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

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

(3) The management actions needed for assurance of survival and ultimate recovery of Hawaii's endangered plants. These actions are described in our recovery plans for these 61 species (Service 1995a, 1995b, 1996a, 1996b, 1997, 1998a, 1998b, 1999, 2001), in the 1998 HPPRCC report to the Service (HPPRCC 1998), and in various other documents and publications relating to plant conservation in Hawaii (Mueller-Dombois 1985; Smith 1985; Stone 1985; Cuddihy and Stone 1990; Stone *et al.* 1992). In addition to monitoring the plant populations, these actions include, but are not limited to: (1) Feral ungulate control; (2) non-native plant control; (3) rodent control; (4) invertebrate pest control; (5) fire management; (6) maintenance of genetic material of the endangered and threatened plant species; (7) propagation, reintroduction, or augmentation of existing populations into areas deemed essential for the recovery of these species; (8) ongoing management of the wild, outplanted, and augmented populations; and (9) habitat management and restoration in areas deemed essential for the recovery of these species.

In general, taking all of the above recommended management actions into account, the following management actions are ranked in order of importance (Service 1995a, 1995b, 1996a, 1996b, 1997, 1998a, 1998b, 1999, 2001). It should be noted, however, that, on a case-by-case basis, some of these actions may rise to a higher level of importance for a particular species or area, depending on the biological and physical requirements of the species and the location(s) of the individual plants; feral ungulate control; wildfire management; non-native plant control; rodent control; invertebrate pest control; maintenance of genetic material of the endangered and threatened plant species; propagation, reintroduction, or augmentation of existing populations into areas deemed essential for the recovery of the species; ongoing management of the wild, outplanted, and augmented populations; maintenance of natural pollinators and pollinating systems, when known; habitat management and restoration in areas deemed essential for the recovery of the species; monitoring of the wild, outplanted, and augmented populations; rare plant surveys; and control of human activities/access.

As shown in Table 3, the proposed critical habitat designations for 61 species of plants are found on Federal, State, and private lands on the islands of Maui and Kahoolawe. In response to our public notices; letters to landowners; open houses; meetings; the December 18, 2000, proposal; public comment periods; and the March 20, 2001, public hearing along with information in our files, we received varying amounts and various types of information on the conservation management actions occurring on these lands. Some landowners reported that they are not conducting conservation management actions on their lands while others provided information on various activities such as fencing, weeding, ungulate control, hunting, control of human access, scientific research, fire control, and propagation and planting of native plants.

Federal Lands

The Sikes Act Improvements Act of 1997 (Sikes Act) requires each military installation that includes land and water suitable for the conservation and management of natural resources to complete, by November 17, 2001, an INRMP. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found there. Each INRMP includes an assessment of the ecological needs on the installation, including needs to provide for the conservation of listed species; a statement of goals and priorities; a detailed description of management actions to be implemented to provide for these ecological needs; and a monitoring and adaptive management plan. We consult with the military on the development and implementation of INRMPs for installations with listed species. We believe that bases that have completed and approved INRMPs that address the needs of the species generally do not meet the definition of critical habitat discussed above, because they require no additional special management or protection. Therefore, we do not include these areas in critical habitat designations if they meet the following three criteria: (1) a current INRMP must be complete and provide a conservation benefit to the species; (2) the plan must provide assurances that the conservation management strategies will be implemented; and (3) the plan must provide assurances that the conservation management strategies will be effective, by providing for periodic monitoring and revisions as necessary. If all of these criteria are met, then the lands covered under the plan would not meet the definition of critical habitat.

One species, *Sesbania tomentosa,* occurs on Kanaio Training Area (Hawaii Army National Guard) lands on the island of Maui, and we believe this land is essential for the conservation of this species. In 1998, funds were provided for protective fencing and monitoring of *Sesbania tomentosa* on this land. Since then, however, these management activities for *Sesbania tomentosa* have been curtailed due to a lack of funding (Lt. Col. Richard Young, Hawaii Army National Guard, *in litt.* 2000). Because appropriate conservation management strategies has not been adequately funded or effectively implemented for *Sesbania tomentosa* on this land, we cannot at this time find that management of this land under Federal jurisdiction is adequate to preclude a proposed designation of critical habitat. However, if an INRMP or other endangered species management plan that addresses the maintenance and improvement of the essential elements for *Sesbania tomentosa,* and provides for its long-term conservation and assurances that the conservation

management strategies will be effective and implemented, we will reassess the critical habitat boundaries in light of these management plans. Also, we may exclude these military lands under section 4(b)(2) of the Act if benefits of exclusion outweigh the benefits of including the areas within critical habitat, provided the exclusion will not result in extinction of the species. Therefore, this area has been included within the proposed critical habitat units.

Contractors for the U.S. Navy are clearing the State-owned island of Kahoolawe of military ordinance utilizing Congressional funding that expires in 2003. The Navy has consulted with the Service under section 7 of the Act to ensure protection of threatened and endangered species during the clearance activities. In June 1998, the State of Hawaii Kahoolawe Island Reserve Commission developed an environmental restoration plan for Kahoolawe (Social Science Research Institute, University of Hawaii 1998). The plan, however, does not address specific management actions to protect and conserve endangered plant species. While the island is isolated and remote, and access is restricted due to the presence of unexploded ordnance hazards, this action alone is not sufficient to indicate that additional special management is not required for the listed plant species, and areas on the island are included within the proposed critical habitat units for *Kanaloa kahoolawensis, Hibiscus brackenridgei, Sesbania tomentosa,* and *Vigna o-wahuensis.*

Protective fencing and monitoring of the endangered plant Sesbania tomentosa on the leased U.S. military lands (Hawaii Army National Guard) at Kanaio Training Area, Maui, were initially funded in 1998. Since then, however, these management activities for *Sesbania tomentosa* have been curtailed due to a lack of funding (Lt. Col. Richard Young, Hawaii Army National Guard, *in litt.* 2000). Therefore, this area has been included within the proposed critical habitat units.

Twelve species (*Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium fragile* var. *insulare, Bidens micrantha* ssp. *kalealaha, Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, Cyanea hamatiflora* ssp. *hamatiflora, Geranium arboreum, Geranium multiflorum, Melicope balloui, Melicope ovalis, Plantago princeps,* and *Schiedea haleakalaensis*) are reported from U.S. National Park lands at Haleakala National Park, Maui (GDSI 2000; HINHP 2000). In the December 18, 2000, proposal we determined that lands within the Park were adequately managed for the conservation of the listed species that occur on those lands and were not in need of special management considerations or protection. Therefore, we determined that these lands did not meet the definition of critical habitat in the Act, and we did not propose designation of these lands as critical habitat. However, during the comment periods on the December 18, 2000, proposal we received information from the Park Superintendent that funding for the conservation and management of the listed plant species on lands within Haleakala National Park may not be adequate nor sufficiently certain every year to support a determination that these lands do not meet the definition of critical habitat. Thus, lands within the Haleakala National Park are included in this proposal.

State of Hawaii Lands

Two plant species, *Geranium multiflorum* and *Clermontia samuelii* ssp. *hanaensis*, are reported from the upper areas of Hanawi Natural Area Reserve (HNAR) (GDSI 2000; HINHP Database 2000). The HNAR was established in 1986, and comprises 3,035 ha (7,500 ac) of diverse native ecosystems and endangered forest bird habitats. Natural Area Reserves are managed by the Department of Land and Natural Resources (DLNR), except that any use must be specifically approved by the Natural Area Reserve System Commission. Natural Area Reserves are held in trust by the State and may not be alienated except upon a finding by the DLNR of an imperative and unavoidable necessity. DLNR must provide public notice and conduct public hearings before revoking or modifying an executive order that sets aside lands for the reserve system (Haw. Rev. Stat. §§ 195–1—195–11). The primary goals of the HNAR are to: (1) Protect the upper areas of the reserve by fencing smaller manageable units to restrict pig movements; (2) prevent degradation of native forest by reducing feral ungulate damage; and (3) improve or maintain the integrity of native ecosystems in selected areas of the preserve by reducing the effects of non-native plants.

Specific management actions to address feral ungulate impacts include the construction of fences, including strategic fencing of smaller manageable units, and staff hunting. Currently, the upper 809 ha (2,000 ac) has been fenced and pigs removed. Fences are constructed along the western boundaries of the HNAR, along the 1,585 m (5,200 ft) contour to the east up to the Haleakala National Park boundary on State land. The Haleakala National Park fence serves as the upper fence boundary for HNAR. Additionally, fences have been constructed to separate three distinct management units: Puu Alaea Unit, Poouli Unit, and Kuhiwai/Waieleele Unit. Since the removal of pigs in these upper forest units of the HNAR, vegetation monitoring has been implemented to determine recovery of native plant species. Currently, a fence is being constructed along the 1,100 m (3,600 ft) contour of the HNAR which will comprise the ''middle forest unit'' (B. Evanson, pers. comm., 1999).

The non-native plant control program within HNAR focuses on habitat-modifying non-native plants (weeds). A weed priority list has been compiled for HNAR, and control and monitoring of the highest priority species are ongoing. Weeds are controlled manually, chemically, or through a combination of both. Monitoring transects help locate developing populations of other priority weed species and, if necessary, removal of these populations is conducted (DLNR 1989).

Because these plants and their habitats within the upper areas of Hanawi NAR (above 1,525 m (5,000 ft)) are permanently protected and managed by State law and because the continued successful management of this area is assured by State funding, this area is not in need of special management considerations or protection. Therefore, we have determined that the State land within the upper areas of Hanawi NAR does not meet the definition of critical habitat in the Act, and we are not proposing designation of this area as critical habitat. Should the status of this reserve change, for example by revocation or modification of the NAR, we will reconsider whether it then meets the definition of critical habitat. If so, we have the authority to propose to amend critical habitat to include such area at that time. 50 CFR 424.12(g).

