—Lowland Dry—Unit 2, Maui—Lowland Dry—Unit 3, Maui—Lowland Dry—Unit 4, Maui—Lowland Dry—Unit 5, and Maui—Lowland Dry—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Less than 50 in (130 cm).

(C) Substrate: Weathered silty loams to stony clay, rocky ledges, little-weathered lava.

(D) Canopy: *Diospyros, Myoporum, Pleomele, Santalum.*

(E) Subcanopy: *Chamaesyce, Dodonaea, Leptecophylla, Osteomeles, Psydrax, Scaevola, Wikstroemia.*

(F) Understory: *Alyxia, Artemisia, Bidens, Chenopodium, Nephrolepis, Peperomia, Sicyos.*

(ii) In units Maui—Lowland Mesic—Unit 1, Maui—Lowland Mesic—Unit 2, and Maui—Lowland Mesic—Unit 3, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(iii) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iv) In units Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(v) In units Maui—Wet Cliff—Unit 6, Maui—Wet Cliff—Unit 7, and Maui—Wet Cliff—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, shallow soils, weathered lava.

(D) Canopy: None.

(E) Subcanopy: *Broussaisia, Cheirodendron, Leptecophylla, Metrosideros.*

(F) Understory: Bryophytes, ferns, *Coprosma, Dubautia, Kadua, Peperomia.*

Diplazium molokaiense (NCN)

Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Mesic—Unit 1, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, Maui—Montane Mesic—Unit 5, Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, Maui—Dry Cliff—Unit 4, Maui—Dry Cliff—Unit 5, and Maui—Dry Cliff—Unit 6, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Diplazium molokaiense* on Maui.

(i) In units Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(ii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iii) In units Maui—Montane Mesic—Unit 1, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

(iv) In units Maui—Dry Cliff—Unit 1, Maui—Dry Cliff—Unit 2, Maui—Dry Cliff—Unit 3, Maui—Dry Cliff—Unit 4, Maui—Dry Cliff—Unit 5, and Maui—Dry Cliff—Unit 6, the physical and biological features of critical habitat are:

(A) Elevation: Unrestricted.

(B) Annual precipitation: Less than 75 in (190 cm).

(C) Substrate: Greater than 65 degree slope, rocky talus.

(D) Canopy: None.

(E) Subcanopy: *Antidesma, Chamaesyce, Diospyros, Dodonaea.*

(F) Understory: *Bidens, Eragrostis, Melanthera, Schiedea.*

Family Grammitidaceae

Adenophorus periens (PENDANT KIHI FERN)

Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Adenophorus periens* on Maui. In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, and Maui—Montane Wet—Unit 5, the physical and biological features of critical habitat are:

(i) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(ii) Annual precipitation: Greater than 75 in (190 cm).

(iii) Substrate: Well-developed soils, montane bogs.

(iv) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(v) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(vi) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

Family Lycopodiaceae

Huperzia mannii (WAWAEIOLE)

Maui—Lowland Mesic—Unit 1, Maui—Lowland Wet—Unit 1, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, Maui—Lowland Wet—Unit 8, Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Wet—Unit 6, Maui—Montane Wet—Unit 7, Maui—Montane Mesic—Unit 1, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, identified in the legal descriptions in paragraph (e)(1) of this section, constitute critical habitat for *Huperzia mannii* on Maui.

(i) In unit Maui—Lowland Mesic—Unit 1, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Shallow soils, little to no herbaceous layer.

(D) Canopy: *Acacia, Diospyros, Metrosideros, Myrsine, Pouteria, Santalum.*

(E) Subcanopy: *Dodonaea, Freycinetia, Leptecophylla, Melanthera, Osteomeles, Pleomele, Psydrax.*

(F) Understory: *Carex, Dicranopteris, Diplazium, Elaphoglossum, Peperomia.*

(ii) In units Maui—Lowland Wet—Unit 1, Maui—Lowland Wet—Unit 2, Maui—Lowland Wet—Unit 3, Maui—Lowland Wet—Unit 4, Maui—Lowland Wet—Unit 5, Maui—Lowland Wet—Unit 6, Maui—Lowland Wet—Unit 7, and Maui—Lowland Wet—Unit 8, the physical and biological features of critical habitat are:

(A) Elevation: Less than 3,300 ft (1,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Clays; ashbeds; deep, well-drained soils; lowland bogs.

(D) Canopy: *Antidesma, Metrosideros, Myrsine, Pisonia, Psychotria.*

(E) Subcanopy: *Cibotium, Claoxylon, Kadua, Melicope.*

(F) Understory: *Alyxia, Cyrtandra, Dicranopteris, Diplazium, Machaerina, Microlepia.*

(iii) In units Maui—Montane Wet—Unit 1, Maui—Montane Wet—Unit 2, Maui—Montane Wet—Unit 3, Maui—Montane Wet—Unit 4, Maui—Montane Wet—Unit 5, Maui—Montane Wet—Unit 6, and Maui—Montane Wet—Unit 7, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: Greater than 75 in (190 cm).

(C) Substrate: Well-developed soils, montane bogs.

(D) Canopy: *Acacia, Charpentiera, Cheirodendron, Metrosideros.*

(E) Subcanopy: *Broussaisia, Cibotium, Eurya, Ilex, Myrsine.*

(F) Understory: Ferns, *Carex, Coprosma, Leptecophylla, Oreobolus, Rhynchospora, Vaccinium.*

(iv) In units Maui—Montane Mesic–Unit 1, Maui—Montane Mesic—Unit 2, Maui—Montane Mesic—Unit 3, Maui—Montane Mesic—Unit 4, and Maui—Montane Mesic—Unit 5, the physical and biological features of critical habitat are:

(A) Elevation: 3,300 to 6,500 ft (1,000 to 2,000 m).

