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

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

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

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

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

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

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

Hawaii 19—*Mariscus fauriei*—a

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

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

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

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

Hawaii 26—*Melicope zahlbruckneri*—b

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

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

We are designating two critical habitat units for *Neraudia ovata,* a short-lived perennial. One of the units, ''Hawaii 18—*Neraudia ovata*—d,'' currently is occupied. This unit is essential to the conservation of *N. ovata* because it supports an extant colony of this species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. The remaining unoccupied unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. It contains habitat features that are essential for this species including, but not limited to, open *Metrosideros polymorpha-Sophora chrysophylla* dominated lowlands, montane dry forests, and *Metrosideros*-shrub woodland. Each unit is geographically separated from other critical habitat for this island-endemic species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The two units for this species that we are designating on the island of Hawaii provide for habitat for a total of four populations, each with 300 mature, reproducing individuals of the *N. ovata.* Habitat is also provided for four populations on lands at the PTA that we are excluding from designation (*see* ''*Analysis of Impacts Under 4(b)(2)*'').

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

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

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

We are designating three critical habitat units for *Nothocestrum breviflorum,* a long-lived perennial. Two of the units are currently occupied. They contain habitat features that are essential for this species including, but not limited to, lowland and montane dry forest, and montane mesic forest dominated by *Metrosideros polymorpha, Acacia koa,* and/or *Diospyros sandwicensis* on aa lava substrates. Each unit is geographically separated from other critical habitat for this island-endemic species within its historical range in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. The three units we are designating for this species on the island of Hawaii provide habitat to support a total of nine populations of *N. breviflorum,* each with 100 mature, reproducing individuals.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Hawaii 27—*Portulaca sclerocarpa*—a

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

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

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

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

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

Hawaii 30—*Sicyos alba*—a

We are designating one critical habitat unit for *Sicyos alba,* a short-lived perennial. This unit contains Puu Makaala and is entirely in the Kaahakini watershed. This unit lies within HVNP, Puu Makaala Natural Area Reserve, and Olaa-Kilauea Partnership lands. The unit provides habitat for 10 populations of 300 mature, reproducing individuals of the *S. alba* and is currently occupied by 4 individuals. This unit contains habitat features that are essential for this species including, but not limited to, *Metrosideros polymorpha-Cibotium glaucum* dominated montane wet forests. This unit is essential to the conservation of *S. alba* because it supports an extant colony of this island-endemic species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. This unit is of an appropriate size so that each potential recovery population within the unit is separated enough to avoid their destruction by one naturally occurring catastrophic event. Beyond the 10 populations provided for in this unit, no other critical habitat is designated for this species.

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

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

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

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

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

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

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

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

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

We are designating three critical habitat units for *Vigna o-wahuensis,* a short-lived perennial. None of the units is currently occupied. Each unit provides habitat for 1 population of 300 mature, reproducing individuals of *V. o-wahuensis.* Each unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations in order to reach recovery goals. These units contain habitat features that are essential for this species including, but not limited to, *Dodonaea viscosa* lowland dry shrubland. Each unit is geographically separated from other critical habitat for this multi-island species in order to reduce the likelihood of all recovery populations being destroyed by one naturally occurring catastrophic event. We previously designated critical habitat for three populations of *V. o-wahuensis* on Oahu (68 FR 35949, June 17, 2003), and for one population on Maui (68 FR 25934, May 14, 2003). The four units for *V. o-wahuensis* that we are designating in this rule provide habitat for a total of four populations.

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

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

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

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

We are designating one critical habitat unit for *Zanthoxylum dipetalum* ssp. *tomentosum,* a long-lived perennial. The unit contains Puu Ike, Puu Paha, and Puuwaawaa and is in the Kiholo watershed. This unit provides habitat for 7 populations of 100 mature, reproducing individuals of the *Z. dipetalum* ssp. *tomentosum* and is currently occupied by 8 to 10 individuals. It contains habitat features that are essential for this species including, but not limited to, *Metrosideros polymorpha* dominated montane mesic forest, often on aa lava. This unit is essential to the conservation of *Z. dipetalum* ssp. *tomentosum* because it supports an extant colony of this island-endemic species and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. Although we do not believe enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this island-endemic species, this unit is of an appropriate size so that each of the seven potential recovery populations within the unit is geographically separated enough to avoid their destruction by one naturally occurring catastrophic event. No other critical habitat for this species is designated on the island of Hawaii.

**Effects of Critical Habitat Designation**

*Section 7 Consultation*

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

Regulations at 50 CFR 402.16 require Federal agencies to 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.

If we issue a biological opinion concluding that a project is likely to result in the destruction or adverse modification of critical habitat, we also provide ''reasonable and prudent alternatives'' to the project, if any are identifiable. Reasonable and prudent alternatives are defined at 50 CFR 402.02 as alternative actions identified during consultation that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Director believes would avoid destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project.

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

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

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

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

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

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

(4) Recreational activities that appreciably degrade vegetation;

(5) Mining of sand or other minerals;

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

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

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

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

The need for ''special management considerations or protections'' of the essential habitat features (primary constituent elements) included in a designation is required by the definition of critical habitat in section 3(5)(A) of the Act. If the primary constituent elements are being adequately managed, then they do not need ''special management considerations or protections.'' Adequate management or protection is provided by a legally operative plan that addresses the maintenance and improvement of the essential elements and provides for the long-term conservation of the species. We consider a plan adequate when it: (1) Provides a conservation benefit to the species (*i.e.*, the plan must maintain or provide for an increase in the species' population or the enhancement or restoration of its habitat within the area covered by the plan); (2) provides assurances that the management plan will be implemented (*i.e.*, those responsible for implementing the plan are capable of accomplishing the objectives, have an implementation schedule, and have adequate funding for the management plan); and, (3) provides assurances that the conservation plan will be effective (*i.e.*, it identifies biological goals, has provisions for reporting progress, and lasts for a duration sufficient to implement the plan and achieve the plan's goals and objectives). If an area is covered by a plan that meets these criteria, it does not constitute critical habitat as defined by the Act because the primary constituent elements found there are not in need of special management or protection.

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

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

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

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

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

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

(3) The management actions needed for assurance of survival and ultimate recovery of these plants. These actions are described in our recovery plans for these 47 species (Service 1994, 1995a, 1996a, 1996b, 1996c, 1997a, 1998a, 1998b, 1998c, 1999), in the 1998 HPPRCC report to us, and in various other documents and publications relating to plant conservation in Hawaii (Cuddihy and Stone 1990; Mueller-Dombois 1985; Smith 1985; Stone 1985; Stone *et al.* 1992).

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

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

*Lands Under U.S. Army Jurisdiction*

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

(1) Plan Provides Conservation Benefit to the Species

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

Critical habitat was proposed at PTA for 10 of the 47 species addressed in this rule (*Asplenium fragile* var. *insulare, Hedyotis coriacea, Neraudia ovata, Portulaca sclerocarpa, Silene hawaiiensis, Silene lanceolata, Solanum incompletum, Spermolepis hawaiiensis, Tetramolopium arenarium,* and *Zanthoxylum hawaiiense)*. Critical habitat was proposed for two additional species (*Isodendrion hosakae* and *Vigna o-wahuensis*) on lands the Army is in the process of acquiring. The Army has completed an INRMP (Army 2001) and an Ecosystem Management Plan (Army 1998) for PTA. These plans encompass management actions that will benefit the 10 listed plant species for which critical habitat has been proposed on current Army lands and they have written a letter committing to amend their INRMP to cover the 3 species on lands the Army is in the process of acquiring as part of the Transformation of the 2nd Brigade 25th Infantry Division (Transformation). They have a completed Wildland Fire Management Plan (WFMP) for MMR (Army 2000). The goal of the WFMP is to reduce the threat of wildfire which adversely affects threatened and endangered species on PTA. The Army also provides summary reports regarding the natural resources management projects performed under the Ecosystems Management Program for PTA (Evans 1998; Evans 1999; Schnell 1998; Schnell 1999; Sherry 1999; RCUH 1997; RCUH 1998; USAG–HI 2000). These reports provide information on management actions which have been implemented.

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

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

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

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

(2) Provides Assurance the Plan Will Be Implemented

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

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

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

Thus, the Service has determined that lands on the island of Hawaii which fall under U.S. Army jurisdiction do not meet the definition of critical habitat in the Act. According to the Service's published recovery plans, the major extinction threats to island of Hawaii plants involve the persistent and expanding presence of alien species and their associated impacts. In general, for most of these species there is less relative concern associated with Federal activities or proposed development. Recovery of these listed species will require active management such as plant propagation and reintroduction, management of fire risk, alien species removal, and ungulate and rat management. Failure to implement these management measures, all of which require active intervention and participation, virtually assures the extinction of these species. The Army is carrying out many of these actions on their lands, in some cases to a degree that surpasses that of other Federal, State, and private landowners in Hawaii. We are, therefore, not designating critical habitat on these lands. Should the status of these commitments change, the Service will reconsider whether these lands meet the definition of critical habitat. If the definition is met, we have the authority to propose to amend critical habitat to include identified areas at that time (16 U.S.C. 1533(a)(3)(B); 50 CFR 424.14(g)). Although these areas are removed from the final critical habitat designation, the number of populations for which habitat on PTA provides is applied toward the overall conservation goal of 8 to10 populations for each species because these lands will be managed under the INRMP consistent with recovery goals.

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

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

*Economic Impacts*

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

Our draft economic analysis evaluated the potential direct and indirect economic impacts associated with the proposed critical habitat designation for the 41 plant species from the island of Hawaii over the next 10 years. Direct impacts are those related to consultations under section 7 of the Act. They include the cost of completing the section 7 consultation process and potential project modifications resulting from the consultation. Indirect impacts are secondary costs and benefits not directly related to operation of the Act. Examples of indirect impacts include potential effects to property values, redistricting of land from agricultural or urban to conservation, and social welfare benefits of ecological improvements.

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

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

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

Together, the draft economic analysis and the addendum constitute our final economic analysis. The final economic analysis estimates that, over the next 10 years, the designation (co-extensive with the listing) may result in potential direct economic effects from implementation of section 7 ranging from approximately $46.6 million to $62.7 million in quantifiable costs. This decrease of approximately $6.6 million to $9.1 million from the draft economic analysis's estimated potential direct economic effects from implementation of section 7 results primarily from the exclusion of proposed units Hawaii C, D5, M1, M2, M3, M4, N1, N2, P, V, and BB from final designation and the significant reduction in size of the remaining proposed units because they lacked the primary constituent elements or were not essential to the conservation of the species. Overall, the largest portion of this estimate includes impacts on Army land that was proposed as critical habitat but has been removed from the final designation. Therefore, the direct cost of designating critical habitat for these 41 plant species will be far less than this estimate.