Private Lands

Ten species (*Alectryon macrococcus, Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium fragile* var. *insulare, Bonamia menziesii, Ctenitis squamigera, Cyanea lobata, Diplazium molokaiense, Geranium arboreum, Geranium multiflorum*, and *Platanthera holochila*) are reported from The Nature Conservancy's Waikamoi and Kapunakea Preserves which are located on the northeast slopes of Haleakala and in the West Maui mountains, respectively (The Nature Conservancy of Hawaii (TNCH) 1997, 1998; GDSI 2000; HINHP Database 2000). Both preserves were established by grants of perpetual

conservation easements from the private landowners to TNCH and are included in the State's Natural Area Partnership (NAP) program, which provides matching funds for the management of private lands that have been permanently dedicated to conservation (TNCH 1997, 1998).

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 re-authorized 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 which are placed in a Natural Area Reserve Fund. Participants in the NAP program must provide annual reports to the Department of Land and Natural Resources (DLNR) and DLNR makes annual inspections of the work in the reserve areas. *See* Haw. Rev. Stat. §§ 195–1—195–11; Hawaii Administrative Rules § 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 the rare plants and their habitats within the preserves and in adjacent areas (TNCH 1997, 1998, 1999). These management measures address factors which led to the listing of the 12 species including control of non-native species of ungulates, rodents, and weeds. In addition, habitat restoration and monitoring are also included in these plans.

The primary management goals for both Kapunakea and Waikamoi Preserves are to (1) prevent degradation of native forest 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 non-native plants; (3) increase the understanding of threats posed by small mammals and reduce their negative impact, where possible; (4) prevent extinction of rare species in the preserve; (5) track the biological and physical resources in the preserves and to evaluate changes in these resources over time; (6) identify new threats to the preserves before they become established pests; and (7) build public understanding and support for the preservation of natural areas, and to enlist volunteer assistance for preserve management (TNCH 1997, 1998).

The goal of the ungulate program is to bring pig populations to zero as rapidly as possible. Specific management actions to address feral ungulate impacts include the construction of fences, including strategic fencing (fences placed in proximity to natural barriers such as cliffs), annual monitoring of ungulate presence transects, and trained staff and volunteer hunting. Since axis deer may also pose a threat to the preserves, TNCH is a member of the Maui Axis Deer Group (MADG) and staff meet regularly with other MADG members to seek solutions. In Waikamoi Preserve, the management actions also include working with community hunters in conjunction with the East Maui Watershed Partnership (EMWP). In Kapunakea Preserve, a system of transects extend the length of the preserve to monitor resource threats, including ungulate presence. By monitoring ungulate activity within the preserve, the staff is able to assess the success of the hunting program. If increased hunting pressure does not reduce feral ungulate activity in the preserves, the preserve staff work with the hunting group to identify and implement alternative methods (TNCH 1997, 1998).

The non-native plant control program within both preserves focuses on controlling habitat-modifying non-native plants (weeds) in intact native communities and preventing the introduction of additional alien plants. Based on the degree of threat to native ecosystems, a weed priority list has been compiled for the preserves, and control and monitoring of the highest priority species are ongoing. Weeds are controlled manually, chemically, or through a combination of both. Preventative measures (prevention protocol) are required by all (volunteers, riders, and hiking participants) who enter the preserves. This protocol includes such things as brushing footgear before entering the preserves to remove seeds of non-native plants. Weeds are monitored along transects annually, weed priority maps are maintained, staff participate as members of the Melastome Action Committee and the Maui Invasive Species Committee (MISC), and cooperate with the Division of Conservation and Resources Enforcement (DOCARE) in marijuana control, as needed.

The effects of non-native invertebrates and small mammals on native Hawaiian ecosystems is poorly understood. Initial control measures such as anti-coagulant diphacinone bait stations are being used to control rats in areas of suspected impact; however, valid conclusions from data gathered have not been drawn. Adaptive management will be applied when new information becomes available (TNCH 1997, 1998).

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. Vegetation is monitored throughout the preserves to document long term ecological changes, and rare plant species are monitored to assess population status. Cuttings of endangered plants are taken to the University of Hawaii's tissue culture lab at Lyon Arboretum for propagation. In addition, the preserve staff provides logistical support to scientists and others who are conducting research within the preserves.

Kapunakea Preserve is adjacent to two areas that are also managed to protect natural resources: Puu Kukui Watershed Management Area (WMA) and the Honokowai section of the State West Maui NAR. The Conservancy currently acts as a consultant to Maui Land and Pineapple Co., managers of Puu Kukui WMA, and has a Master Cooperative Agreement with the State DOFAW. These agreements are used to coordinate management and sharing of staff and equipment, and expertise to maximize management efficiency.

Waikamoi Preserve is adjacent to three other large areas that are also managed to protect natural resources: Haleakala National Park, the State's Koolau Forest Reserve, and the State Hanawi NAR. An agreement between the Division of Land and Natural Resources (DLNR), East Maui Irrigation Co., Keola Hana Maui Inc., Haleakala Ranch Company, County of Maui, The Nature Conservancy, and Haleakala

National Park implementing a joint management plan (East Maui Watershed Partnership Plan) for the entire East Maui Watershed. Management efforts at Waikamoi will, as much as possible, complement the objectives of the plan. The partnership agreement will be used to coordinate management and sharing of staff and equipment, and expertise to maximize management efficiency (TNCH 1998).

Because the preserves and the continuing management plans being implemented for these plants and their habitats within the preserves provided a conservation benefit to the species and are permanently protected and managed, these lands meet the three criteria for determining that an area is not in need of special management. Therefore, we have determined that the private lands within Waikamoi Preserve and Kapunakea Preserve do not meet the definition of critical habitat in the Act, and we are not proposing designation of these lands as critical habitat. Should the status of any of these reserves change, for example by non-renewal of a partnership agreement or termination of NAP funding, we will reconsider whether it then meets the definition of critical habitat. If so, we have the authority to propose to amend critical habitat to include such area at that time (50 CFR 424.12(g)).

Eight species (*Ctenitis squamigera, Clermontia oblongifolia* ssp. *mauiensis, Cyanea lobata, Cyrtandra munroi, Hesperomannia arborescens, Phlegmariurus mannii, Platanthera holochila*, and *Sanicula purpurea*) are reported from the Maui Pineapple Company's Puu Kukui Watershed Management Area (Puu Kukui WMA), located in the West Maui mountains (GDSI 2000; HINHP Database 2000; Maui Land and Pineapple Co., Ltd. undated). In the December 18, 2000, proposal we determined that lands within the Puu Kukui Watershed Management Area were adequately managed for the conservation of the listed species that occur on those lands and were not in need of special management considerations or protection. Therefore, we determined that these lands did not meet the definition of critical habitat in the Act, and we did not propose designation of these lands as critical habitat. However, during the comment periods on the December 18, 2000, proposal we received information from the Watershed Supervisor that funding for the conservation and management of the listed plant species on lands within Puu Kukui Watershed Management Area was not adequate nor assured. Therefore, we have determined that lands within Puu Kukui Watershed Management Area are in need of special management considerations or protection and thus meet the definition of critical habitat in the Act.

In summary, we believe that the habitat within Waikamoi and Kapunakea Preserves, and the upper area (above 1,525 m (5,000 ft)) of Hanawí Natural Area Reserve, are being adequately managed for the conservation of the listed species that occur within these areas and are not in need of special management considerations or protection. Therefore, we have determined that these lands do not meet the definition of critical habitat in the Act, and we are not proposing designation of these lands as critical habitat. However, we are specifically soliciting comments on the appropriateness of this approach.

As described above, we are aware that other private landowners and the State of Hawaii are considering the development of land management plans or agreements that may promote the conservation and recovery of endangered and threatened plant species on the islands of Maui and Kahoolawe. We support these efforts and provide technical assistance whenever possible. We are soliciting comments on whether future development and approval of conservation measures (*e.g.*, Conservation Agreements, Safe Harbor Agreements) should trigger revision of designated critical habitat to exclude such lands, and if so, by what mechanism.

The proposed critical habitat areas described below constitute our best assessment of the physical and biological features needed for the conservation of the 61 plant species, and the special management needs of these species, and are based on the best scientific and commercial information available and described above. We put forward this proposal acknowledging that we have incomplete information regarding many of the primary biological and physical requirements for these species. However, both the Act and the relevant court orders require us to proceed with designation at this time based on the best information available. As new information accrues, we may reevaluate which areas warrant critical habitat designation. We anticipate that comments received through the public review process and from the public hearing will provide us with additional information to use in our decision making process and in assessing the potential impacts of designating critical habitat for one or more of these species.

The approximate areas of proposed critical habitat by landownership or jurisdiction are shown in Table 5.

Proposed critical habitat includes habitat for 61 species under private, State, and Federal jurisdiction (owned and leased lands), with Federal lands including lands managed by the National Park Service and the Department of Defense. Lands proposed as critical habitat have been divided into 13 units (Maui A through Maui M) on the island of Maui, and two units on the island of Kahoolawe (Kahoolawe A through B). A brief description of each unit is presented below.