(B) Annual precipitation: 50 to 75 in (130 to 190 cm).

(C) Substrate: Deep ash deposits, thin silty loams.

(D) Canopy: *Acacia, Ilex, Metrosideros, Myrsine, Nestegis, Nothocestrum, Pisonia, Pittosporum, Psychotria, Sophora, Zanthoxylum.*

(E) Subcanopy: *Alyxia, Charpentiera, Coprosma, Dodonaea, Kadua, Labordia, Leptecophylla, Phyllostegia, Vaccinium.*

(F) Understory: Ferns, *Carex, Peperomia.*

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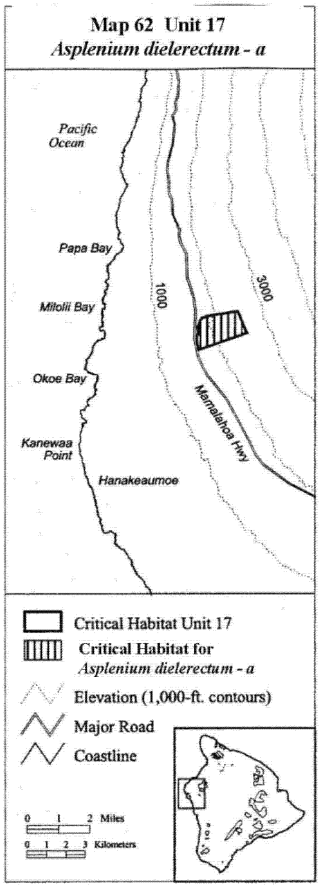
(k) * * *

(62) * * *

(ii) *Note:* Map 62 follows:



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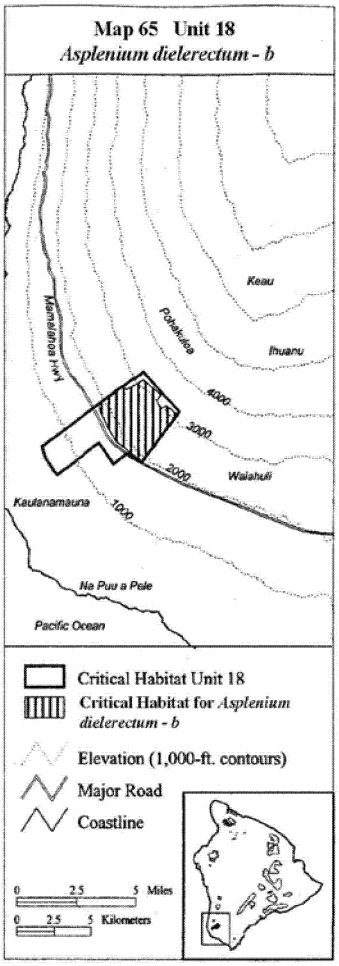
(65) * * *

(ii) *Note:* Map 65 follows:



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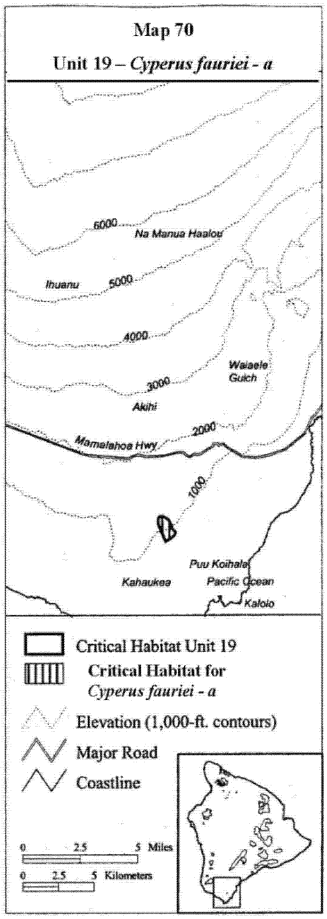
(70) * * *

(ii) *Note:* Map 70 follows:



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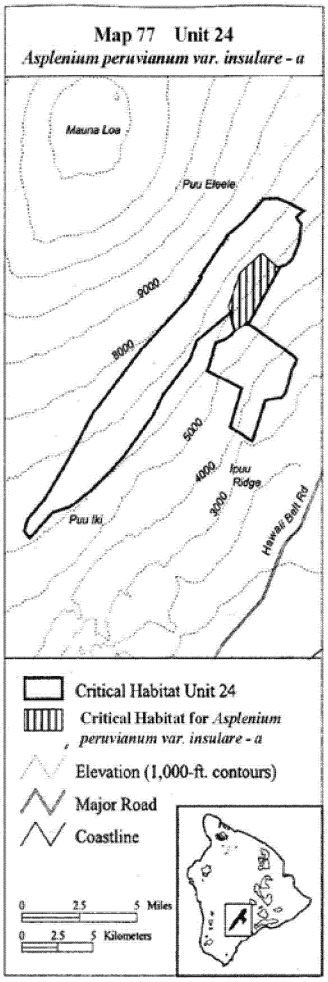
(77) * * *

(ii) *Note:* Map 77 follows:



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Dated: February 19, 2016.

Michael J. Bean,

Principal Deputy Assistant Secretary for Fish and Wildlife and Parks.

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BILLING CODE 4333–15–P