While our final economic analysis includes an evaluation of potential indirect costs associated with the designation of critical habitat for 41 plant species on the island of Hawaii, some types of costs are unquantifiable. The costs that are provided are speculative in the sense that there is no certainty as to their being incurred, but we believe the numbers represent a reasonable range of costs for the specific actions in question, should they occur in whole or in part. The final economic analysis concludes that efforts to redistrict land as a result of this designation are likely to occur, but that there is no way of determining in advance the outcome of this process with respect to specific parcels, or of possible related litigation. However, such landowners may have economic costs associated with voluntary agreements to restrict development, and contesting redistricting. For land not planned for development, the analysis concluded that it is reasonably foreseeable that some landowners would see lower property values, restrictions on agricultural activity and costs to contest redistricting. In total, the costs associated with redistricting or the threat of redistricting could range from $22 to 28 million. The final economic analysis also concludes there is an undetermined probability of costs ranging from $48.9 to $96.5 million associated with obtaining State and county development approvals, and includes costs associated with a loss or delay of these approvals. Some of these costs, however, may overlap with a portion of the redistricting costs (*i.e.*, agreements to voluntarily restrict development to avoid redistricting). The final economic analysis estimates that landowners may spend between $50,000 and $181,000 to investigate the implications of critical habitat on their land. The economic analysis also estimates that the critical habitat designation could cost between $175,000 and $525,000 for State and county environmental review (conducting a State Environmental Impact Statement (EIS) instead of an Environmental Assessment), although some of these costs may be incurred in any case, as some projects might require an EIS without critical habitat designation.

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

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

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

Approximately 337 ha (833 ac) of State and private lands within two proposed critical habitat units (proposed Units Y1 and Y2) are excluded because the economic impacts of their inclusion outweigh the benefits provided by a designation of critical habitat. The economic analysis indicates that activities already planned for these two proposed units, including the State VOLA master planned community with over 1,000 units of affordable housing, the Kaloko Properties projects and the Kealakahe 2020 environmental remediation project could incur direct costs of over $5 million and indirect costs ranging between $87 and $104 million. While there is no certainty that any or all of these indirect costs would be incurred, these figures are illustrative of the order of magnitude of the indirect impacts that could occur from the designation.

(1) Benefits of Inclusion

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

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

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

The draft economic analysis and final addendum indicate only one project associated with the exclusions within the pre-exclusion boundaries of these proposed units that is likely to have the required Federal nexus, environmental remediation of an old landfill by the non-profit Kealakehe Ahupua'a 2020 organization (K2020). The landfill adjoins the pre-exclusion boundaries of proposed unit Y2 on 3 sides, and has internal fires. K2020 plans to secure Federal grants to remediate the site, including extinguishing the fires.

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

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

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

In summary, we believe that a critical habitat designation for these two plant species would provide relative low additional Federal regulatory benefits. Except for the project discussed above, there is no Federal activity which might trigger the section 7 consultation process for these species known or anticipated for the lands to be excluded. The additional educational benefits which might arise from critical habitat designation are largely accomplished through the notice and comments which accompanied the development of this regulation, and the proposed critical habitat is known to the landowners. In addition, the State is planning for a preserve for the areas occupied by *N. ovata* in proposed Unit Y2, which will provide ongoing educational benefits.

(2) Benefits of Exclusion

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

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

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

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

In addition, there are real but undeterminable possibilities that designation of these areas as critical habitat would lead to loss or significant restriction of the project through actions not under the control of the Federal government but resulting from the critical habitat designation. These include redistricting of land, rezoning and other regulatory approvals, and litigation related to both.

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

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

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

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

In the worst-case scenario, the State or county might decide not to grant the discretionary approvals needed for the project—redistricting and rezoning—or might be prevented from doing so by litigation. This could lead to loss of the $5.8 million in sunk costs for the portion of the property within the proposed critical habitat, or of the entire $20 million investment. In addition, there would be an estimated loss of future profits from the land proposed for inclusion within the critical habitat of between $39 to $78 million. Using a present value discount, this loss would range between $17 and $34 million. There could also be the loss of all project revenues in the event the inability to utilize the lands within the critical habitat designation caused the failure of the entire project.

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

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

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

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

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

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

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

For the Kaloko Properties/Kaloko Town Center, there is also the real possibility that the designation of critical habitat could lead to loss of necessary regulatory approvals. This in turn could lead to loss of the $5.8 million in sunk costs for the portion of the property within the proposed critical habitat, or of the entire $20 million investment. In addition, there would be an estimated loss of future profits from the land proposed for inclusion within the critical habitat of between $39 to $78 million. Using a present value discount, this loss would range between $17 and $34 million. (There could also be the loss of all project revenues in the event the inability to utilize the lands within the critical habitat designation caused the failure of the entire project.) Alternatively, in an effort to avoid those situations, the developer might offer additional restrictions on the development. The final addendum estimates, with admitted imprecision, that these costs might range from $1.1 to $2 million for the portion of the project within the proposed designation.

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

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

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

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

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

(4) Exclusion of These Units Will Not Cause Extinction of the Species

Proposed units Y1 and Y2 on State and private lands provide occupied and unoccupied habitat for two species: *Isodendrion pyrifolium* and *Neraudia ovata*. According to our published recovery plans, recovery of these two species will require reproducing, self-sustaining populations located in a geographic array across the landscape, with population numbers and population locations of sufficient robustness to withstand periodic threats caused by natural disaster or biological threats (Service 1996, 1998). The highest priority recovery tasks include active management, such as plant propagation and reintroduction, fire control, nonnative species removal, and ungulate fencing. Failure to implement these active management measures on this and other units, all of which require voluntary landowner support and participation, virtually assures the extinction of these species in the wild. Many of these types of conservation actions in this area of the island of Hawaii will be carried out as part of a partnership with the Service and by actions taken on the landowner's initiative. These activities, which are described in more detail below, require substantial voluntary cooperation.

For both species, we conclude, based on all of the information available to us, that the projects proposed for the areas to be excluded will not adversely impact existing populations of either listed species. In addition, the Hawaii Housing and Community Development Corporation has proposed the creation of preserves for the plant with the VOLA development, which would be actively managed for the benefit of the plants. As noted below in detail, active management is an essential need of these species, one which cannot be accomplished through a critical habitat designation alone. Finally, we note that in Hawaii State law protected Federally listed plants against direct take, a protection not found in the ESA.

If a critical habitat designation reduces the likelihood that voluntary conservation activities will be carried out on the island of Hawaii, and at the same time fails to confer a counter-balancing positive regulatory or educational benefit to the species, then the benefits of excluding such areas from critical habitat outweigh the benefits of including them. Although, the results of this type of evaluation will vary significantly depending on the landowners, geographic areas, and species involved, we believe the State and private lands in proposed units Hawaii Y1 and Y2 merit this evaluation.

*Other Impacts*

U.S. Army Lands

As described in the ''Analysis of Managed Lands Under Section 3(5)(A)'' section above, based on our evaluation of the adequacy of special management and protection that is provided in the Army's INRMP for PTA (Department of the Army 2002) for the plant species addressed in this proposal which are found on Army land, in accordance with section 3(5)(A)(i) of the Act, we have not included the Army's PTA in this final designation of critical habitat. However, to the extent that special management considerations and protection may be required for this area and it would meet the definition of critical habitat according to section 3(5)(A)(i), it is properly excluded from designation under section 4(b)(2) of the Act, based on the following analysis.

As explained below, we believe the benefits of designating critical habitat for the 12 species at PTA (*Asplenium fragile* var. *insulare, Hedyotis coriacea, Isodendrion hosakea, Neraudia ovata, Portulaca sclerocarpa, Silene hawaiiensis, Silene lanceolata, Solanum incompletum, Spermolepis hawaiiensis, Tetramolopium arenarium, Vigna o-wahuensis,* and *Zanthoxylum hawaiiense*) and the lands being acquired as part of their ''Transformation'' to a Stryker Brigade Combat Team are relatively low and outweighed by the benefits of excluding these lands from critical habitat. We also have concerns that a critical habitat designation may negatively impact the Army's ability to effectively carry out a recently proposed training and equipment conversion program on the island of Hawaii.

The Army's PTA, including the lands being acquired for ''Transformation,'' is occupied habitat for 12 species, as referenced above. A total of 28,384 ha (70,138 ac) are excluded from final critical habitat, all of which is considered occupied by one or more listed species.

According to our published recovery plans, recovery of these 12 species will require reproducing, self-sustaining populations located in a geographic array across the landscape, with population numbers and population locations of sufficient robustness to withstand periodic threats caused by to natural disaster or biological threats (Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997a, 1998a, 1998b, 1998c, 1999). The highest priority recovery tasks include proactive management such as plant propagation and reintroduction, fire control, nonnative species removal, and ungulate fencing. Failure to implement these active management measures, all of which require voluntary landowner support and participation, increases the likelihood that species will go extinct or not recover. The Army is undertaking many of these types of conservation actions on their land on the island of Hawaii as part of the implementation of the INRMP for PTA. These activities, which are described in more detail in the ''Analysis of Managed Lands Under Section 3(5)(A)'' section, require substantial financial obligations by the Army and cooperation with other agencies, landowners, and local residents.

The following analysis describes the likely positive and negative impacts of a critical habitat designation on Army land compared to the likely positive and negative impacts of a critical habitat exclusion of that land. The Service paid particular attention to the following issues: to what extent a critical habitat designation would confer additional regulatory, educational, and social benefits; and to what extent would critical habitat interfere with the Army's ongoing proactive conservation actions.

(1) Benefits of Designating U.S. Army Lands as Critical Habitat

Pohakuloa Training Area contains habitat essential to the conservation of the 12 species listed above. The primary regulatory benefit provided by a critical habitat designation on Army land is the requirement under section 7 of the Act that any actions authorized, funded, or carried out by the Army would not destroy or adversely modify any critical habitat, which includes an evaluation on the effects of the action on recovery of the species. However, as discussed above, all of the critical habitat proposed at PTA is occupied by listed species and thus section 7 consultation would already be required.

In addition, any net benefit of this aspect of critical habitat has been significantly minimized by the Army's commitment to coordinate with the Service on any of its activities that may adversely affect areas whether occupied or unoccupied by listed species that are considered essential to their conservation (*i.e.*, proposed as critical habitat) (Anderson, *in litt.* March 20, 2003). In fact, for the current consultation at PTA, which includes the areas being acquired for ''Transformation,'' the Army is evaluating impacts of its ongoing and future training activities on habitat considered essential to the conservation, including habitat unoccupied by listed species.

Moreover, the section 7 mandate to avoid destroying critical habitat does not extend to requiring plant reintroductions or other proactive conservation measures (*e.g.*, ungulate control) considered essential to the conservation of the species. As discussed above, the major threat to these species is the persistent and expanding presence of alien species. Failure to implement proactive management measures such as alien species removal and ungulate and rat management, as well as management of fire risk and plant propagation and reintroduction, may result in extinction of these species even with a critical habitat designation. These actions are, however, included in the Army's INRMP for PTA and will provide tangible benefits that will reduce the likelihood of extinction and increase the chances of recovery.

Another potential benefit of a critical habitat designation on this Army land is the education of the Army and the general public concerning the conservation value of this land. While we believe these educational benefits are important for the conservation of these species, we believe it has already been achieved through the Army's INRMP (for example, most of the INRMP's biologically sensitive areas overlap with proposed critical habitat), publication of the proposed critical habitat rule, the many public and interagency meetings that have been held to discuss the proposal, and discussion contained in this final rule.

In sum, the Army will manage for the conservation of all of these species through their INRMP process; this management will confer significant conservation benefits to the species that would not necessarily result from the section 7 consultation process. In addition, the Army has agreed to coordinate with the Service on any actions that may affect essential habitat areas (whether occupied or unoccupied by the listed species) even if these areas are not designated as final critical habitat. Taken together, these two management commitments by the Army lead the Service to conclude that any additional incremental regulatory benefits provided by a final critical habitat designation on Army lands would be relatively small.