TABLE 5.—APPROXIMATE PROPOSED CRITICAL HABITAT AREA BY UNIT AND LAND OWNERSHIP OR JURISDICTION, MAUI COUNTY, HAWAII.[1]

Unit name	State/local	Private	Federal	Total
Maui A	1,298 ha (3,208 ac)	2,586 ha (6,390 ac)		3,884 ha (9,598 ac)
Maui B1	1,177 ha (2,909 ac)	3,197 ha (7,899 ac)		4,374 ha (10,808 ac)[1]
Maui B2	4 ha (9 ac)	358 ha (884 ac)		362 ha (893 ac)
Maui C1		23 ha (56 ac)		23 ha (56 ac)
Maui C2		10 ha (24 ac)		10 ha (24 ac)
Maui C3	78 ha (192 ac)	85 ha (209 ac)		162 ha[1] (400 ac)[1]
Maui C4	88 ha (216 ac)	74 ha (184 ac)		162 ha (400 ac)
Maui D1	3,191 ha (7,885 ac)	3,759 ha (9,289 ac)		6,950 ha (17,175 ac)[1]
Maui D2		212 ha (523 ac)		212 ha (523 ac)
Maui E	830 ha (2,051 ac)	559 ha (1,380 ac)		1,389 ha (3,432 ac)[1]
Maui F	144 ha (357 ac)			144 ha (357 ac)
Maui G1	<1 ha (<1 ac)	4 ha (10 ac)		4 ha 1 (10 ac)[1]
Maui G2	1 ha (2 ac)			1 ha (2 ac)

TABLE 5.—APPROXIMATE PROPOSED CRITICAL HABITAT AREA BY UNIT AND LAND OWNERSHIP OR JURISDICTION, MAUI COUNTY, HAWAII.[1]—Continued

Unit name	State/local	Private	Federal	Total
Maui G3	7 ha (16 ac)			7 ha (16 ac)
Maui G4	5 ha (13 ac)	16 ha (37 ac)		22 ha [1] (53 ac) [1]
Maui G5	16 ha (41 ac)	15 ha (37 ac)		31 ha (77 ac) [1]
Maui G6	11 ha (27 ac)			11 ha (27 ac) [1]
Maui H	10,254 ha (25,340 ac)	3,586 ha (8,862 ac)	259 ha (641 ac)	14,101 ha [1] (34,843 ac)
Maui I1	678 ha (1,678 ac)	621 ha (1,534 ac)	563 ha (1,391 ac)	1,862 ha (4,601 ac)
Maui I2	177 ha (437 ac)	503 ha (1,243 ac)		680 ha (1,680 ac)
Maui I3	282 ha (697 ac)	170 ha (420 ac)		452 ha (1,117 ac)
Maui I4	98 ha (239 ac)	399 ha (986 ac)		497 ha (1,227 ac) [1]
Maui J		8 ha (21 ac)	5,782 ha (14,287 ac)	5,790 ha (14,308 ac)
Maui K	3,375 ha (8,339 ac)		2,089 ha (5,163 ac)	5,464 ha (13,502 ac)
Maui L	1,562 ha (3,860 ac)	2,927 ha (7,234 ac)	122 ha (302 ac)	4,612 ha [1] (11,396 ac)
Maui M	2 ha (6 ac)			2 ha (6 ac)
Maui Total	23,278 ha (57,522 ac)	19,112 ha (47,225 ac)	8,815 ha (21,784 ac)	51,208 ha [1] (126,531 ac) [1]
Kahoolawe A	713 ha (1,762 ac)			713 ha (1,762 ac)
Kahoolawe B	<1 ha (1 ac)			<1 ha (1 ac)
Grand Total	23,991 ha (59,285 ac)	19,112 ha (47,225 ac)	8,815 ha (21,784 ac)	51,921 ha [1] (128,294 ac)

[1] Area differences due to digital mapping discrepancies between TMK data (GDSI 2000) and USGS coastline, or difference due to rounding.

Descriptions of Critical Habitat Units

Maui A

The proposed unit Maui A provides occupied habitat for 7 species: *Clermontia oblongifolia* ssp. *mauiensis, Colubrina oppositifolia, Ctenitis squamigera, Cyanea lobata, Cyrtandra munroi, Remya mauiensis,* and *Sanicula purpurea.* It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 100 mature individuals per population for *Colubrina oppositifolia,* or 300 mature individuals per population for *Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyanea lobata, Cyrtandra munroi, Remya mauiensis,* and *Sanicula purpurea* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species. This unit also provides unoccupied habitat for 9 species: *Alectryon macrococcus, Cyanea glabra, Gouania vitifolia, Hedyotis mannii, Hesperomannia arbuscula, Phlegmariurus mannii, Platanthera holochila, Plantago princeps,* and *Pteris lidgatei.* Designation of this unit is essential to the conservation of these species because it contains the physical and biological features that are considered essential for their conservation on Maui and provides habitat to support one or more additional populations necessary to meet the recovery objectives of 8 to 10 populations for each species and 100 mature individuals per population for *Alectryon macrococcus* and *Hesperomannia arbuscula,* or 300 mature individuals per population for *Cyanea glabra, Hedyotis mannii, Phlegmariurus mannii, Platanthera holochila, Plantago princeps,* and *Pteris lydgatei* throughout their known historical range (see the discussion of conservation requirements in Section D, and in the table for Maui A).

The unit contains a total of 3,884 ha (9,598 ac) on State and privately owned lands. It is bounded on the north by Honolua watershed and on the south by Kahoma watershed and includes portions of Honokahua, Honokohau, Honokowai, Iao, Kahana, Kauaula, Wahikuli watersheds. It contains all of the Honokowai Section West Maui Natural Area Reserve and portions of the West Maui Forest Reserve, Puu Kukui Watershed Management and Panaewa Section West Maui Natural Area Reserve and surrounds the Kapunakea Preserve. The natural features of this unit include Amalu Stream, Kapaloa Stream, Kaulalewelewe (summit), Kekaalaau (summit), Puu Kaeo, Puu Makina, and Violet Lake.

Key for tables Maui A–M and Kahoolawe A–B.

1. This unit is needed to meet the recovery plan objectives of 8 to 10 viable populations (self perpetuating and sustaining for at least 5 years) with 100 to 500 mature, reproducing individuals per species throughout its historical range as specified in the recovery plans.

2. Island endemic.

3. Multi-island species with current locations on other islands.

4. Multi-island species with no current locations on other islands.

5. Current locations do not necessarily represent viable populations with the required number of mature individuals.

6. Several current locations may be affected by one naturally occurring, catastrophic event.

7. Species with variable habitat requirements, usually over wide areas. Wide ranging species require more space per individual over more land area to provide needed primary constituent elements to maintain healthy population size.

8. Not all currently occupied habitat was determined to be essential to the recovery of the species.

9. Life history, long-lived perennial—100 mature, reproducing individuals per population.

10. Life history, short-lived perennial—300 mature, reproducing individuals per population.

11. Life history, annual—500 mature, reproducing individuals per population.

12. Narrow endemic, the species probably never naturally occurred in more than a single or a few populations.

13. Species has extremely restricted, specific habitat requirements.

14. Hybridization is possible so distinct populations of related species should not overlap, requiring more land area.

‡Species that are wide ranging require more land than species with more discrete ranges. Not all suitable habitat is designated, only those areas essential for the conservation of the species.

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Table for Maui A

Species	1. 8–10 pop. guidelines.	2. Island endemic.	3. Multi-island/current other islands.	4. Multi-island/no current other islands.	5. Non-viable populations.	6. Several occ. vulnerable to destruction.	7. Species with variable habitats.	8. Not all occupied habitat needed	9. Long-lived perennial–100/pop.	10. Short-lived perennial–300/pop.	11. Annual–500/pop.	12. Narrow endemic.	13. Restricted habitat requirements.	14. Hybridization is possible.	Notes
Alectryon macrococcus	X*		X		X	X		X	X					X	*Species is wide ranging.‡
Clermontia oblongifolia ssp. mauiensis	X		X		X	X				X			X*		Sides of ridges and ridge tops in Metrosideros polymorpha dominated montane forest.
Colubrina oppositifolia	X*		X		X	X	X		X						*Species is wide ranging.‡
Ctenitis squamigera	X*		X		X	X	X	X		X					*Species is wide ranging.‡
Cyanea glabra	X	X			X	X				X			X*		* Soil and rock stream banks in wet lowland forest.

Cyanea lobata	X			X	X	X		X		X			X*		*Steep stream banks in deep shade in wet forest.
Cyrtandra munroi	X		X		X	X		X		X			X*		*Moist to wet, moderately steep talus slopes.
Gouania vitifolia	X*		X**		X		X			X					*Species is wide ranging.‡ **Historic on Maui.
Hedyotis mannii	X		X		X	X				X			X*		*Basalt cliffs along stream banks in Metrosideros polymorpha-Dicranopteris linearis montane wet forest.
Hesperomannia arbuscula	X*		X		X	X	X	X	X						*Species is wide ranging.‡
Phlegmariurus mannii	X*			X	X	X	X**	X		X			X***		*Species is wide ranging.‡ **Not enough suitable habitat for 8 to 10 (not done on other islands) ***Very specific, variable habitat requirements, i.e. Epiphytic on Metrosideros polymorpha, Dodonaea viscosa and Acacia koa trees in moist protected gulches or on mossy tussocks in mesic to wet montane forests.
Plantago princeps	X		X		X	X				X			X*		*Basalt cliffs that are windblown with little vegetation.
Platanthera holochila	X		X		X	X	X	X		X					

Pteris lidgatei	X*		X		X	X		X		X**	*Species is wide ranging.‡ **Steep stream banks in wet Metrosideros polymorpha-Dicranopteris linearis montane forest.
Remya mauiensis	X	X			X	X		X		X*	*Steep, north or northeast-facing slopes in mixed mesophytic forests or Metrosideros polymorpha montane wet forests.
Sanicula purpurea	X*		X		X	X	X	X		X**	*Species is wide ranging.‡ **Open Metrosideros polymorpha mixed montane bogs.

Maui B

The proposed unit Maui B (units B1 and B2) provides occupied habitat for 7 species: *Cyanea lobata, Hesperomannia arborescens, Phlegmariurus mannii, Platanthera holochila, Plantago princeps, Pteris lydgatei,* and *Sanicula purpurea*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 100 mature individuals per population for *Hesperomannia arborescens,* or 300 mature individuals per population *Cyanea lobata, Hesperomannia arborescens, Phlegmariurus mannii, Platanthera holochila, Plantago princeps, Pteris lydgatei,* and *Sanicula purpurea* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species. This unit also provides unoccupied habitat for 4 species: *Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyrtandra munroi,* and *Diplazium molokaiense.* Designation of this unit is essential to the conservation of these species because it contains the physical and biological features that are considered essential for their conservation on Maui and provides habitat to support one or more additional populations necessary to meet the recovery objectives of 8 to 10 populations and 300 mature individuals per population for *Clermontia oblongifolia* ssp. *mauiensis, Ctenitis squamigera, Cyrtandra munroi,* and *Diplazium molokaiense* throughout their known historical range (see the discussion of conservation requirements in Section D, and in the table for Maui B).

This unit cluster contains a total of 4,736 ha (11,701 ac) on State and privately owned lands. It is bounded on the west by Honokohau watershed and on the east by Waiehu watershed and contains portions of the Anakaluahine, Honanana, Honokowai, Kahakuloa, Kahana, Makamakaole, Poelua, Waihee, and Waipili watersheds. It contains portions of the Puu Kukui Watershed Management reserve, West Maui Forest Reserve, and Kahakuloa Section West Maui Natural Area Reserve. The natural features include: unit B1, Mauna Alani, Eke Crater, Keahialoa (summit), Keahikauo (summit), Lanilili (summit), Mananole Stream, and Kane, Puu o Kaupo; and unit B2, Anakaluahine Gulch and a small portion of Honkohau Stream.