(2) Benefits of Excluding U.S. Army Lands From Critical Habitat

When evaluating the potential negative impacts of a critical habitat designation and the potential benefits of excluding Army land from final critical habitat, the Service considered whether critical habitat designation would affect Army's military mission at PTA.

As noted above, these plants will need actions that proactively remove existing threats and that include propagation and reintroduction into unoccupied areas if they are to recover. Neither section 7 consultations nor a critical habitat designation would necessarily result in the implementation of actions needed for recovery of these species.

The Army is engaged in or has committed to engage in a wide variety of proactive conservation management activities that are set out in the ''Analysis of Managed Lands Under Section 3(5)(A)'' section of this rule.

The Service also considered whether a final critical habitat designation would negatively impact the Army's military mission. Overall, the Service believes it has been able to work closely and in a positive collaborative fashion with the Army to minimize potential negative impacts to the Army's military training activities as a consequence of Endangered Species Act regulation.

However, the 2nd Brigade of the 25th Infantry Division (Light) based at PTA has recently been selected to participate in the experimental ''Transformation'' of its force to a lighter rapidresponse force known as a Stryker Brigade Combat Team. The Army has stated that a final critical habitat designation may lead to disruption in training and a delay of construction of required training facilities if the Army has to consult on the impacts to newly designated critical habitat. The active training areas allow the troops to attain skills to respond to enemy fire quickly and accurately and to train in offensive operations. The natural and physical attributes of the training areas in Hawaii realistically mirror the battlefield conditions found in other nations in the Pacific region. As these training conditions are not found anywhere else in the continental United States, the Army states that it is imperative that the utilization of the military training installations in Hawaii not be impeded by additional requirements associated with section 7 consultations on critical habitat designations.

(3) The Benefits of Excluding Army Lands From Critical Habitat Outweigh the Benefits of Inclusion

Based on the above considerations, and in accordance with section 4(b)(2) of the Act, we have determined that the benefits to national security of excluding the Army's PTA from critical habitat, as set forth above, outweigh the benefits of including this land in critical habitat for the 12 species listed above. We have carefully weighed the relative benefits of each option.

Although these areas within Army land are removed from the final critical habitat designation, the Service still considers them essential to the conservation of these species. The number of populations for which the habitat on these installations provides is applied towards the overall recovery goal of 8 to 10 populations for each species (see discussion below), and it is anticipated that these lands will be managed under the Army's INRMP for PTA consistent with the conservation goals for these species.

(4) Exclusion of This Unit Will Not Cause Extinction of the Species

For both the three endemic (*Isodendrion hosakea, Neraudia ovata,* and *Silene hawaiiensis*) and the nine multi-island species (*Asplenium fragile* var. *insulare, Hedyotis coriacea, Portulaca sclerocarpa, Silene lanceolata, Solanum incompletum, Spermolepis hawaiiensis, Tetramolopium arenarium, Vigna o-wahuensis,* and *Zanthoxylum hawaiiense*), the Service concludes that the Army's mission and management plan (*e.g.*, INRMP) will provide more net conservation benefits than would be provided if these areas were designated as critical habitat. This management plan, which is described above, will provide tangible conservation benefits that will reduce the likelihood of extinction for the listed plants in these areas of the island of Hawaii and increase their likelihood of recovery. Further, all of this area is occupied by all 12 species and thereby benefits from the section 7 protections of the Act. The exclusion of these areas will not increase the risk of extinction to any of these species, and it may increase the likelihood these species will recover by encouraging other landowners to implement discretionary conservation activities as the Army has done.

In addition, critical habitat is being designated on other areas of the island of Hawaii for the three endemic species, and critical habitat has been designated elsewhere on the island, and/or designated or proposed on other islands, for eight of the remaining nine multi-island species consistent with the guidance in recovery plans. These other designations identify conservation areas for the maintenance and expansion of the existing populations.

Critical habitat is not designated for *Tetramolopium arenarium* on the island of Hawaii because the areas containing the physical and biological features essential to the conservation of this species are on excluded lands at PTA. Critical habitat was not designated on Maui because we were not able to identify the physical and biological features that are considered essential to the conservation of this species on the island of Maui.

In sum, the above analysis concludes that the exclusion of these lands will not cause extinction and should in fact improve the chances of recovery for all 12 species.

*Private Lands*

Kamehameha Schools

The portion of proposed units Hawaii G, W, and Z on Kamehameha Schools lands is occupied habitat for six species: *Bonamia menziesii, Cyanea stictophylla, Delissea undulata, Phyllostegia racemosa, Phyllostegia velutina,* and *Pleomele hawaiiensis* and unoccupied habitat for three species: *Argyroxiphium kauense, Cyanea shipmanii,* and *Neraudia ovata*. According to our published recovery plans, recovery of these species will require reproducing, self-sustaining populations located in a geographic array across the landscape, with population numbers and population locations of sufficient robustness to withstand periodic threats caused by natural disaster or biological threats (Service 1994, 1995a, 1996a, 1996b, 1996c, 1997a, 1998a, 1998b, 1998c, 1999). The highest priority recovery tasks include active management such as plant propagation and reintroduction, fire control, nonnative species removal, and ungulate fencing. Failure to implement these active management measures, all of which require voluntary landowner support and participation, virtually assures the extinction of these species. Many of these types of conservation actions in these areas of the island of Hawaii are carried out as part of Kamehameha School's participation with landowner incentive-based programs and by actions taken on the landowner's initiative. These activities, which are described in more detail below, require substantial voluntary cooperation by Kamehameha Schools and other cooperating landowners and local residents.

The following analysis describes the likely conservation benefits of a critical habitat designation compared to the conservation benefits without critical habitat designation. We paid particular attention to the following issues: To what extent a critical habitat designation would confer regulatory conservation benefits on these species; to what extent the designation would educate members of the public such that conservation efforts would be enhanced; and whether a critical habitat designation would have a positive, neutral, or negative impact on voluntary conservation efforts on this privately owned land as well as other non-Federal lands on the island of Hawaii that could contribute to recovery.

If a critical habitat designation reduces the likelihood that voluntary conservation activities will be carried out on the island of Hawaii, and at the same time fails to confer a counter-balancing positive regulatory or educational benefit to the species, then the benefits of excluding such areas from critical habitat outweigh the benefits of including them. Although the results of this type of evaluation will vary significantly depending on the landowners, geographic areas, and the species involved, we believe the Kamehameha Schools lands on the island of Hawaii merit this evaluation.

(1) Benefits of Inclusion

Critical habitat in the Kamehameha Schools portion of units Hawaii G, W, and Z was proposed for the following species: *Argyroxiphium kauense, Bonamia menziesii, Cyanea shipmanii, Cyanea stictophylla, Delissea undulata, Neraudia ovata, Phyllostegia racemosa, Phyllostegia velutina,* and *Pleomele hawaiiensis*. The primary direct benefit of inclusion of these lands as critical habitat would result from the requirement under section 7 of the Act that Federal agencies consult with us to ensure that any proposed Federal actions do not destroy or adversely modify critical habitat.

The benefit of a critical habitat designation would ensure that any actions funded by or permits issued by a Federal agency would not likely destroy or adversely modify any critical habitat. Without critical habitat, some site-specific projects might not trigger consultation requirements under the Act in areas where species are not currently present; in contrast, Federal actions in areas occupied by listed species would still require consultation under section 7 of the Act.

Historically, we have conducted only two formal and 21 informal consultations under section 7 on the island of Hawaii for any of the 41 plant species. Only two consultations involved Kamehameha Schools lands, both of which were intra-Service consultations on conservation projects. One consultation was regarding a project to restore Opaeula Pond; however, none of the 47 species at issue were involved. The other consultation was regarding restoring dryland forest. The proposed restoration actions were found to benefit two species at issue here, *Bonamia menziesii* and *Nototrichium breviflorum*. As a result of the low level of previous Federal activity on Kamehameha Schools lands on the island, and after considering that the likely future Federal activities that might occur on these lands would be minimal and associated with Federal funding for conservation activities, it is our opinion that there is likely to be a low number of future Federal activities that would negatively affect habitat on Kamehameha Schools lands. A Federal nexus is anticipated in association with the finalization of a Safe Harbor Agreement and issuance of an enhancement of survival permit; however, these activities will have a net conservation benefit for the species concerned. Therefore, we anticipate little additional regulatory benefit from including this portion of units Hawaii G, W, and Z in critical habitat beyond what is already provided for by the existing section 7 nexus for habitat areas occupied by the listed extant species.

Another possible benefit is that the designation of critical habitat can serve to educate the public regarding the potential conservation value of an area, and this may focus and contribute to conservation efforts by other parties by clearly delineating areas of high conservation value for certain species. Information about the nine species for which critical habitat was proposed in this portion of units Hawaii G, W, and Z that reaches a wide audience, including other parties engaged in conservation activities, could have a positive conservation benefit. This result has been achieved through an exhaustive process that involved dozens of public and interagency meetings, media outreach including front-page articles in major newspapers, and several publications in the **Federal Register**. Final species-specific maps identifying habitat areas essential to the conservation of these species on Kamehameha Schools lands have been prepared and will be provided to Kamehameha Schools and other interested parties. These maps will ensure Kamehameha Schools is completely informed regarding what precise areas are important to which species.

In addition, we believe that education of relevant sectors of the public is being achieved through the existing management and education efforts carried out by Kamehameha Schools and their conservation partners. Kamehameha Schools participates in the Olaa-Kilauea Management Partnership along with Federal and State agencies, along with other private landowners, to protect the biological resources of the Olaa-Kilauea area.

In sum, we believe that a critical habitat designation for listed plants on Kamehameha Schools lands would provide a relatively low level of additional regulatory conservation benefits to each of the plant species beyond what is already provided by existing section 7 consultation requirements caused by the physical presence of the nine listed species. Any regulatory conservation benefits would accrue through the benefit associated with additional section 7 consultation associated with critical habitat. Based on a review of past consultations and consideration of the likely future activities in this specific area, we expect little Federal activity that would trigger section 7 consultation to occur on this privately owned land. We also believe that critical habitat designation would provide little additional educational benefit since the conservation value is already known by the landowner, the State, Federal agencies, and private organizations, and the area has been identified as essential to the conservation of nine plant species through publication in the proposed critical habitat rule and this final rule.

(2) Benefits of Exclusion

Proactive voluntary conservation efforts are necessary to prevent the extinction and promote the recovery of these species on the island of Hawaii and other Hawaiian islands (Shogren *et al.* 1991; Wilcove and Chen 1998; Wilcove *et al.* 1998). Consideration of this concern is especially important in areas where species have been extirpated and their recovery requires access and permission for reintroduction efforts (Bean 2002; Wilcove *et al.* 1998). For example, three of the nine species associated with proposed units Hawaii G, W, and Z are extirpated from Kamehameha Schools lands, and repopulation is likely not possible without human assistance and landowner cooperation.

Kamehameha Schools is involved in several important voluntary conservation agreements and is currently carrying out some of these activities for the conservation of these species. They have developed two programs that demonstrate their conservation commitments, Aina Ulu and Malama Aina. The Aina Ulu program implements land based education programs, whereas Malama Aina delivers focused stewardship of natural resources.

Malama Aina has been focused in two distinct areas, Keauhou in Kau District and North-South Kona, with a budget commitment in 2002 of $1,000,000, not including staff expenses. Kamehameha Schools has more than 25 years of stewardship experience at Keauhou in Kau District, which includes the Olaa-Kilauea Management partnership project entered into on July 6, 1994. This area is within proposed critical habitat unit Hawaii G. The vision for Keauhou is to restore the native ecosystems in order to utilize the entire area for education and cultural enrichment by using sustainable economic ventures to support these programs. Activities within this program include timber certification, large and small mammal control, weed control, koa thinning, propagation and outplanting of both rare and common native plants, inventory, monitoring and data analysis of stewardship efforts, access road improvement, refuse clean up, and the purchase of Keauhou Ranch. Participating partners include: Cultural practitioners (the Edith Kanakaole Foundation and the Polynesian Voyaging Society), ranching and timber interests (Hawaii Forest Industry Association), researchers and scientists (University of Hawaii at Manoa and Hilo, the Zoological Society of San Diego, U.S. Forest Service, Hawaiian Silversword Foundation, and USGS–BRD), educators (Nawahi Charter School), natural resource managers (Olaa-Kilauea Management Group, DOFAW, the Service, HVNP, and The Nature Conservancy of Hawaii (TNCH)). Malama Aina has allocated $681,000, and Aina Ulu has allocated $33,000. Preservation of this area conserves critically endangered species of plants and animals in a mix of ecosystems with microenvironments required by some of Hawaii's rarest plants and animals, including endangered forest birds and lobeliads (plants in the family Campanulaceae). This management strategy is consistent with recovery of these species.

Kamehameha's Schools North-South Kona natural resource conservation efforts focus on three distinct areas: Honaunau Forest and Honaunau Uka, Kaupulehu Kauila Lama Forest and Kaupulehu Uka, and Pulehua. Kamehameha Schools started a weed control program in 2002 in Honaunau Forest and Honaunau Uka. In both the Forest and Uka areas, they will continue the weed control program, along with a timber certification program to write certifiable plans and complete inventories. In the Honaunau Uka area, they will construct an ungulate exclosure fence and issue a contract for a botanical survey, and in the Honaunau Forest the road will be maintained. Funds allocated for the implementation of these projects total $52,500 to Honaunau Forest and $29,500 to Honaunau Uka. Kaupulehu Kauila Lama Forest and Kaupulehu Uka lie within the proposed critical habitat unit Hawaii Z. Conservation activities in the Aina Ulu program at Kaupulehu Kauila Lama Forest include an intern program, an outreach coordinator, multimedia curriculum development, small mammal and weed control, road maintenance, installation of self-composting toilets, and precious wood-gathering. Funds allocated for these projects total $70,700. Malama Aina projects at Kaupulehu Uka include timber certification, large mammal and weed control, ungulate exclosure fencing, inventory, monitoring and data analysis of conservation actions and road maintenance. Funds allocated for those projects total $101,000. Partners include: Hawaii Forest Industry Association, the Service, DOFAW, local residents, PIA Sports Properties (lessee), U.S. Forest Service, National Tropical Botanical Garden (lessee), and Honokaa High School. Pulehua lies within proposed critical habitat unit Hawaii W. Conservation efforts at Pulehua are in the beginning stages. Conservation projects in 2003 will focus on weed control, with $7,500 allocated. In 2002, an ungulate control program was initiated, which included $7,000 to study ungulate issues in Kona. This year's budget includes $35,000 for ungulate control, with an additional $40,000 to construct enclosures to measure the success of the control efforts.

Because Kamehameha Schools' goal is to improve habitat for threatened and endangered species, the district is developing a Safe Harbor Agreement with the Service and the State through the Safe Harbor program. The Safe Harbor program encourages proactive management to benefit endangered and threatened species on non-Federal lands by providing regulatory assurances to landowners that no additional Endangered Species Act restrictions will be imposed on future land, water, or resource use for enrolled lands. The Safe Harbor Agreement would include lands within proposed critical habitat units W and Z. The purpose of Kamehameha Schools' Safe Harbor Agreement is to encourage voluntary restoration and enhancement of habitat for threatened and endangered species, and to enable certain species to be reintroduced onto Kamehameha Schools' lands where such species formerly occurred, including the bird species palila (*Loxoides bailleui*), as well as *Argyroxiphium kauense* and *Delissea undulata.* Some of the conservation activities planned under this Agreement include fencing areas containing mamane (*Sophora chrysophylla*), removal of ungulates, control of ungulates in areas that are not fenced, removal of predators (*e.g.*, rats), and the release of palila into the area. Currently, the Agreement being developed includes only the palila. However, other listed and candidate animal and plant species and other conservation activities will be added in the future (Peter Simmons, Kamehameha Schools, *in litt.* 2003).

As described earlier, Kamehameha Schools has a history of entering into conservation agreements with various Federal and State agencies and private organizations on biologically important portions of their lands. These arrangements have taken a variety of forms. They include partnership commitments such as the Olaa-Kilauea Partnership and the Dryland Forest Working Group. The listed plant species originally included within the Kamehameha Schools portion of proposed units Hawaii G, W, and Z will benefit substantially from their voluntary management actions because of a reduction in ungulate browsing and habitat conversion, a reduction in competition with nonnative weeds, a reduction in risk of fire, and the reintroduction of species currently extirpated from various areas and for which the technical ability to propagate these species currently exists or will be developed in the near future.

The conservation benefits of critical habitat are primarily regulatory or prohibitive in nature. But on the island of Hawaii, simply preventing ''harmful activities'' will not slow the extinction of listed plant species. Where consistent with the discretion provided by the Act, we believe it is necessary to implement policies that provide positive incentives to private landowners to voluntarily conserve natural resources, and that remove or reduce disincentives to conservation (Michael 2001; Michael, in press). Thus, we believe it is essential for the recovery of these nine species to build on continued conservation activities, such as these with a proven partner, and to provide incentives for other private landowners on the island of Hawaii who might be considering implementing voluntary conservation activities but have concerns about incurring incidental regulatory or economic impacts.

Approximately 80 percent of imperiled species in the United States occur partly or solely on private lands where the Service has little management authority (Wilcove *et al.* 1996). In addition, recovery actions involving the reintroduction of listed species onto private lands require the voluntary cooperation of the landowner (Bean 2002; James 2002; Knight 1999; Main *et al.* 1999; Norton 2000; Shogren *et al.* 1999; Wilcove *et al.* 1998). Therefore, ''a successful recovery program is highly dependent on developing working partnerships with a wide variety of entities, and the voluntary cooperation of thousands of non-Federal landowners and others is essential to accomplishing recovery for listed species'' (Crouse *et al.* 2002). Because large tracts of land suitable for conservation of threatened and endangered species are mostly owned by private landowners, successful recovery of listed species on the island of Hawaii is especially dependent upon working partnerships and the voluntary cooperation of private landowners.

Kamehameha Schools owns over 6,800 acres of land proposed as critical habitat in the Agricultural District. According to the final economic analysis, if this land were redistricted to the Conservation District, the total potential loss in property value could be more than approximately $1,997,000. They could also spend over $50,000 contesting a proposed redistricting. Thus, designation of critical habitat on Kamehameha Schools land could result in an economic impact to the Trust of over $2 million.

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

Based on the above considerations, we have determined that the benefits of excluding the Kamehameha Schools lands in proposed units Hawaii G, W, and Z as critical habitat outweigh the benefits of including them as critical habitat for *Argyroxiphium kauense, Bonamia menziesii, Cyanea shipmanii, Cyanea stictophylla, Delissea undulata, Neraudia ovata, Phyllostegia racemosa, Phyllostegia velutina,* and *Pleomele hawaiiensis.*

This conclusion is based on the following factors:

1. A substantial amount of the Kamehameha Schools lands in proposed units Hawaii G, W, and Z is currently being managed by the landowner on a voluntary basis in cooperation with us, cultural practitioners (the Edith Kanakaole Foundation and the Polynesian Voyaging Society), ranching and timber interests (Hawaii Forest Industry Association), researchers and scientists (UH Manoa and Hilo, the Zoological Society of San Diego, U.S. Forest Service, Silversword Foundation, and USGS–BRD), educators (Nawahi Charter School), and natural resource managers (Olaa-Kilauea Management Group, DOFAW, HVNP, National Tropical Botanical Garden, and TNCH) to achieve important conservation goals.

2. In the past, Kamehameha Schools has cooperated with Federal and State agencies and private organizations to implement voluntary conservation activities on their lands that have resulted in tangible conservation benefits.

3. Simple regulation of ''harmful activities'' is not sufficient to conserve these species. Landowner cooperation and support is required to prevent the extinction and promote the recovery of all of the listed species on this island, because of the need to implement proactive conservation actions such as ungulate management, weed control, fire suppression, plant propagation, and outplanting. This need for landowner cooperation is especially acute because the proposed units Hawaii G, W, and Z are unoccupied by three of the nine species. Future conservation efforts, such as translocation of these three plant species back into unoccupied habitat on these lands, will require the cooperation of Kamehameha Schools. Exclusion of Kamehameha Schools lands from this critical habitat designation will help the Service maintain and improve this partnership by formally recognizing the positive contributions of Kamehameha Schools to plant recovery, and by streamlining or reducing unnecessary oversight.

4. Especially given the current partnership agreements between Kamehameha Schools and many other organizations, we believe the benefits of including Kamehameha Schools lands as critical habitat are relatively small. The designation of critical habitat can serve to educate the general public as well as conservation organizations regarding the potential conservation value of an area, but this goal is already being accomplished through the identification of this area in the management agreements described above. Likewise, there will be little Federal regulatory benefit to the species because: (a) There is a low likelihood that these proposed critical habitat units will be negatively affected to any significant degree by Federal activities requiring section 7 consultation, and (b) these areas are already occupied by six listed species and a section 7 nexus already exists. We are unable to identify any other potential benefits associated with critical habitat for these portions of the proposed units.

5. We believe it is necessary to establish positive working relationships with representatives of the Native Hawaiian community. This approach of excluding critical habitat and entering into a mutually agreeable conservation partnership strengthens this relationship and should lead to conservation benefits beyond the boundaries of Kamehameha Schools land. It is an important long term conservation goal of the Service to work cooperatively with the Native Hawaiian community to help recover Hawaii's endangered species. This partnership with Kamehameha Schools is an important step forward toward this goal.

6. While we didn't find that designating critical habitat on Kamehameha Schools land would have a significant economic impact on them, the potential cost of over $1.65 million could affect Kamehameha Schools' willingness to continue their conservation partnerships. Even if they did continue to implement conservation activities on their Kamehameha Schools' land, this potential cost may result in a reduction of the amount of funding they would commit to conservation activities.

7. It is well documented that publicly owned lands and lands owned by private organizations alone are too small and poorly distributed to provide for the conservation of most listed species (Bean 2002; Crouse *et al.* 2002). Excluding these Kamehameha Schools lands from critical habitat may, by way of example, provide positive social, legal, and economic incentives to other non-Federal landowners on the island of Hawaii who own lands that could contribute to listed species recovery if voluntary conservation measures on these lands are implemented (Norton 2000; Main *et al.* 1999; Shogren *et al.* 1999; Wilcove and Chen 1998). As resources allow, the Service would be willing to consider future revisions or amendments to this final critical habitat rule if landowners affected by this rule develop conservation programs or partnerships (*e.g.*, Habitat Conservation Plans, Safe Harbor Agreements, conservation agreements) on their lands that outweigh the regulatory and other benefits of a critical habitat designation.