Table for Maui B

Species	Clermontia oblongifolia ssp. mauiensis	Ctenitis squamigera	Cyanea lobata	Cyrtandra munroi
1. 8–10 pop. guidelines.	X	X*	X	X
2. Island endemic.				
3. Multi-island/current other islands.	X	X		X
4. Multi-island/no current other islands.			X	
5. Non-viable populations.	X	X	X	X
6. Several occ. vulnerable to	X	X	X	X
7. Species with variable habitats.		X		
8. Not all occupied habitat needed.		X	X	X
9. Long-lived perennial–100/pop.				
10. Short-lived perennial–300/pop.	X	X	X	X
11. Annual–500/pop.				
12. Narrow endemic.				
13. Restricted habitat requirements.	X*		X*	X*
14. Hybridization is possible.				
Notes	*Sides of ridges and ridge tops in Met pol dominated montane forest.	*Species is wide ranging.‡	*Steep stream banks in deep shade in wet forest.	*Moist to wet, moderately steep talus slopes.

Diplazium molokaiense	X*			X	X	X		X		X			X**		*Species is wide ranging.‡ **Near water courses often in proximity to waterfalls in lowland or montane mesic. forests.
Hesperomannia arborescens	X*		X		X	X	X	X	X						*Species is wide ranging.‡
Phlegmariurus mannii	X*			X	X	X	X**	X		X			X***		*Species is wide ranging.‡ **Not enough suitable habitat for 8 to 10 (not done on other islands) ***Very specific, variable habitat requirements, i.e. Epiphytic on Metrosideros polymorpha, Dodonaea viscosa and Acacia koa trees in moist protected gulches or on mossy tussocks in mesic to wet montane forests.
Plantago princeps	X		X		X	X		X		X			X*		*Basalt cliffs that are windblown with little vegetation.
Platanthera holochila	X		X		X	X	X	X		X					
Pteris lidgatei	X*		X		X	X				X			X**		*Species is wide ranging.‡ *Steep stream banks in wet Metrosideros polymorpha-Dicranopteris linearis montane forest.
Sanicula purpurea	X*		X		X	X		X		X			X**		*Species is wide ranging.‡ **Open Metrosideros polymorpha mixed montane bogs.

Maui C

The proposed unit Maui C (units C1 through C4) provides occupied habitat for two species: *Centaurium sebaeoides* and *Sesbania tomentosa.* It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 300 mature individuals per population for *Sesbania tomentosa,* or 500 mature individuals per population for *Centaurium sebaeoides* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species. This unit also provides unoccupied habitat for one species. *Brighamia rockii.* Designation of this unit is essential to the conservation of this species because it contains the physical and biological features that are considered essential for its conservation on Maui and provides habitat to support one or more additional populations necessary to meet the recovery objectives for this species of 8 to 10 populations and 100 mature individuals per population, throughout its known historical range (see the discussion of conservation requirements in Section D, and in the table for Maui C).

This unit cluster contains a total of 357 ha (880 ac) on State, county, and privately owned lands. It is bounded by the coast line and in the west by Honolua watershed and in the east by Waihee watershed and contains portions of Anakaluahine, Honanana, Honokohau, Kahakuloa, Makamakaole, Poelua, Waiolai, and Waipili watersheds. The geographic features include: unit C1, Keonehelelee (beach) and Pohakupule Gulch; unit C2, Punaha Gulch; unit C3, Anakaluahine Gulch, Honanana Gulch, Kanounou Point, Keawalua (beach), Mokolea Point, Nakalele Point, Owaluhi Gulch, Papanahoa Gulch, Poelua Gulch, and Waikeakua Gulch; and unit C4, Hakuhee Point, Kaemi (cape), Kahakuloa Head, Kupaa Gulch, Makalina Ravine, Puu Kahulianapa, Puu Koae, Puu Makawana, Wailena Gulch, Waiokila Gulch, Waiolai Gulch, and Waipili Gulch.

Table for Maui C

Species	1. 8–10 pop. guidelines	2. Island endemic.	3. Multi-island/current other islands.	4. Multi-island/no current other islands.	5. Non-viable populations.	6. Several occ. vulnerable to destruction	7. Species with variable habitats.	8. Not all occupied habitat needed	9. Long-lived perennial–100/pop.	10. Short-lived perennial–300/pop.	11. Annual–500/pop.	12. Narrow endemic.	13. Restricted habitat requirements	14. Hybridization is possible.	Notes
Brighamia rockii	X		X*						X				X**		*Historic on Maui **Rock crevices on steep sea cliffs, often within the spray zone.
Centaurium sebaeoides	X*		X		X	X					X		X**		*Species is wide ranging.‡ **Volcanic or clay soils or on cliffs in windward coastal areas with native associates.
Sesbania tomentosa	X*		X		X	X	X	X		X					*Species is wide ranging.‡

Maui D

The proposed unit Maui D (units D1 and D2) provides occupied habitat for 18 species: *Ctenitis squamigera, Cyanea glabra, Cyanea grimesiana* ssp. *grimesiana, Cyanea lobata, Diellia erecta, Dubautia plantaginea* ssp. *humilis, Hedyotis coriacea, Hedyotis mannii, Hesperomannia arbuscula, Hibiscus brackenridgei, Lysimachia lydgatei, Neraudia sericea, Phlegmariurus mannii, Platanthera holochila, Pteris lydgatei, Remya mauiensis, Spermolepis hawaiiensis,* and *Tetramolopium capillare.* It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 100 mature individuals per population for *Hesperomannia arbuscula,* or 300 mature individuals per population for *Ctenitis squamigera, Cyanea glabra, Cyanea grimesiana* ssp. *grimesiana, Cyanea lobata, Diellia erecta, Dubautia plantaginea* ssp. *humilis, Hedyotis coriacea, Hedyotis mannii, Hibiscus brackenridgei, Lysimachia lydgatei, Neraudia sericea, Phlegmariurus mannii, Platanthera holochila, Pteris lydgatei, Remya mauiensis,* and *Tetramolopium capillare,* or 500 mature individuals per population for *Spermolepis hawaiiensis* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species. This unit also provides unoccupied habitat for 10 species: *Cenchrus agrimonioides, Clermontia oblongifolia* ssp. *mauiensis, Cyrtandra munroi, Diplazium molokaiense, Gouania vitifolia, Isodendrion pyrifolium, Peucedanum sandwicense, Plantago princeps, Sanicula purpurea,* and *Tetramolopium remyi.* Designation of this unit is essential to the conservation of these species because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more additional populations necessary to meet the recovery objectives of 8 to 10 populations for each species and 100 mature individuals per population for *Colubrina oppositifolia,* or 300 mature individuals for *Clermontia oblongifolia* ssp. *mauiensis, Cyrtandra munroi, Plantago princeps,* and *Sanicula purpurea* throughout their known historical range (see the discussion of conservation requirements in Section D, and in the table for Maui D).

The unit cluster contains a total of 7,162 ha (17,698 ac) on State and privately owned lands. It contains portions of the Iao, Kahoma, Kauaula, Launiupoko, Olowalu, Papalaua, Pohakea, Ukumehame, Waiehu, Waihee, and Waikapu watersheds. This unit also contains the Lihau Section West Maui NAR and the Manawainui Plant Sanctuary and portions of the Panaewa Section West Maui Natural Area Reserve and the West Maui Forest Reserve. The natural features of this unit include: unit D1, Halepohaku (summit), Helu (summit), Hokuula (summit), Kahoolewa Ridge, Kapilau Ridge, Koai (summit), Lihau (summit), Luakoi (summit), Luakoi Ridge, Nakalaloa Stream, The Needle (summit), Paupau (summit), Poohahoahoa Stream, Puu Hipa, Puu Kukui, Puu Lio, and Ulaula (summit); and unit D2, Kaonohua Gulch, Kaunoahua Ridge, and Paleaahu Gulch.

Table for Maui D

Species	1. 8–10 pop. guidelines.	2. Island endemic.	3. Multi-island/current other islands.	4. Multi-island/no current other islands.	5. Non-viable populations.	6. Several occ. vulnerable to	7. Species with variable habitats.	8. Not all occupied habitat needed.	9. Long-lived perennial–100/pop.	10. Short-lived perennial–300/pop.	11. Annual–500/pop.	12. Narrow endemic.	13. Restricted habitat requirements.	14. Hybridization is possible.	Notes
Cenchrus agrimonioides	X*		X		X	X	X			X					*Species is wide ranging.‡
Clermontia oblongifolia ssp. mauiensis	X		X		X	X				X			X*		*Sides of ridges and ridge tops in Met pol dominated montane forest.
Colubrina oppositifolia	X*		X		X	X	X		X						*Species is wide ranging.‡
Ctenitis squamigera	X*		X		X	X	X	X		X					*Species is wide ranging.‡
Cyanea glabra	X	X			X	X				X			X*		* Soil and rock stream banks in wet lowland forest.

Cyanea grimesiana ssp. grimesiana	X*		X		X					X			X**		*Species is wide ranging.‡ **Rocky or steep slopes of stream banks in wet forest gulch bottoms.
Cyanea lobata	X			X	X	X		X		X			X*		*Steep stream banks in deep shade in wet forest.
Cyrtandra munroi	X		X		X	X		X		X			X*		*Moist to wet, moderately steep talus slopes.
Diellia erecta	X*		X		X	X		X		X			X**		*Species is wide ranging.‡ **Steep slopes or gulch sides in deep shade.
Diplazium molokaiense	X*			X	X	X		X		X			X**		*Species is wide ranging.‡ **Near water courses often in proximity to waterfalls in lowland or montane mesic. forests.
Dubautia plantaginea ssp. humilis	X	X			X	X				X			X*		*Wet, barren, steep, rocky, wind-blown cliffs.
Gouania vitifolia	X*		X**		X		X			X					*Species is wide ranging.‡ **Historic on Maui
Hedyotis coriacea	X		X		X	X				X			X*		*Steep, rocky, slopes.
Hedyotis mannii	X		X		X	X				X			X*		*Basalt cliffs along stream banks in Metrosideros polymorpha-Dicranopteris linearis montane wet forest.