In conclusion, we find that the exclusion of critical habitat in the Kamehameha Schools portions of proposed units Hawaii G, W, and Z would most likely have a net positive conservation effect on the recovery and conservation of these nine plant species when compared to the positive conservation effects of a critical habitat designation. As described above, the overall benefits to these species of a critical habitat designation on Kamehameha Schools lands are relatively small. In contrast, we believe this exclusion will enhance our existing partnership with Kamehameha Schools, and it will set a positive example and provide positive incentives to other non-Federal landowners who may be considering implementing voluntary conservation activities on their lands. We conclude there is a greater likelihood of beneficial conservation activities occurring in these and other areas of the island of Hawaii without designated critical habitat than there would be with designated critical habitat on these Kamehameha Schools lands.

(4) Exclusion of This Unit Will Not Cause Extinction of the Species

In considering whether or not exclusion of Kamehameha Schools lands in proposed units Hawaii G, W, and Z might result in the extinction of any of these nine species, we first considered the impacts to the seven species endemic to the island of Hawaii (*Argyroxiphium kauense, Cyanea shipmanii, Cyanea stictophylla, Neraudia ovata, Phyllostegia racemosa, Phyllostegia velutina,* and *Pleomele hawaiiensis*), and second to the two species known from the island of Hawaii and one or more other Hawaiian islands (*Bonamia menziesii and Delissea undulata*).

These agreements, which are described above, will provide tangible proactive conservation benefits that will reduce the likelihood of extinction for both the seven endemic and the two multi-island species in these areas of the island of Hawaii and increase their likelihood of recovery. Extinction for any of these species as a consequence of this exclusion is unlikely because there are no known threats in these portions of proposed units Hawaii G, W, and Z due to any current or reasonably anticipated Federal actions that might be regulated under section 7 of the Act. Further, these areas are already occupied by six of the nine species and thereby benefit from the section 7 protections of the Act, should such an unlikely Federal threat actually materialize. The exclusion of these Kamehameha Schools lands will not increase the risk of extinction to any of these species, and it may increase the likelihood these species will recover by encouraging other landowners to implement voluntary conservation activities as Kamehameha Schools has done.

In addition, critical habitat is being designated on other areas of the island of Hawaii for all seven of the endemic species (units Hawaii 10—*Argyroxiphium kauense*—a, Hawaii 24—*Argyroxiphium kauense*—b, Hawaii 25—*Argyroxiphium kauense*—c, Hawaii 30—*Argyroxiphium kauense*—d, Hawaii 1—*Cyanea shipmanii*—a, Hawaii 30—*Cyanea shipmanii*—b, Hawaii 30—*Cyanea shipmanii*—c, Hawaii 15—*Cyanea stictophylla*—a, Hawaii 16—*Cyanea stictophylla*—b, Hawaii 24—*Cyanea stictophylla*—c, Hawaii 30—*Cyanea stictophylla*—d, Hawaii 10—*Neraudia ovata*—a, Hawaii 18—*Neraudia ovata*—d, Hawaii 1—*Phyllostegia racemosa*—a, Hawaii 2—*Phyllostegia racemosa*—b, Hawaii 30—*Phyllostegia racemosa*—c, Hawaii 24—*Phyllostegia velutina*—a, Hawaii 30—*Phyllostegia velutina*—b, Hawaii 7—*Pleomele hawaiiensis*—a, Hawaii 10—*Pleomele hawaiiensis*—b, Hawaii 18—*Pleomele hawaiiensis*—c, and Hawaii 23—*Pleomele hawaiiensis*—d). Critical habitat has also been designated elsewhere on the island of Hawaii (Hawaii 10—*Bonamia menziesii*—a, Hawaii 10—*Delissea undulata*—a, and Hawaii 10—*Delissea undulata*—b) and designated on other islands for the remaining two multi-island species within their historical range consistent with the guidance in recovery plans. Critical habitat has been designated for *Bonamia menziesii* on Kauai (habitat for two populations), Oahu (habitat for four populations), and Maui (habitat for one population) (68 FR 9116; 68 FR 35949; 68 FR 25934). Habitat for one population is in the excluded lands on Lanai (68 FR 1220). We have designated critical habitat for *Delissea undulata* on Kauai (habitat for three populations) (68 FR 9116). These other designations identify conservation areas for the maintenance and expansion of the existing populations.

In sum, the above analysis concludes that an exclusion of Kamehameha Schools lands within proposed units Hawaii G, W, and Z from final critical habitat on the island of Hawaii will have a net beneficial impact with little risk of negative impacts. Therefore, the exclusion of the Kamehameha Schools portions of proposed units Hawaii G, W, and Z will not cause extinction and should in fact improve the chances of recovery for *Argyroxiphium kauense, Bonamia menziesii, Cyanea shipmanii, Cyanea stictophylla, Delissea undulata, Neraudia ovata, Phyllostegia racemosa, Phyllostegia velutina,* and *Pleomele hawaiiensis.*

*Queen Liliuokalani Trust*

The southwestern portion of proposed unit Hawaii Y2 on Queen Liliuokalani Trust land is unoccupied habitat for two species: *Isodendrion pyrifolium* and *Neraudia ovata.* According to our published recovery plans, recovery of these two species will require reproducing, self-sustaining populations located in a geographic array across the landscape, with population numbers and population locations of sufficient robustness to withstand periodic threats caused by natural disaster or biological threats (Service 1996, 1998). The highest priority recovery tasks include active management, such as plant propagation and reintroduction, fire control, nonnative species removal, and ungulate fencing. Failure to implement these active management measures on this and other units, all of which require voluntary landowner support and participation, virtually assures the extinction of these species in the wild. Many of these types of conservation actions in this area of the island of Hawaii will be carried out as part of Queen Liliuokalani Trust's partnership with the Service and by actions taken on the landowner's initiative. These activities, which are described in more detail below, require substantial voluntary cooperation by Queen Liliuokalani Trust.

The following analysis describes the likely conservation benefits of a critical habitat designation compared to the conservation benefits without critical habitat designation. We paid particular attention to the following issues: To what extent a critical habitat designation would confer regulatory conservation benefits on these species; to what extent the designation would educate members of the public such that conservation efforts would be enhanced; and whether a critical habitat designation would have a positive, neutral, or negative impact on voluntary conservation efforts on this privately owned land as well as other non-Federal lands on the island of Hawaii that could contribute to recovery.

If a critical habitat designation reduces the likelihood that voluntary conservation activities will be carried out on the island of Hawaii, and at the same time fails to confer a counter-balancing positive regulatory or educational benefit to the species, then the benefits of excluding such areas from critical habitat outweigh the benefits of including them. Although, the results of this type of evaluation will vary significantly depending on the landowners, geographic areas, and species involved, we believe the Queen Liliuokalani Trust lands in proposed unit Hawaii Y2 merit this evaluation.

(1) Benefits of Inclusion

Critical habitat in the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 was proposed for *Isodendrion pyrifolium* and *Neraudia ovata.* The primary direct benefit of inclusion of this portion of proposed unit Hawaii Y2 as critical habitat would result from the requirement under section 7 of the Act that Federal agencies consult with us to ensure that any proposed Federal actions do not destroy or adversely modify critical habitat.

Historically, we have conducted two formal and 21 informal consultations under section 7 on the island of Hawaii for any of the 47 plant species. None were for Queen Liliuokalani Trust land. As a result of the low level of previous Federal activity on Queen Liliuokalani Trust land, and after considering the likely low probability of Federal activities that might occur on this land (no anticipated Federal permits or funding), we think that there is likely to be a low number of future Federal activities that would negatively affect habitat on the Queen Liliuokalani Trust portion of proposed critical habitat (DEA 2002). Therefore, there is a low regulatory benefit of a critical habitat designation in this area.

Another possible benefit is that the designation of critical habitat can serve to educate the public regarding the potential conservation value of an area, and this may focus and contribute to conservation efforts by other parties by clearly delineating areas of high conservation value for certain species. Any information about these two species and their habitats that reaches a wide audience, including other parties engaged in conservation activities, could have a positive conservation benefit.

While we believe this educational outcome is important for *Isodendrion pyrifolium* and *Neraudia ovata,* we believe it has mostly been achieved. Through the proposal of critical habitat, proposed unit Hawaii Y2, including the portion that lies within Queen Liliuokalani Trust land, has been identified as essential to the conservation of two of the 47 plant species addressed in this rule. In addition, the proposed conservation activities to be conducted within proposed unit Hawaii Y2, assisted by the Service, demonstrates that the landowner is already aware of the importance of this area for the conservation of these two species. It is anticipated that other portions of the general public will likewise be better informed of the value of this area as Queen Liliuokalani Trust implements conservation activities on this land.

In sum, we believe that a critical habitat designation for listed plants on Queen Liliuokalani Trust land would provide a relatively low level of additional regulatory conservation benefits to *Isodendrion pyrifolium* and *Neraudia ovata.* Any regulatory conservation benefits would accrue through the benefit associated with section 7 consultation associated with critical habitat. Based on a review of past consultations and consideration of the likely future activities in this specific area, we determined that there is little Federal activity expected to occur on this privately owned land that would trigger section 7 consultation.

(2) Benefits of Exclusion

While the economic analysis concludes the designation of critical habitat on Queen Liliuokalani Trust land would not prevent them from developing their property, the analysis assumes it is reasonably foreseeable that the designation could cause a delay in development approvals as additional environmental studies may be conducted, and State and county officials investigate the implications of critical habitat on the property. The value of the loss of this potential delay is estimated to be between $13.8 and $21.6 million.

In addition, proactive voluntary conservation efforts are necessary to prevent the extinction and promote the recovery of these listed plant species on the island of Hawaii and other Hawaiian islands (Shogren *et al.* 1999; Wilcove and Chen 1998; Wilcove *et al.* 1998). Consideration of this concern is especially important in areas where species have been extirpated and their recovery requires access and permission for reintroduction efforts (Bean 2002; Wilcove *et al.* 1998). For example, since both species associated with proposed unit Y2 are extirpated from Queen Liliuokalani Trust land, repopulation is likely not possible without human assistance and landowner cooperation.

Under the terms of its January 17, 2003, proposal to the Service, Queen Liliuokalani Trust has agreed to implement a voluntary conservation partnership with the Service which will benefit these species. The conservation partnership includes the following: (1) The Trust is willing to partner with us on a propagation project for the *Isodendrion pyrifolium* under a Service cost-sharing agreement. The Trust will contribute up to $10,000 toward the propagation research project to be conducted by an expert acceptable to both Queen Liliuokalani Trust and the Service. The trust will also integrate this effort with its cultural and educational programs with children and develop a curriculum similar to one at Kaala Farms in Waianae on Oahu, an island where *Isodendrion pyrifolium* was historically found; (2) the Trust agrees to set aside for outplanting 21 ha (53 ac) of land, consisting of 10 ha (25 ac) in the northern portion of the Queen Liliuokalani Trust property and 11 ha (28 ac) in the southeast portion. The Trust will also allow for the reintroduction of *Isodendrion pyrifolium*, *Neraudia ovata*, and other endangered species that may be found and/or reintroduced on the property into the designated 22 ha (53 ac). These conservation measures are consistent with recovery of these species.

We believe that both of the species for which proposed unit Hawaii Y2 was originally proposed will benefit from these management actions. The primary benefits are the voluntary propagation and eventual reintroduction of species currently extirpated from this area.