Hesperomannia arbuscula	X*		X		X	X	X	X	X					*Species is wide ranging.‡
Hibiscus brackenridgei	X*		X		X	X	X			X		X		*Species is wide ranging.‡
Isodendrion pyrifolium	X		X*				X			X				*Historic on Maui
Lysimachia lydgatei	X	X			X	X	X	X		X				
Neraudia sericea	X		X		X	X	X			X				
Peucedanum sandwicense	X		X		X	X				X			X*	*Cliffs.
Phlegmariurus mannii	X*			X	X	X	X**	X		X			X***	*Species is wide ranging.‡ **Not enough suitable habitat for 8 to 10 (not done on other islands) ***Very specific, variable habitat requirements, i.e. Epiphytic on Metrosideros polymorpha, Dodonaea viscosa and Acacia koa trees in moist protected gulches or on mossy tussocks in mesic to wet montane forests.
Plantago princeps	X		X		X	X		X		X			X*	*Basalt cliffs that are windblown with little vegetation.
Platanthera holochila	X		X		X	X	X	X		X				

Pteris lidgatei	X*		X	X	X			X		X**		*Species is wide ranging.‡ **Steep stream banks in wet Metrosideros polymorpha-Dicranopteris linearis montane forest.
Remya mauiensis	X	X		X	X			X		X*		*Steep, north or northeast-facing slopes in mixed mesophytic forests or Metrosideros polymorpha montane wet forests.
Sanicula purpurea	X*		X	X	X		X	X		X**		*Species is wide ranging.‡ **Open Metrosideros polymorpha mixed montane bogs.
Spermolepis hawaiiensis	X*		X	X	X	X			X			*Species is wide ranging.‡
Tetramolopium capillare	X	X		X	X			X		X*		*Rocky substrates in Heteropogon contortus lowland dry forest.
Tetramolopium remyi	X		X	X	X		X	X		X*		*Dry, exposed ridges or flats.

Maui E

The proposed unit Maui E provides occupied habitat for two species: *Bonamia menziesii* and *Hibiscus brackenridgei*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 300 mature individuals per population for *Bonamia menziesii* and *Hibiscus brackenridgei* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species (see the discussion of conservation requirements in Section D, and in the table for Maui E).

The unit contains a total of 1,398 ha (3,432 ac) on State and privately owned lands. It is contained in the north in the Hapapa watershed and in the south by the Wailea watershed. The natural features include Kekuawahaulaula (summit) and Nawawaeoalika (summit).

Table for Maui E

Notes	*Species is wide ranging.‡	
14. Hybridization is possible.		
13. Restricted habitat requirements.		
12. Narrow endemic.		
11. Annual–500/pop.		
10. Short-lived perennial–300/pop.	X	X
9. Long-lived perennial–100/pop.		
8. Not all occupied habitat needed.	X	
7. Species with variable habitats.	X	X
6. Several occ. vulnerable to	X	X
5. Non-viable populations.	X	X
4. Multi-island/no current other islands.		
3. Multi-island/current other islands.	X	X
2. Island endemic.		
1. 8–10 pop. guidelines.	X*	X
Species	Bonamia menziesii	Hibiscus brackenridgei

Maui F

The proposed unit Maui F provides occupied habitat for one species, *Vigna o-wahuensis*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 100 mature individuals per population for *Vigna o-wahuensis* throughout its known historical range considered by the recovery plan to be necessary for the conservation of this species (see the discussion of conservation requirements in Section D, and in the table for Maui F).

The unit contains a total of 144 ha (357 ac) on State owned land. It is in the Kanaio watershed and has no named natural features but it is on the shore between Kamanamana Cape in the west and Pohakueaea Point in the east.

Table for Maui F

Notes	*Species is wide ranging.‡
14. Hybridization is possible.	
13. Restricted habitat requirements.	
12. Narrow endemic.	
11. Annual–500/pop.	
10. Short-lived perennial–300/pop.	X
9. Long-lived perennial–100/pop.	
8. Not all occupied habitat needed.	
7. Species with variable habitats.	X
6. Several occ. vulnerable to	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	X
2. Island endemic.	
1. 8–10 pop. guidelines.	X*
Species	Vigna o-wahuensis

Maui G

The proposed unit Maui G (units G1 through G6) provides occupied habitat for one species: *Ischaemum byrone.* It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 300 mature individuals per population, throughout its known historical range considered by the recovery plan to be necessary for the conservation of the species. This unit also provides unoccupied habitat for three species: *Brighamia rockii, Mariscus pennatiformis,* and *Peucedanum sandwicense.* Designation of this unit is essential to the conservation of these species because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more additional populations necessary to meet the recovery objectives of 8 to 10 populations for each species and 100 mature individuals per population for *Brighamia rockii, Mariscus pennatiformis,* and *Peucedanum sandwicense,* throughout their known historical range (see the discussion of conservation requirements in Section D, and in the table for Maui G).

This unit cluster contains a total of 76 ha (185 ac) on State and privately owned lands. It is bounded on the west by Wahinepee watershed and on the east by Honomaele watershed and contains portions of the East Wailuaiki, Haipuaena, Hanawi, Kapaula, Kopiliula, Ohia, Paakea, Punalau, Puohokamoa, Waiaaka, Waiohue, and Waiokamilo watersheds. Unit G6 contains a portion of the Waianapanapa State Park. The natural features of this unit cluster include: unit G1, Wahinepee Stream; unit G2, is all of Keopuka Rock, an offshore islet; unit G3, Haipuaena Stream and Moiki Point; unit G4, Manahoa Rock, Paepaemoana Point, Pauwalu Point, Waiokamilo Stream, and Waiokilo; unit G5, Hanawi Stream, Kapaula Gulch, Paakea Gulch, and Papiha Point; unit G6, Keawaiki Cape and Pukaulua Point.

Table for Maui G

Species	1. 8–10 pop. guidelines.	2. Island endemic.	3. Multi-island/current other islands.	4. Multi-island/no current other islands.	5. Non-viable populations.	6. Several occ. vulnerable to	7. Species with variable habitats.	8. Not all occupied habitat needed.	9. Long-lived perennial–100/pop.	10. Short-lived perennial–300/pop.	11. Annual–500/pop.	12. Narrow endemic.	13. Restricted habitat requirements.	14. Hybridization is possible.	Notes
Brighamia rockii	X		X*						X				X**		*Historic on Maui **Rock crevices on steep sea cliffs, often within the spray zone.
Ischaemum byrone	X*		X		X	X		X		X			X**		*Species is wide ranging.‡ **In close proximity to the ocean, among rocks or on basalt cliffs in windward coastal dry shrubland.
Mariscus pennatiformis	X		X		X	X				X			X*		*Cliffs with brown soil and talus within reach of ocean spray.
Peucedanum sandwicense	X		X		X	X				X			X*		*Cliffs.

BILLING CODE 4310–55–C

Maui H

The proposed unit Maui H provides occupied habitat for 15 species: *Alectryon macrococcus, Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Cenchrus agrimonioides, Flueggea neowawraea, Geranium arboreum, Lipochaeta kamolensis, Melicope adscendens, Melicope knudsenii, Melicope mucronulata, Neraudia sericea, Phlegmariurus mannii, Sesbania tomentosa, Spermolepis hawaiiensis,* and *Zanthoxylum hawaiiense.* It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 100 mature individuals per population for *Alectryon macrococcus, Flueggea neowawraea, Geranium arboreum, Melicope adscendens, Melicope knudsenii, Melicope mucronulata, and Zanthoxylum hawaiiense,* or 300 individuals per population for *Bidens micrantha* ssp. *kalealaha, Bonamia menziesii, Cenchrus agrimonioides, Lipochaeta kamolensis, Neraudia sericea, Phlegmariurus mannii,* and *Sesbania tomentosa,* or 500 individuals per population for *Spermolepis hawaiiensis* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species. This unit also provides unoccupied habitat for 10 species: *Argyroxiphium sandwicense* ssp. *macrocephalum, Clermontia lindseyana, Colubrina oppositifolia, Diellia erecta, Diplazium molokaiense, Geranium multiflorum, Nototrichium humile, Phyllostegia mollis, Plantago princeps* and *Schiedea haleakalensis.* Designation of this unit is essential to the conservation of these species because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more additional populations necessary to meet the recovery objectives of 8 to 10 populations for *Clermontia lindseyana, Colubrina oppositifolia, Diellia erecta, Diplazium molokaiense, Geranium multiflorum, Nototrichium humile, Phyllostegia mollis, Plantago princeps* and *Schiedea haleakalensis* and 100 mature individuals per population for *Colubrina oppositifolia* and *Geranium multiflorum,* or 300 mature individuals for *Clermontia lindseyana, Diellia erecta, Diplazium molokaiense, Nototrichium humile, Phyllostegia mollis, Plantago princeps* and *Schiedea haleakalensis,* or greater than 50,000 individuals of *Argyroxiphium sandwicense* ssp. *macrocephalum,* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species (see the discussion of conservation requirements in Section D, and in the table for Maui H).

The unit contains a total of 14,101 ha (34,843 ac) on Federal, State, and privately owned lands. It is bounded on the west by Kanaio watershed and on the east by Nuu watershed and contains portions of the Hapapa, Kaupo, Kipapa, Manawainui Gulch, Pahihi, Piinaau, Poopoo, Waiakoa, Wailea, Waiopai watersheds. This unit contains all of the Kanaio Natural Area Reserve and portions of the Haleakala National Park, Kahikinui Forest Reserve, and Kula Forest Reserve. The natural features include Hokukano (summit), Kahua (summit), Kamole Gulch, Keonehunehune (summit), Kolekole (summit), Lualailua Hills, Magnetic Peak, Manukani (summit), Nawini (summit), Pimoe (summit), Pohakea (summit), Polipoli (summit), Pukai Gulch, Puu Kao, Puu Ouli, Puu Pane, Red Hill, Uma (summit), and Wailaulau Gulch.

BILLING CODE 4310–55–P

Table for Maui H

Notes	*Species is wide ranging.‡
14. Hybridization is possible.	X
13. Restricted habitat requirements.	
12. Narrow endemic.	
11. Annual–500/pop.	
10. Short-lived perennial–300/pop.	
9. Long-lived perennial–100/pop.	X
8. Not all occupied habitat needed.	X
7. Species with variable habitats.	
6. Several occ. vulnerable to	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	X
2. Island endemic.	
1. 8–10 pop. guidelines.	X*
Species	Alectryon macrococcus

Argyroxiphium sandwicense ssp. macrocephalum	X*	X				X			X**				X***	X	*Species is wide ranging, only 1 population.‡ **>50,000 needed for recovery according to recovery plan, due to extreme longevity, monocarpic life history, and self-incompatibility. ** Lava flows with almost no soil development and otherwise barren, unstable slopes of recent (less than several thousand years old) volcanic cinder cones subject to frequent formation of ice at night and extreme heating during cloudless days with an annual precipitation of approximately 75 to 250 cm (29.6 to 98.4 in).
Bidens micrantha ssp. kalealaha	X			X		X				X			X*		*Blocky lava flows with little or no soil development, deep pit craters, and sheer rock walls in open canopy montane shrubland.
Bonamia menziesii	X*		X		X	X	X	X		X					*Species is wide ranging.‡(may have been a couple of meta-populations on each island).
Cenchrus agrimonioides	X*		X		X	X	X			X					*Species is wide ranging.‡

Clermontia lindseyana	X		X		X	X	X			X					
Colubrina oppositifolia	X*		X		X	X	X		X						*Species is wide ranging.‡
Diellia erecta	X*		X		X	X		X		X			X**		*Species is wide ranging.‡ **Steep slopes or gulch sides in deep shade.
Diplazium molokaiense	X*			X	X	X		X		X			X**		*Species is wide ranging.‡ **Near water courses often in proximity to waterfalls in lowland or montane mesic. forests.
Flueggea neowawraea	X*		X		X	X	X	X	X						*Species is wide ranging.‡
Geranium arboreum	X	X			X	X		X	X				X*		*Steep, damp, and shaded narrow canyons and gulches, steep banks, and intermittent streams.
Geranium multiflorum	X*	X			X	X	X	X	X						*Species is wide ranging.‡
Lipochaeta kamolensis	X*	X			X	X	X			X		X			*Species is wide ranging.‡
Melicope adscendens	X*	X			X	X		X	X			X	X*		*Species is wide ranging.‡ **Aa lava.
Melicope knudsenii	X		X		X	X	X	X	X						
Melicope mucronulata	X*		X		X	X	X		X						*Not enough suitable habitat exists for 8 to 10 populations at this time.
Neraudia sericea	X		X		X	X	X			X					

Nototrichium humile	X		X*							X			X**		*Historic on Maui. **Old cinder cones.
Phlegmariurus mannii	X*			X**	X	X	X**	X		X			X***		*Species is wide ranging.‡ **Not enough suitable habitat for 8 to 10 (not done on other islands) ***Very specific, variable habitat requirements, i.e. Epiphytic on Metrosideros polymorpha, Dodonaea viscosa and Acacia koa trees in moist protected gulches or on mossy tussocks in mesic to wet montane forests.
Phyllostegia mollis	X		X		X	X	X			X					
Plantago princeps	X		X		X	X		X		X			X*		*Basalt cliffs that are windblown with little vegetation.
Schiedea haleakalensis	X*	X			X	X		X		X		X	X**		*Species is wide ranging.‡ **Rock cracks on sheer cliffs adjacent to barren lava and subalpine shrublands and grasslands with cinder, weathered volcanic ash, or bare lava substrate with little or no soil development and periodic freezing temperatures.
Sesbania tomentosa	X*		X		X	X	X	X		X					*Species is wide ranging.‡
Spermolepis hawaiiensis	X*		X		X	X	X				X				*Species is wide ranging.‡
Zanthoxylum hawaiiense	X*		X		X	X	X		X						*Species is wide ranging.‡

Maui I

The proposed unit Maui I (I1 through I4) provides occupied habitat for three species: *Diellia erecta, Diplazium molokaiense,* and *Geranium arboreum*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 100 mature individuals per population for *Geranium arboreum,* or 300 mature individuals per population for *Diellia erecta,* and *Diplazium molokaiense* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species. This unit also provides unoccupied habitat for eight species: *Asplenium fragile* var. *insulare, Bidens micrantha* ssp. *kalealaha, Phlegmariurus mannii, Phyllostegia mollis, Plantago princeps.* Designation of this unit is essential to the conservation of these species because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more additional populations necessary to meet the recovery objectives of 8 to 10 populations for *Asplenium fragile* var. *insulare, Bidens micrantha ssp. kalealaha, Clermontia lindseyana, Geranium multiflorum, Phlegmariurus mannii, Phyllostegia mollis, and Plantago princeps* and 100 mature individuals per population for *Geranium multiflorum,* or 300 mature individuals per population for *Asplenium fragile* var. *insulare, Bidens micrantha* ssp. *kalealaha, Clermontia lindseyana, Phlegmariurus mannii, Phyllostegia mollis,* and *Plantago princeps,* or greater than 50,000 individuals of *Argyroxiphium sandwicense* ssp. *macrocephalum,* throughout their known historical range (see the discussion of conservation requirements in Section D, and in the table for Maui I).

The unit cluster contains a total of 1,629 ha (4,024 ac) on Federal, State and privately owned lands. It is in portions of the Hapapa, Honomanu, Kalialinui, Kanaio, Kipapa, Manawainui Gulch, Piinaau, Wahinepee, Waiakoa, and Wailea watersheds. This unit contains portions of Haleakala National Park, Haleakala Ranch, Kahikinui Forest Reserve, Kula Forest Reserve, and Waikamoi Preserve. The natural features include Kalepeamoa (summit), Kanahau (summit), Puu Makua, and Waihou Spring.

Table for Maui I

Species	Argyroxiphium sandwicense ssp. macrocephalum
1. 8–10 pop. guidelines.	X*
2. Island endemic.	X
3. Multi-island/current other	
4. Multi-island/no current other islands.	
5. Non-viable populations.	
6. Several occ. vulnerable to	X
7. Species with variable habitats.	
8. Not all occupied habitat needed.	
9. Long-lived perennial–100/pop.	X**
10. Short-lived	
11. Annual–500/pop.	
12. Narrow endemic.	
13. Restricted habitat requirements.	X***
14. Hybridization is possible.	X
Notes	*Species is wide ranging, only 1 population.‡ **>100,000 needed for recovery according to recovery plan, due to extreme longevity, monocarpic life history, and self-incompatibility. ** *Lava flows with almost no soil development and otherwise barren, unstable slopes of recent (less than several thousand years old) volcanic cinder cones subject to frequent formation of ice at night and extreme heating during cloudless

														days with an annual precipitation of approximately 75 to 250 cm (29.6 to 98.4 in).
Asplenium fragile var. insulare	X*		X		X	X		X		X			X**		*Species is wide ranging.‡ **Streamside hollows and grottos in gulches.
Bidens micrantha ssp. kalealaha	X*			X		X				X			X**		*Species is wide ranging.‡ **Blocky lava flows with little or no soil development, deep pit craters, and sheer rock walls in open canopy montane shrubland.
Clermontia lindseyana	X		X		X	X	X			X					
Diellia erecta	X*		X		X	X		X		X			X**		*Species is wide ranging.‡ **Steep slopes or gulch sides in deep shade.
Diplazium molokaiense	X*			X	X	X		X		X			X**		*Species is wide ranging.‡ **Near water courses often in proximity to waterfalls in lowland or montane mesic. forests.
Geranium arboreum	X	X			X	X		X	X				X*		*Steep, damp, and shaded narrow canyons and gulches, steep banks, and intermittent streams.
Geranium multiflorum	X*	X			X	X	X	X	X						*Species is wide ranging.‡

Phlegmariurus mannii	X*		X	X	X**	X		X		X***		*Species is wide ranging.‡ **Not enough suitable habitat for 8 to 10 (not done on other islands) ***Very specific, variable habitat requirements, i.e. Epiphytic on Metrosideros polymorpha, Dodonaea viscosa and Acacia koa trees in moist protected gulches or on mossy tussocks in mesic to wet montane forests.
Phyllostegia mollis	X		X	X	X	X		X				
Plantago princeps	X		X	X	X		X	X		X*		*Basalt cliffs that are windblown with little vegetation.

Maui J

The Proposed unit Maui J provides occupied habitat for five species: *Argyroxiphium sandwicense* ssp. *macrocephalum, Bidens micrantha* ssp. *kalealaha, Geranium multiflorum, Plantago princeps, and Schiedea haleakalensis.* It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations for *Bidens micrantha* ssp. *kalealaha, Geranium multiflorum, Plantago princeps,* and *Schiedea haleakalensis* and 100 mature individuals per population for *Geranium multiflorum,* or 300 mature individuals per population for *Bidens micrantha* ssp. *kalealaha, Plantago princeps,* and *Schiedea haleakalensis,* or greater than 50,000 individuals of *Argyroxiphium sandwicense* ssp. *macrocephalum* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species. This unit also provides unoccupied habitat for three species: *Asplenium fragile* var. *insulare, Clermontia samuelii,* and *Platanthera holochila.* Designation of this unit is essential to the conservation of these species because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more additional populations necessary to meet the recovery objectives of 8 to 10 populations for each species and 300 mature individuals per population, throughout their known historical range (see the discussion of conservation requirements in Section D, and in the table for Maui J).

The unit contains a total of 5,790 ha (14,308 ac) on Federal and privately owned lands. It is in the East Wailuaiki, Hanawi, Heleleikeoha, Honomanu, Kaupo, Kopiliula, Koukouai, Kuhiwa, Manawainui, Manawainui Gulch, Nuu, Oheo, Pahihi, Piinaau, West Wailuaiki, Wailuanui, and Waiopai watersheds. This unit contains a portion of Haleakala National Park. The natural features in this unit include Wai Anapanapa (lake), Halalii (summit), Haleakala (summit), Haleakala Crater, Hanakauhi (summit), Haupaakea Peak, Mauna Hina, Honokahua (summit), Ka Moa o Pele (summit), Kalahaku Pali, Kalapawili Ridge, Kalua Awa (summit), Kaluaiki (crater), Kaluanui (crater), Kaluu o ka Oo (crater), Kamaolii (summit), Keoneheehee (ridge), Kilohana (summit), Koolau Gap, Kuiki (summit), Kumuiilahi (summit), Laie Cave, Laie Puu, Lauulu (summit), Leleiwi Pali, Namana o ke Akua (summit), Oili Puu, Pakaoao (White Hill), Pohaku Palaha (summit), Puu Kauaua, Puu Kumu, Puu Maile, Puu Mamane, Puu Naue, Puu Nole, Puu o Maui, and Puu o Pele.