The conservation benefits of critical habitat are primarily regulatory or prohibitive in nature. But, on the island of Hawaii, simply preventing ''harmful activities'' will not slow the extinction of listed plant species (Bean 2002). Where consistent with the discretion provided by the Act, we believe it is necessary to implement policies that provide positive incentives to private landowners to voluntarily conserve natural resources, and that remove or reduce disincentives to conservation (Wilcove *et al.* 1998). We believe that a voluntary conservation agreement has the highest likelihood of success if critical habitat is not designated as currently proposed because the landowner believes there is an unacceptable risk that the critical habitat designation will result in a decrease in Queen Liliuokalani Trust's ability to remain economically viable. If so, they would lose the ability to generate enough income for programs that benefit orphan and destitute Hawaiian children. We believe that the landowner's concerns over these potential negative impacts, should critical habitat be designated, would affect its voluntary conservation efforts, which we believe are necessary to conserve these species.

Thus, we believe it is essential for the recovery of *Isodendrion pyrifolium* and *Neraudia ovata* to instigate voluntary conservation activities such as these that would otherwise not have occurred on this property and to provide positive incentives for other private landowners on the island of Hawaii who might be considering implementing voluntary conservation activities but have concerns about incurring incidental regulatory or economic impacts. Approximately 80 percent of imperiled species in the United States occur partly or solely on private lands where the Service has little management authority (Wilcove *et al.* 1996). In addition, recovery actions involving the reintroduction of listed species onto private lands require the voluntary cooperation of the landowner (Bean 2002; James 2002; Knight 1999; Main *et al.* 1999; Norton 2000; Shogren *et al.* 1999; Wilcove *et al.* 1998). Therefore, ''a successful recovery program is highly dependent on developing working partnerships with a wide variety of entities, and the voluntary cooperation of thousands of non-Federal landowners and others is essential to accomplishing recovery for listed species' (Crouse *et al.* 2002). Because large tracts of land suitable for conservation of threatened and endangered species are owned by private landowners, successful recovery of listed species on the island of Hawaii is especially dependent upon working partnerships and the voluntary cooperation of non-Federal landowners. Without additional voluntary conservation efforts for these two species, recovery will not occur.

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

Based on the above considerations, we have determined that the benefits of excluding the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 from critical habitat outweigh the benefits of including it as critical habitat for *Isodendrion pyrifolium* and *Neraudia ovata*.

This conclusion is based on the following factors:

1. The Queen Liliukolani Trust has agreed to implement voluntary conservation measures for *Isodendrion pyrifolium* and *Neraudia ovata* on currently unoccupied habitat within Queen Liliuokalani Trust's portion of proposed unit Hawaii Y2.

2. Simple regulation of ''harmful activities'' is not sufficient to conserve these species. Critical habitat designation would not encourage, and may discourage, reintroductions of these species to these lands. Landowner cooperation and support will be required to prevent the extinction and promote the recovery of all of the listed island-endemic species caused by the need to implement proactive conservation actions such as ungulate management, weed control, fire suppression, plant propagation, and outplanting. This need for landowner cooperation is especially acute because proposed unit Hawaii Y2 is unoccupied by both of these species. Future conservation efforts, such as reintroduction of these plant species back onto these lands, will require the cooperation of Queen Liliuokalani Trust. Exclusion of Queen Liliuokalani Trust's land from this critical habitat designation will help the Service maintain and improve the voluntary cooperation of Queen Liliuokalani Trust by formally recognizing the positive contributions of Queen Liliuokalani Trust to plant conservation, and by streamlining or reducing unnecessary regulatory oversight. A critical habitat designation absent this cooperation would provide little meaningful conservation benefit to these species because the land would likely remain unoccupied.

3. Given the agreement between the landowner and us, as well as other planned conservation activities on their property, we believe the overall regulatory and educational benefits of including this portion of the unit as critical habitat are relatively small. The designation of critical habitat can serve to educate the general public as well as conservation organizations regarding the potential conservation value of an area, but this goal has been effectively accomplished through the identification of this area in the January 17, 2003, proposal described above. Likewise, there will be little Federal regulatory benefit to the species because (a) there is a low likelihood that this proposed critical habitat unit will be negatively affected to any significant degree by Federal activities requiring section 7 consultation, and (b) the fear that a critical habitat designation on this property will harm the ability of this landowner to generate funds to benefit orphan and destitute Hawaiian children, and any positive educational benefit of designation is negatively impacted when the impression is given that conservation goals can undermine the philanthropic goals of the landowner. We are unable to identify any other potential benefits associated with critical habitat for this portion of the proposed unit.

4. We believe it is necessary to establish positive working relationships with representatives of the Native Hawaiian community. This approach of excluding critical habitat and entering into a mutually agreeable conservation partnership strengthens this relationship and should lead to conservation benefits beyond the boundaries of Queen Liliuokalani Trust land. The Service has an important long term conservation goal to work cooperatively with the Native Hawaiian community to help recover Hawaii's endangered species. The partnership with Queen Liliuokalani Trust, as articulated in the Trust's letter to us, is an important step forward toward this goal.

5. While we didn't find designating critical habitat on Queen Lilioukolani Trust land would prevent the Trust from proceeding with their proposed development or have a significant economic impact on them, the potential cost of up to $21.6 million due to possible delays in obtaining State and county approvals and completing the development could affect their willingness to continue their conservation partnerships. Even if they did continue to implement conservation activities on their land, this potential cost may result in a reduction of the amount of funding available for implementing conservation activities. In addition, Queen Lilioukolani Trust uses revenue from its land holding to provide care for orphans and destitute children (with a preference to children of Native Hawaiian ancestry). This potential reduction in revenue could have significant social and cultural impacts on the community.

6. It is well documented that publicly owned lands, lands owned by conservation organizations and privately owned lands alone, are too small and poorly distributed to provide for the conservation of most listed species (Bean 2002, Crouse *et al.* 2002). Excluding these privately owned lands from critical habitat may, by way of example, provide positive social, legal, and economic incentives to other non-Federal landowners on the island of Hawaii who own lands that could contribute to listed species recovery if voluntary conservation measures on these lands are implemented (Norton 2000; Main *et al.* 1999; Shogren *et al.* 1999; Wilcove and Chen 1998).

In conclusion, we find that the exclusion of critical habitat in the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 would have a net positive conservation effect on the recovery and conservation of *Isodendrion pyrifolium* and *Neraudia ovata* when compared to the conservation effects of a critical habitat designation. As described above, the overall benefits to these species of a critical habitat designation on the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 are relatively small. We conclude there is a greater likelihood of beneficial conservation activities occurring in this area of the island of Hawaii without designated critical habitat than there would be with designated critical habitat in this location. We reached this conclusion because the landowner has agreed to implement voluntary conservation efforts on their lands without critical habitat designation. Therefore, we conclude that the benefits of excluding this portion of proposed unit Hawaii Y2 from critical habitat for *Isodendrion pyrifolium* and *Neraudia ovata* outweigh the benefits of including it.

(4) Exclusion of This Unit Will Not Cause Extinction of the Species

In considering whether or not exclusion of the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 might result in the extinction of either of these two species, we first considered the impacts to the species endemic to the island of Hawaii, *Neraudia ovata,* and second to *Isodendrion pyrifolium,* which is known from the island of Hawaii and other Hawaiian islands.

For both the endemic and the multi-island species, we conclude that the voluntary conservation measures to be provided by Queen Liliuokalani Trust and the Service will provide more net conservation benefits than would be provided by designating the portion of proposed unit Hawaii Y2 as critical habitat. These conservation measures, which are described above, will provide tangible proactive conservation benefits that will reduce the likelihood of extinction for the two listed plants in this area of the island of Hawaii and increase their likelihood of recovery. Extinction for either of these species as a consequence of this exclusion is unlikely because there are no known threats in this portion of proposed unit Hawaii Y2 due to any current or reasonably anticipated Federal actions that might be regulated under section 7 of the Act. Implementation of the conservation measures by Queen Liliuokalani Trust, and the exclusion of their portion of proposed unit Hawaii Y2, have the greatest likelihood of preventing extinction of these two species, especially *Neraudia ovata,* which is endemic to the island of Hawaii.

In addition, critical habitat is being designated on other areas of the island of Hawaii for *Neraudia ovata* (Hawaii 10—*Neraudia ovata*—a and Hawaii 18—*Neraudia ovata*—d), and critical habitat has been designated elsewhere in the state for *Isodendrion pyrifolium.* We have designated critical habitat for *Isodendrion pyrifolium* within its historical range on Oahu (habitat for three populations), Molokai (habitat for one population), and Maui (habitat for two populations) (68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003). In addition, habitat for two populations is within the area excluded from critical habitat on Lanai (68 FR 1220, January 9, 2003). These other designations identify conservation areas for the maintenance and expansion of the existing populations.

In sum, the above analysis concludes that an exclusion of Queen Liliuokalani Trust land within proposed unit Hawaii Y2 from final critical habitat on the island of Hawaii will have a net beneficial impact with little risk of negative impacts. Therefore, the exclusion of the Queen Liliuokalani Trust portion of proposed unit Hawaii Y2 will not cause extinction and should in fact improve the chances of recovery for *Isodendrion pyrifolium* and *Neraudia ovata.*

**Other Private Landowners**

As resources allow, the Service would be willing to consider future revisions or amendments to this final critical habitat rule if other landowners affected by this rule develop conservation programs or partnerships (*e.g.*, Habitat Conservation Plans, Safe Harbor Agreements, conservation agreements, *etc.*) on their lands that outweigh the regulatory and educational benefits of a critical habitat designation.

*Taxonomic Changes*

At the time we listed *Delissea undulata, Hibiscus brackenridgei, Mariscus fauriei, Mariscus pennatiformis,* and *Phyllostegia parviflora,* we followed the taxonomic treatments in Wagner *et al.* (1990), the widely used and accepted *Manual of the Flowering Plants of Hawaii.* Subsequent to the final listing, we became aware of new taxonomic treatments of these species. Also, in the recently published *Hawaii's Ferns and Fern Allies* (Palmer 2003), *Asplenium fragile* var. *insulare* has undergone a taxonomic revision. Due to the court-ordered deadlines, we are required to publish this final rule to designate critical habitat on the island of Hawaii before we can prepare and publish a notice of taxonomic changes for these six species. We plan to publish a taxonomic change notice for these six species after we have published the final critical habitat designation on the island of Hawaii.

**Summary of Recovery Populations for 255 Hawaiian Plants**

During the public comment periods on the proposed designations and nondesignations of critical habitat for plants from the islands of Kauai, Niihau, Lanai, Maui, Molokai, Northwestern Hawaiian Islands, Oahu, and the island of Hawaii, we received several comments regarding the difficulty of commenting in an informed manner on critical habitat for species occurring on more than one island because the proposed rules did not provide information on critical habitat proposed on other islands for multi-island species. To address this concern, on August 20, 2002, we reopened simultaneous comment periods for the proposed designations and nondesignations of critical habitat for plant species on the islands of Kauai, Niihau, Maui, Molokai, and the Northwestern Hawaiian Islands until September 30, 2002, and for plant species on the islands of Hawaii and Oahu until November 30, 2002. The new comment periods allowed all interested parties to review all the proposals together and submit written comments. A comment period for the proposed designations and nondesignations of critical habitat for plant species on Lanai opened on July 15, 2002, and closed on August 30, 2002, overlapping with the reopened comment periods for the islands mentioned above.