Table for Maui J

Species	Argyroxiphium sandwicense ssp. macrocephalum
1. 8–10 pop. guidelines	X*
2. Island endemic.	X
3. Multi-island/current other	
4. Multi-island/no current other islands.	
5. Non-viable populations.	
6. Several occ. vulnerable to destruction	X
7. Species with variable habitats.	
8. Not all occupied habitat needed	
9. Long-lived perennial–100/pop.	X**
10. Short-lived	
11. Annual–500/pop.	
12. Narrow endemic.	
13. Restricted habitat requirements	X***
14. Hybridization is possible.	X
Notes	*Species is wide ranging, only 1 population.‡ ** >100,000 needed for recovery according to recovery plan, due to extreme longevity, monocarpic life history, and self-incompatibility. *** Lava flows with almost no soil development and otherwise barren, unstable slopes of recent (less than several thousand years old) volcanic cinder cones subject to frequent formation of ice at night and extreme heating during cloudless days with an annual precipitation of approximately 75 to 250 cm

															(29.6 to 98.4 in).
Asplenium fragile var. insulare	X*		X		X	X		X		X			X**		*Species is wide ranging.‡ **Streamside hollows and grottos in gulches.
Bidens micrantha ssp. kalealaha	X*			X		X				X			X*		*Species is wide ranging.‡ **Blocky lava flows with little or no soil development, deep pit craters, and sheer rock walls in open canopy montane shrubland.
Clermontia samuelii	X*	X			X	X	X			X					*Not enough suitable habitat exists for 8 to 10 populations at this time.
Geranium multiflorum	X*	X			X	X	X	X	X						*Species is wide ranging.‡
Plantago princeps	X		X		X	X		X		X			X*		*Basalt cliffs that are windblown with little vegetation.
Platanthera holochila	X		X		X	X	X	X		X					
Schiedea haleakalensis	X*	X			X	X		X		X		X	X**		*Species is wide ranging.‡ **Rock cracks on sheer cliffs adjacent to barren lava and subalpine shrublands and grasslands with cinder, weathered volcanic ash, or bare lava substrate with little or no soil development and periodic freezing temperatures.

BILLING CODE 4310-55-C

Maui K

The proposed unit Maui K provides occupied habitat for seven species: *Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, Cyanea hamatiflora* ssp. *hamatiflora, Melicope balloui, Melicope ovalis, Phlegmariurus mannii,* and *Plantago princeps.* It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations for each species and 100 mature individuals per population for *Melicope balloui,* and *Melicope ovalis,* or 300 mature individuals per population for *Clermontia samuelii, Cyanea copelandii* ssp. *haleakalaensis, Cyanea hamatiflora* ssp. *hamatiflora, Phlegmariurus mannii,* and *Plantago princeps* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species. This unit also provides unoccupied habitat for four species: *Alectryon macrococcus, Cyanea glabra, Geranium multiflorum,* and *Platanthera holochila.* Designation of this unit is essential to the conservation of these species because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more additional populations necessary to meet the recovery objectives of 8 to 10 populations for each species and 100 mature individuals per population for *Alectryon macrococcus* and *Geranium multiflorum,* or 300 mature individuals per population for *Cyanea glabra* and *Platanthera holochila,* throughout their known historical range (see the discussion of conservation requirements in Section D, and in the table for Maui K).

The unit contains a total of 5,464 ha (13,502 ac) on Federal, State, and privately owned lands. It is bounded on the Alelele, Hahalawe, Heleleikeoha, Honolewa, Honomaele, Kaapahu, Kahawaihapapa, Kakiweka, Kalena, Kalepa, Kapia, Kawaipapa, Kawakoe, Keaaiki, Koukouai, Lelekea, Manawainui, Nuanuaaloa, Oheo, Opelu, Waieli, Waihole, Wailua, Waiohonu, and Waioni watersheds. It contains portions of Haleakala National Park, Hana Forest Reserve, Hanawi Natural Area Reserve, Kipahulu Forest Reserve, and Koolau Forest Reserve. The natural features include Kaumakani (summit), Kipahulu Valley, Puu Ahulili, and Puu Kue.

BILLING CODE 4310–55–P

Table for Maui K

Species	1. 8–10 pop. guidelines.	2. Island endemic.	3. Multi-island/current other islands.	4. Multi-island/no current other islands.	5. Non-viable populations.	6. Several occ. vulnerable to	7. Species with variable habitats.	8. Not all occupied habitat needed.	9. Long-lived perennial–100/pop.	10. Short-lived perennial–300/pop.	11. Annual–500/pop.	12. Narrow endemic.	13. Restricted habitat requirements.	14. Hybridization is possible.	Notes
Alectryon macrococcus	X*		X		X	X		X	X					X	*Species is wide ranging.‡
Clermontia samuelii	X*	X			X	X	X			X					*Not enough suitable habitat exists for 8 to 10 populations at this time.
Cyanea copelandii ssp. haleakalaensis	X*	X			X			X		X			X**		*Not enough suitable habitat exists for 8 to 10 populations at this time. **Stream banks and wet talus slopes.
Cyanea glabra	X	X			X	X				X			X*		* Soil and rock stream banks in wet lowland forest.
Cyanea hamatiflora ssp. hamatiflora	X	X			X	X	X	X		X					

Geranium multiflorum	X*	X			X	X	X	X	X						*Species is wide ranging.‡
Melicope balloui	X*	X			X		X		X						*Not enough suitable habitat exists for 8 to 10 populations at this time.
Melicope ovalis	X*	X			X	X			X			X	X**		*Species is wide ranging.‡ **Montane wet forests along streams.
Phlegmariurus mannii	X*			X	X	X	X**	X		X			X***		*Species is wide ranging.‡ **Not enough suitable habitat for 8 to 10 (not done on other islands) ***Very specific, variable habitat requirements, i.e. Epiphytic on Metrosideros polymorpha, Dodonaea viscosa and Acacia koa trees in moist protected gulches or on mossy tussocks in mesic to wet montane forests.
Plantago princeps	X		X		X	X		X		X			X*		*Basalt cliffs that are windblown with little vegetation.
Platanthera holochila	X		X		X	X	X	X		X					

BILLING CODE 4310–55–C

Maui L

The proposed unit Maui L provides occupied habitat for seven species: *Cyanea copelandii* ssp. *haleakalaensis, Cyanea hamatiflora* ssp. *hamatiflora, Cyanea mceldowneyi, Geranium multiflorum, Melicope balloui, Phlegmariurus mannii,* and *Zanthoxylum hawaiiense.* It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations for each species and 100 mature individuals per population for *Geranium multiflorum, Melicope balloui,* and *Zanthoxylum hawaiiense,* or 300 mature individuals per population for *Cyanea copelandii* ssp. *haleakalaensis, Cyanea hamatiflora* ssp. *hamatiflora, Cyanea mceldowneyi, Phlegmariurus mannii,* and *Platanthera holochila,* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species. This unit also provides unoccupied habitat for nine species: *Alectryon macrococcus, Argyroxiphium sandwicense* ssp. *macrocephalum, Asplenium fragile* var. *insulare, Clermontia samuelii, Cyanea glabra, Diplazium molokaiense, Phyllostegia mannii, Phyllostegia mollis,* and *Platanthera holochila.* Designation of this unit is essential to the conservation of these species because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more additional populations necessary to meet the recovery objectives of 8 to 10 populations for *Alectryon macrococcus, Asplenium fragile* var. *insulare, Clermontia samuelii, Cyanea glabra, Diplazium molokaiense, Phyllostegia mannii, Phyllostegia mollis,* and *Platanthera holochila* and 100 mature individuals per population for *Alectryon macrococcus,* or 300 mature individuals per population for *Asplenium fragile* var. *insulare, Clermontia samuelii, Cyanea glabra, Diplazium molokaiense, Phyllostegia mannii, Phyllostegia mollis,* and *Platanthera holochila,* or greater than 50,000 individuals of *Argyroxiphium sandwicense* ssp. *macrocephalum,* throughout their known historical range (see the discussion of conservation requirements in Section D, and in the table for Maui L).

The unit contains a total of 4,612 ha (11,396 ac) on Federal, State, and privately owned lands. It is in portions of the East Wailuaiki, Haipuaena, Hanawi, Heleleikeoha, Honomanu, Hoolawa, Kaaiea, Kailua, Kakipi, Kaupo, Kopiliula, Kuhiwa, Maliko, Nailiilihaele, Oheo, Piinaau, Puohokamoa, West Wailuaiki, Wahinepee, Wailuanui, and Waiokamilo watersheds. This unit contains portions of Haleakala National Park, Koolau Forest Reserve, and Makawao Forest Reserve. The natural features include East Wiluaiki Stream, Honomanu Stream, Kano Stream, Opana Gulch, Puu Alaea, Waikamoi Stream, Waiohiwi Gulch, and West Wailuanui Stream.

Table for Maui L

Species	1. 8–10 pop. guidelines.	2. Island endemic.	3. Multi-island/current other islands.	4. Multi-island/no current other islands.	5. Non-viable populations.	6. Several occ. vulnerable to	7. Species with variable habitats.	8. Not all occupied habitat needed.	9. Long-lived perennial–100/pop.	10. Short-lived perennial–300/pop.	11. Annual–500/pop.	12. Narrow endemic.	13. Restricted habitat requirements.	14. Hybridization is possible.	Notes
Alectryon macrococcus	X*		X		X	X		X	X					X	*Species is wide ranging.‡
Asplenium fragile var. insulare	X*		X		X	X		X		X			X**		*Species is wide ranging.‡ **Streamside hollows and grottos in gulches.