As outlined in the above section ''Criteria Used to Identify Critical Habitat,'' the overall recovery goal stated in the recovery plans for each of these species includes the establishment of 8 to 10 populations with a minimum of 100 mature reproducing individuals per population for long-lived perennials; 300 mature reproducing individuals per population for short-lived perennials; and 500 mature reproducing individuals per population for annuals. There are some specific exceptions to this general recovery goal of 8 to 10 populations for species that are believed to be very narrowly distributed on a single island. To be considered recovered, the populations of a multi-island species should be distributed among the islands of its known historic range. In this final critical habitat rule, we include a table that summarizes the distribution of recovery populations by island for each of the 255 species at issue (Table 5).

TABLE 5.—SUMMARY OF ISLAND DISTRIBUTION OF RECOVERY POPULATIONS FOR 255 LISTED HAWAIIAN PLANTS

| Species | Island Distribution | | | | | | | Totals |
|---|---|---|---|---|---|---|---|---|
| | Kauai | Oahu | Molokai | Lanai | Maui | Hawaii | Niihau Kahoolawe NWHI | |
| *Abutilon eremitopetalum* | | | | *8 | | | | 8 |
| *Abutilon sandwicense* | | 10 | | | | | | 10 |
| *Acaena exigua*† | 0 | | | | 0 | | | 0 |
| *Achyranthes mutica* | [2]0 | | | | | 10 | | 10 |
| *Adenophorus periens* | 4 | 1 | 4 | *1 | [2]0 | 1 | | 11 |
| *Alectryon macrococcus* | 2 | 2 | 1 | *4 | | | | 9 |
| *Alsinidendron lychnoides* | 10 | | | | | | | 10 |
| *Alsinidendron obovatum* | | *[1]8 | | | | | | [1]8 |
| *Alsinidendron trinerve* | | *[1]7 | | | | | | [1]7 |
| *Alsinidendron viscosum* | 9 | | | | | | | 9 |
| *Amaranthus brownii* | | | | | | | [1]1 (Nihoa) | [1,8]1 |
| *Argyroxiphium kauense* | | | | | | *[1]8 | | [1,7]8 |
| *Argyroxiphium sandwicense* ssp. *macrocephalum* | | | | | [5]1 | | | [5]1 |
| *Asplenium fragile* var. *insulare* | | | | | *2 | *8 | | 10 |
| *Bidens micrantha* ssp. *kalealaha* | | | | 3 | 7 | | | 10 |
| *Bidens wiebkei* | | | *9 | | | | | 9 |
| *Bonamia menziesii* | 2 | 4 | [2]0 | *1 | 1 | 1 | | 9 |
| *Brighamia insignis* | 9 | | | | | | 1 (Niihau) | 10 |
| *Brighamia rockii* | | | 4 | *3 | 3 | | | 10 |
| *Canavalia molokaiensis* | | | *10 | | | | | 10 |
| *Cenchrus agrimonioides* | | 7 | | *1 | 2 | [2]0 | 0 (NWHI) | 10 |
| *Centaurium sebaeoides* | 4 | 2 | 1 | *1 | 2 | | | 10 |
| *Chamaesyce celastroides* var. *kaenana* | | [1]7 | | | | | | [1]7 |
| *Chamaesyce deppeana* | | [1]2 | | | | | | [1]2 |
| *Chamaesyce halemanui* | 10 | | | | | | | 10 |
| *Chamaesyce herbstii* | | [1]7 | | | | | | [1]7 |
| *Chamaesyce kuwaleana* | | [1]7 | | | | | | [1]7 |
| *Chamaesyce rockii* | | *10 | | | | | | 10 |
| *Clermontia drepanomorpha* | | | | | | [1]6 | | [1]6 |
| *Clermontia lindseyana* | | | | | 2 | 8 | | 10 |
| *Clermontia oblongifolia* ssp. *brevipes* | | | 7 | | | | | 7 |
| *Clermontia oblongifolia* ssp. *mauiensis* | | | | *3 | 7 | | | 10 |
| *Clermontia peleana* | | | | | [2]0 | 10 | | 10 |
| *Clermontia pyrularia* | | | | | | [1]6 | | [1]6 |
| *Clermontia samuelii* | | | | | [1]5 | | | [1]5 |
| *Colubrina oppositifolia* | | 3 | | | 3 | 4 | | 10 |
| *Ctenitis squamigera* | 1 | 1 | 1 | *1 | *5 | [2]0 | | 9 |
| *Cyanea acuminata* | | *10 | | | | | | 10 |
| *Cyanea asarifolia* | 10 | | | | | | | 10 |
| *Cyanea copelandii* ssp. *copelandii*† | | | | | | 0 | | 0 |
| *Cyanea copelandii* ssp. *haleakalaensis* | | | | | 8 | | | 8 |
| *Cyanea crispa* | | *10 | | | | | | 10 |
| *Cyanea dunbarii* | | | 10 | | | | | 10 |
| *Cyanea glabra* | | | | | 10 | | | 10 |
| *Cyanea grimesiana* ssp. *grimesiana* | | *4 | 2 | *2 | | | 10. | |
| *Cyanea grimesiana* ssp. *obatae* | | *8 | | | | | | 8 |
| *Cyanea hamatiflora* ssp. *carlsonii* | | | | | | [1]8 | | [1]8 |
| *Cyanea hamatiflora* ssp. *hamatiflora* | | | | | 8 | | | 8 |
| *Cyanea humboltiana* | | *10 | | | | | | 10 |
| *Cyanea koolauensis* | | *10 | | | | | | 10 |
| *Cyanea lobata* | | | | *3 | 7 | | | 10 |
| *Cyanea longiflora* | | *10 | | | | | | 10 |
| *Cyanea macrostegia* ssp. *gibsonii* | | | | *8 | | | | 8 |
| *Cyanea mannii* | | | *10 | | | | | 10 |
| *Cyanea mceldowneyi* | | | | | [1]5 | | | [1]5 |
| *Cyanea pinnatifida* | | [1]4 | | | | | | [1]4 |
| *Cyanea platyphylla* | | | | | | 9 | | 9 |
| *Cyanea procera* | | | *10 | | | | | 10 |
| *Cyanea recta* | 10 | | | | | | | 10 |
| *Cyanea remyi* | 10 | | | | | | | 10 |
| *Cyanea shipmanii* | | | | | | [1]7 | | [1]7 |
| *Cyanea stictophylla* | | | | | | 10 | | 10 |
| *Cyanea st.-johnii* | | *10 | | | | | | 10 |
| *Cyanea superba* | | 8 | | | | | | 8 |
| *Cyanea truncata* | | 10 | | | | | | 10 |
| *Cyanea undulata* | [1]5 | | | | | | | [1]5 |
| *Cyperus trachysanthos* | 6 | 3 | [2]0 | [2]0 | | | [3]0 (Niihau) | 9 |
| *Cyrtandra crenata* | | 0 | | | | | | 0 |

TABLE 5.—SUMMARY OF ISLAND DISTRIBUTION OF RECOVERY POPULATIONS FOR 255 LISTED HAWAIIAN PLANTS—Continued

| Species | Island Distribution | | | | | | | Totals |
|---|---|---|---|---|---|---|---|---|
| | Kauai | Oahu | Molokai | Lanai | Maui | Hawaii | Niihau Kahoolawe NWHI | |
| *Cyrtandra cyaneoides* | 10 | | | | | | | 10 |
| *Cyrtandra dentata* | | *8 | | | | | | 8 |
| *Cyrtandra giffardii* | | | | | | 10 | | 10 |
| *Cyrtandra limahuliensis* | 10 | | | | | | | 10 |
| *Cyrtandra munroi* | | | | *3 | 7 | | | 10 |
| *Cyrtandra polyantha* | | [1]5 | | | | | | [1]5 |
| *Cyrtandra subumbellata* | | [1]7 | | | | | | [1]7 |
| *Cyrtandra tintinnabula* | | | | | | 9 | | 9 |
| *Cyrtandra viridiflora* | | *8 | | | | | | 8 |
| *Delissea rhytidosperma* | [1]6 | | | | | | | [1]6 |
| *Delissea rivularis* | [1]3 | | | | | | | [1]3 |
| *Delissea subcordata* | | 10 | | | | | | 10 |
| *Delissea undulata* | 3 | | | | [2]0 | *5 | [2]0 (Niihau) | 8 |
| *Diellia erecta* | 1 | 1 | 1 | *1 | 3 | 2 | | 9 |
| *Diellia falcata* | | *10 | | | | | | 10 |
| *Diellia pallida* | [1]3 | | | | | | | [1]3 |
| *Diellia unisora* | | [1]6 | | | | | | [1]6 |
| *Diplazium molokaiense* | 1 | 1 | 1 | *1 | 6 | | | 10 |
| *Dubautia herbstobatae* | | [1]6 | | | | | | [1]6 |
| *Dubautia latifolia* | [1]7 | | | | | | | [1]7 |
| *Dubautia pauciflorula* | [1]4 | | | | | | | [1,6]4 |
| *Dubautia plantaginea* ssp. *humilis* | | | | | [1]6 | | | [1]6 |
| *Eragrostis fosbergii* | | [1]1 | | | | | | [1]1 |
| *Eugenia koolauensis* | | *6 | 2 | | | | | 8 |
| *Euphorbia haeleeleana* | 6 | 4 | | | | | | 10 |
| *Exocarpos luteolus* | 10 | | | | | | | 10 |
| *Flueggea neowawraea* | 4 | *2 | 1 | | *1 | 2 | | 10 |
| *Gahnia lanaiensis* | | | | *8 | | | | 8 |
| *Gardenia mannii* | | *10 | | | | | | 10 |
| *Geranium arboreum* | | | | | [1]7 | | | [1]7 |
| *Geranium multiflorum* | | | | | *8 | | | 8 |
| *Gouania meyenii* | 5 | *5 | | | | | | 10 |
| *Gouania vitifolia* | | 7 | | | 1 | 2 | | 10 |
| *Hedyotis cookiana* | [1]7 | | | | | [2]0 | | [1]7 |
| *Hedyotis coriacea* | | 2 | | | 2 | *6 | | 10 |
| *Hedyotis degeneri* | | 9 | | | | | | 9 |
| *Hedyotis mannii* | | | *4 | *2 | 2 | | | 8 |
| *Hedyotis parvula* | | *9 | | | | | | 9 |
| *Hedyotis schlechtendahliana* var. *remyi* | | | | *8 | | | | 8 |
| *Hedyotis st.-johnii* | [1]7 | | | | | | | [1]7 |
| *Hesperomannia arborescens* | | *6 | 2 | *1 | *2 | | | 11 |
| *Hesperomannia arbuscula* | | 5 | | | 5 | | | 10 |
| *Hesperomannia lydgatei* | [6]5 | | | | | | | [6]5 |
| *Hibiscadelphus giffardianus* | | | | | | [1]1 | | [1]1 |
| *Hibiscadelphus hualalaiensis* | | | | | | 8 | | 8 |
| *Hibiscadelphus woodii* | [1]5 | | | | | | | [1]5 |
| *Hibiscus arnottianus* ssp. *immaculatus* | | | [1]6 | | | | | [1]6 |
| *Hibiscus brackenridgei* | [2]0 | 3 | 1 | *1 | 3 | 1 | [3]0 (Kahoolawe) | 9 |
| *Hibiscus clayi* | [1]6 | | | | | | | [1]6 |
| *Hibiscus waimeae* ssp. *hannerae* | 8 | | | | | | | 8 |
| *Ischaemum byrone* | 3 | | 2 | | 2 | 3 | | 10 |
| *Isodendrion hosakae* | | | | | | 8 | | 8 |
| *Isodendrion laurifolium* | 4 | 6 | | | | | | 10 |
| *Isodendrion longifolium* | 6 | 4 | | | | | | 10 |
| *Isodendrion pyrifolium* | [2]0 | 3 | 1 | *2 | 2 | 0 | [2]0 (Niihau) | 8 |
| *Kanaloa kahoolawensis* | | | | | | | [1]6 (Kahoolawe) | [1]6 |
| *Kokia kauaiensis* | 8 | | | | | | | 8 |
| *Labordia cyrtandrae* | | *10 | | | | | | 10 |
| *Labordia lydgatei* | 6 | | | | | | | [6]6 |
| *Labordia tinifolia* var. *lanaiensis* | | | | *8 | | | | 8 |
| *Labordia tinifolia* var. *wahiawaensis* | [1]4 | | | | | | | [1]4 |
| *Labordia triflora* | | | *8 | | | | | 8 |
| *Lepidium arbuscula* | | *10 | | | | | | 10 |
| *Lipochaeta fauriei* | [1]6 | | | | | | | [1]6 |
| *Lipochaeta kamolensis* | | | | | *[1]6 | | | [1]6 |
| *Lipochaeta lobata* var. *leptophylla* | | 10 | | | | | | 10 |
| *Lipochaeta micrantha* | [1]4 | | | | | | | [1]4 |