Argyroxiphium sandwicense ssp. macrocephalum	X*	X				X			X**				X**	X	*Species is wide ranging, only 1 population.‡ ** >100,000 needed for recovery according to recovery plan, due to extreme longevity, monocarpic life history, and self-incompatibility. *** Lava flows with almost no soil development and otherwise barren, unstable slopes of recent (less than several thousand years old) volcanic cinder cones subject to frequent formation of ice at night and extreme heating during cloudless days with an annual precipitation of approximately 75 to 250 cm (29.6 to 98.4 in).
Clermontia samuelii	X*	X			X	X	X			X					*Not enough suitable habitat exists for 8 to 10 populations at this time.
Cyanea copelandii ssp. haleakalaensis	X*	X			X			X		X			X**		*Not enough suitable habitat exists for 8 to 10 populations at this time. **Stream banks and wet talus slopes.
Cyanea glabra	X	X			X	X				X			X*		* Soil and rock stream banks in wet lowland forest.

Cyanea hamatiflora ssp. hamatiflora	X	X			X	X	X	X		X					
Cyanea mceldowneyi	X*	X			X	X	X	X		X					*Not enough suitable habitat exists for 8 to 10 populations at this time.
Diplazium molokaiense	X*			X	X	X		X		X			X**		*Species is wide ranging.‡ **Near water courses often in proximity to waterfalls in lowland or montane mesic. forests.
Geranium multiflorum	X*	X			X	X	X	X	X						*Species is wide ranging.‡
Melicope balloui	X*	X			X		X		X						*Not enough suitable habitat exists for 8 to 10 populations at this time.
Phlegmariurus mannii	X*			X	X	X	X**	X		X			X***		*Species is wide ranging.‡ **Not enough suitable habitat for 8 to 10 (not done on other islands) ***Very specific, variable habitat requirements, i.e. Epiphytic on Metrosideros polymorpha, Dodonaea viscosa and Acacia koa trees in moist protected gulches or on mossy tussocks in mesic to wet montane forests.
Phyllostegia mannii	X		X*				X			X					*Historic on Maui.
Phyllostegia mollis	X		X		X	X	X			X					
Platanthera holochila	X		X		X	X	X	X		X					
Zanthoxylum hawaiiense	X*		X		X	X	X		X						*Species is wide ranging.‡

BILLING CODE 4310-55-C

Maui M

The proposed unit Maui M provides occupied habitat for *Spermolepis hawaiiense.* It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 500 mature individuals per population for *Spermolepis hawaiiense* throughout its known historical range considered by the recovery plans to be necessary for the conservation of this species (see the discussion of conservation requirements in Section D, and in the table for Maui M).

The unit contains a total of 2 ha (6 ac) on State owned land. It is in the Kauaula watershed and has no named natural features but lies east of Lahaina luna High School and north-east of Piilani Ditch.

BILLING CODE 4310–55–P

Table for Maui M

Notes	*Species is wide ranging.‡
14. Hybridization is possible.	
13. Restricted habitat requirements.	
12. Narrow endemic.	
11. Annual–500/pop.	X
10. Short-lived perennial–300/pop.	
9. Long-lived perennial–100/pop.	
8. Not all occupied habitat needed.	
7. Species with variable habitats.	X
6. Several occ. vulnerable to	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	X
2. Island endemic.	
1. 8–10 pop. guidelines.	X*
Species	Spermolepis hawaiiensis

Kahoolawe A

The proposed unit Kahoolawe A provides occupied habitat for *Vigna o-wahuensis.* It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 500 mature individuals per population for *Vigna o-wahuensis* throughout its known historical range considered by the recovery plans to be necessary for the conservation of this species. This unit provides unoccupied habitat for three species: *Hibiscus brackenridgei, Kanaloa kahoolawensis, and Sesbania tomentosa*. Designation of this unit is essential to the conservation of these species because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more additional populations necessary to meet the recovery objectives for these species of 8 to 10 populations and 100 mature individuals per population for *Hibiscus brackenridgei* and *Kanaloa kahoolawensis*, or 300 mature individuals per population for *Sesbania tomentosa* throughout their known historical range considered by the recovery plans to be necessary for the conservation of these species (see the discussion of conservation requirements in Section D, and in the table for Kahoolawe A).

The unit contains a total of 713 ha (1,762 ac) on State owned land. It is in portions of the Ahupuiki Gulch, Aleale, Heiau, Lae O Kaka, Kalama, Kanaloa Gulch, Kaukamoku Gulch, Kaulana, Lae o Kealaikahiki, Kealialuna, Lua, Kohe O Hala, Lae o Kuakaiwa, Lae o Kuikui, Makaalae, Papakanui Gulch, and Tank Ahupu Gulch.

Table for Kahoolawe A

Species	1. 8–10 pop. guidelines.	2. Island endemic.	3. Multi-island/current other islands.	4. Multi-island/no current other islands.	5. Non-viable populations.	6. Several occ. vulnerable to	7. Species with variable habitats.	8. Not all occupied habitat needed.	9. Long-lived perennial–100/pop.	10. Short-lived perennial–300/pop.	11. Annual–500/pop.	12. Narrow endemic.	13. Restricted habitat requirements.	14. Hybridization is possible.	Notes
Hibiscus brackenridgei	X		X*				X			X					*Historic on Kahoolawe.
Sesbania tomentosa	X*		X		X	X	X			X					*Species is wide ranging.‡
Vigna o-wahuensis	X*		X		X	X	X			X					*Species is wide ranging.‡

Kahoolawe B

The proposed unit Kahoolawe B provides occupied habitat for two species, *Kanaloa kahoolawensis* and *Sesbania tomentosa*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on Maui, and provides habitat to support one or more of the 8 to 10 populations and 100 mature individuals per population for *Kanaloa kahoolawensis*, or 300 mature individuals per population for *Sesbania tomentosa* throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species (see the discussion of conservation requirements in Section D, and in the table for Kahoolawe B).

The unit contains a total of .5 ha (1 ac) on State owned land on Puu Koae Island.

Table for Kahoolawe B

Species	Kanaloa kahoolawensis
1. 8–10 pop. guidelines.	X*
2. Island endemic.	X
3. Multi-island/current other islands.	
4. Multi-island/no current other islands.	
5. Non-viable populations.	X
6. Several occ. vulnerable to destruction.	X
7. Species with variable habitats.	
8. Not all occupied habitat needed	
9. Long-lived perennial–100/pop.	X
10. Short-lived perennial–300/pop.	
11. Annual–500/pop.	
12. Narrow endemic.	
13. Restricted habitat requirements.	X**
14. Hybridization is possible.	
Notes	*Species is wide ranging.‡ **Steep rocky talus slopes.

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Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a) of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out do not destroy or adversely modify critical habitat. Destruction or adverse modification occurs when a Federal action directly or indirectly alters critical habitat to the extent it appreciably diminishes the value of critical habitat for the conservation of the species. Individuals, organizations, States, local governments, and other non-Federal entities are affected by the designation of critical habitat only if their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding.

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is designated or proposed. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with us on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. Conference reports provide conservation recommendations to assist the agency in eliminating conflicts that may be caused by the proposed action. The conservation recommendations in a conference report are advisory.

We may issue a formal conference report, if requested by the Federal action agency. Formal conference reports include an opinion that is prepared according to 50 CFR 402.14, as if the species was listed or critical habitat was designated. We may adopt the formal conference report as the biological opinion when the species is listed or critical habitat is designated, if no substantial new information or changes in the action alter the content of the opinion (see 50 CFR 402.10(d)).

If a species is listed or critical habitat is designated, section 7(a)(2) of the Act requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or destroy or adversely modify its critical habitat. 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. Through this consultation, the Federal action agency would ensure that the permitted actions do not destroy or adversely modify 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 would also provide reasonable and prudent alternatives to the project, if any are identifiable. Reasonable and prudent alternatives are defined at 50 CFR 402.02 as alternative actions identified during consultation that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Director believes would avoid destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

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

Activities on Federal lands that may affect critical habitat of one or more of the 61 plant species will require section 7 consultation. Activities on private or State lands requiring a permit from a Federal agency, such as a permit from the Corps under section 404 of the Clean Water Act (33 U.S.C. 1344 *et seq.*), or a section 10(a)(1)(B) permit from us, or some other Federal action, including funding (*e.g.*, from the Federal Highway Administration, Federal Aviation Administration (FAA), Federal Emergency Management Agency (FEMA)), permits from the Department of Housing and Urban Development, activities funded by the EPA, Department of Energy, or any other Federal agency; regulation of airport improvement activities by the FAA; and construction of communication sites licensed by the Federal Communication Commission will also continue to be subject to the section 7 consultation process. Federal actions not affecting critical habitat and actions on non-Federal lands that are not federally funded, authorized, or permitted do not require section 7 consultation.

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

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

(1) Activities that appreciably degrade or destroy the primary constituent elements including, but not limited to: overgrazing; maintenance of feral ungulates; clearing or cutting of native live trees and shrubs, whether by burning or mechanical, chemical, or other means (*e.g.*, woodcutting, bulldozing, construction, road building, mining, herbicide application); introducing or enabling the spread of non-native species; and taking actions that pose a risk of fire;

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

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

(4) Recreational activities that appreciably degrade vegetation;

(5) Mining of sand or other minerals;

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

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

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

Relationship to Habitat Conservation Plans

Currently, there are no HCPs that include any of the plant species discussed in this proposal as covered species. In the event that future HCPs covering any of the discussed plant species are developed within the boundaries of designated critical habitat, we will work with applicants to encourage them to provide for protection and management of habitat areas essential to the conservation of the species. This could be accomplished by either directing development and habitat modification to nonessential areas, or appropriately modifying activities within essential habitat areas so that such activities will not adversely modify the primary constituent elements. The HCP development process would provide an opportunity for more intensive data collection and analysis regarding the use of particular areas by these plant species.

Economic and Other Relevant Impacts

Section 4(b)(2) of the Act requires us to designate critical habitat on the basis of the best scientific and commercial information available and to consider the economic and other relevant impacts of designating a particular area as critical habitat. We may exclude areas from critical habitat upon a determination that the benefits of such exclusions outweigh the benefits of