TABLE 5.—SUMMARY OF ISLAND DISTRIBUTION OF RECOVERY POPULATIONS FOR 255 LISTED HAWAIIAN PLANTS—Continued

| Species | Island Distribution | | | | | | | Totals |
|---|---|---|---|---|---|---|---|---|
| | Kauai | Oahu | Molokai | Lanai | Maui | Hawaii | Niihau Kahoolawe NWHI | |
| *Lipochaeta tenuifolia* | | *[1] 5 | | | | | | [1] 5 |
| *Lipochaeta waimeaensis* | [1] 1 | | | | | | | [1] 1 |
| *Lobelia gaudichaudii* ssp. *koolauensis* | | *9 | | | | | | 9 |
| *Lobelia monostachya* | | [1] 7 | | | | | | [1] 7 |
| *Lobelia niihauensis* | 7 | *3 | | | | | | 10 |
| *Lobelia oahuensis* | | 10 | | | | | | 10 |
| *Lysimachia filifolia* | 4 | 6 | | | | | | 10 |
| *Lysimachia lydgatei* | | | | | *8 | | | 8 |
| *Lysimachia maxima* | | | 10 | | | | | 10 |
| *Mariscus fauriei* | | | 7 | [2] 0 | | 1 | | 8 |
| *Mariscus pennatiformis* | 3 | 4 | | | 2 | [2] 0 | 1 (NWHI) | 10 |
| *Marsilea villosa* | | 4 | [4] 0 | | | | | [6] 4 |
| *Melicope adscendens* | | | | | *[1] 1 | | | [1] 1 |
| *Melicope balloui* | | | | | *[1] 3 | | | [1] 3 |
| *Melicope haupuensis* | [1] 7 | | | | | | | [1] 7 |
| *Melicope knudsenii* | [1] 5 | | | | *[1] 2 | | | [1] 7 |
| *Melicope lydgatei* | | *10 | | | | | | 10 |
| *Melicope mucronulata* | | | *7 | | *2 | | | 9 |
| *Melicope munroi* | | | [2] 0 | *8 | | | | 8 |
| *Melicope ovalis* | | | | | 3 | | | 3 |
| *Melicope pallida* | 3 | 6 | | | | | | 9 |
| *Melicope reflexa* | | | 8 | | | | | 8 |
| *Melicope quadrangularis* † | 0 | | | | | | 0. | |
| *Melicope saint-johnii* | | [1] 3 | | | | | | [1] 3 |
| *Melicope zahlbruckneri* | | | | | | [1] 3 | | [1] 3 |
| *Munroidendron racemosum* | 10 | | | | | | | 10 |
| *Myrsine juddii* | | *10 | | | | | | 10 |
| *Myrsine linearifolia* | 9 | | | | | | | 9 |
| *Neraudia angulata* | | *10 | | | | | | 10 |
| *Neraudia ovata* | | | | | | *8 | | 8 |
| *Neraudia sericea* † | | | 6 | *1 | 7 | | [2] 0 (Kahoolawe) | 14 |
| *Nothocestrum breviflorum* | | | | | | 9 | | 9 |
| *Nothocestrum peltatum* | 9 | | | | | | | 9 |
| *Nototrichium humile* | | *8 | | | 2 | | | 10 |
| *Ochrosia kilaueaensis* † | | | | | | 0 | | 0 |
| *Panicum niihauense* | [1] 7 | | | | | | | [1] 7 |
| *Peucedanum sandwicense* | 4 | *2 | 3 | | 2 | | | 11 |
| *Phlegmariurus mannii* | [2] 0 | | | | *8 | [2] 0 | | 8 |
| *Phlegmariurus nutans* | 3 | *7 | | | | | | 10 |
| *Phyllostegia glabra var. lanaiensis* † | | | | 0 | | | | 0 |
| *Phyllostegia hirsuta* | | *9 | | | | | | 9 |
| *Phyllostegia kaalaensis* | | 10 | | | | | | 10 |
| *Phyllostegia knudsenii* | [1] 3 | | | | | | | [1] 3 |
| *Phyllostegia mannii* | | | *8 | | 2 | | | 10 |
| *Phyllostegia mollis* | | *4 | *3 | | 3 | | | 10 |
| *Phyllostegia parviflora* | | 9 | | | [2] 0 | [2] 0 | | 9 |
| *Phyllostegia racemosa* | | | | | | *10 | | 10 |
| *Phyllostegia velutina* | | | | | | *10 | | 10 |
| *Phyllostegia waimeae* | [1] 1 | | | | | | | [1] 1 |
| *Phyllostegia warshaueri* | | | | | | 10 | | 10 |
| *Phyllostegia wawrana* | 8 | | | | | | | 8 |
| *Plantago hawaiensis* | | | | | | 10 | | 10 |
| *Plantago princeps* | 4 | 3 | 1 | | 2 | [2] 0 | | 10 |
| *Platanthera holochila* | 4 | 2 | *2 | | 2 | | | 10 |
| *Pleomele hawaiiensis* | | | | | | *10 | | 10 |
| *Poa mannii* | 10 | | | | | | | 10 |
| *Poa sandvicensis* | 7 | | | | | | | 7 |
| *Poa siphonoglossa* | 10 | | | | | | | 10 |
| *Portulaca sclerocarpa* | | | | 1 | | *9 | | 10 |
| *Pritchardia affinis* † | | | | | | 0 | | 0 |
| *Pritchardia aylmer-robinsonii* † | | | | | | | 0 (Niihau) | 0 |
| *Pritchardia kaalae* † | | 0 | | | | | | 0 |
| *Pritchardia munroi* † | | | 0 | | | | | 0 |
| *Pritchardia napaliensis* † | 0 | | | | | | | 0 |
| *Pritchardia remota* | | | | | | | [1] 2 (NWHI) | [1,8] 2 |
| *Pritchardia schattaueri* † | | | | | | 0 | | 0 |
| *Pritchardia viscosa* † | 0 | | | | | | | 0 |

TABLE 5.—SUMMARY OF ISLAND DISTRIBUTION OF RECOVERY POPULATIONS FOR 255 LISTED HAWAIIAN PLANTS—Continued

| Species | Island Distribution | | | | | | | Totals |
|---|---|---|---|---|---|---|---|---|
| | Kauai | Oahu | Molokai | Lanai | Maui | Hawaii | Niihau Kahoolawe NWHI | |
| *Pteralyxia kauaiensis* | 9 | | | | | | | 9 |
| *Pteris lidgatei* | | *4 | 3 | | 3 | | | 10 |
| *Remya kauaiensis* | 10 | | | | | | | 10 |
| *Remya mauiensis* | | | | | *[1]6 | | | [1]6 |
| *Remya montgomeryi* | [1]7 | | | | | | | [1]7 |
| *Sanicula mariversa* | | [1]6 | | | | | | [1]6 |
| *Sanicula purpurea* | | *6 | | | 4 | | | 10 |
| *Schiedea apokremnos* | 9 | | | | | | | 9 |
| *Schiedea haleakalensis* | | | | | [1]2 | | | [1]2 |
| *Schiedea helleri* | [1]7 | | | | | | | [1]7 |
| *Schiedea hookeri* | | *10 | | | [2]0 | | | 10 |
| *Schiedea kaalae* | | 10 | | | | | | 10 |
| *Schiedea kauaiensis* | [1]7 | | | | | | | [1]7 |
| *Schiedea kealiae* | | [1]4 | | | | | | [1]4 |
| *Schiedea lydgatei* | | | 10 | | | | | 10 |
| *Schiedea membranacea* | 7 | | | | | | | 7 |
| *Schiedea nuttallii* | 2 | 6 | 2 | | [2]0 | | | 10 |
| *Schiedea sarmentosa* | | | 10 | | | | | 10 |
| *Schiedea spergulina* var. *leiopoda* | [1]1 | | | | | | | [1]1 |
| *Schiedea spergulina* var. *spergulina* | [1]6 | | | | | | | [1]6 |
| *Schiedea stellarioides* | [1]6 | | | | | | | [1]6 |
| *Schiedea verticillata* | | | | | | | [1]1(NWHI) | [1,8]1 |
| *Sesbania tomentosa* | 2 | 2 | 2 | [3]0 | 2 | 2 | [3]0 (Kahoolawe) 2 (NWHI). | 12 |
| *Sicyos alba* | | | | | | 10 | | 10 |
| *Silene alexandri* | | | *10 | | | | | 10 |
| *Silene hawaiiensis* | | | | | | *10 | | 10 |
| *Silene lanceolata* | 0 | *2 | 2 | 0 | | *6 | | 10 |
| *Silene perlmanii* | | [1]6 | | | | | | [1]6 |
| *Solanum incompletum* | 0 | | 0 | *1 | 0 | *9 | | 10 |
| *Solanum sandwicense* | 6 | *4 | | | | | | 10 |
| *Spermolepis hawaiiensis* | 2 | 2 | 1 | *1 | 2 | *2 | | 10 |
| *Stenogyne bifida* | | | *10 | | | | | 10 |
| *Stenogyne campanulata* | [1]3 | | | | | | | [1]3 |
| *Stenogyne kanehoana* | | *[1]5 | | | | | | [1]5 |
| *Tetramolopium arenarium* | | | | | [2]0 | *[1]7 | | *[1]7 |
| *Tetramolopium capillare* | | | | | [1]6 | | | [1]6 |
| *Tetramolopium filiforme* | | *[1]6 | | | | | | [1]6 |
| *Tetramolopium lepidotum* ssp. *lepidotum* | | 8 | | [2]0 | | | | 8 |
| *Tetramolopium remyi* | | | | *6 | 3 | | | 9 |
| *Tetramolopium rockii* | | | [1]4 | | | | | [1]4 |
| *Tetraplasandra gymnocarpa* | | *9 | | | | | | 9 |
| *Trematolobelia singularis* | | [1]6 | | | | | | [1]6 |
| *Urera kaalae* | | *9 | | | | | | 9 |
| *Vigna o-wahuensis* | 0 | 3 | *1 | *1 | 1 | 4 | [3]0 (Kahoolawe) | 10 |
| *Viola chamissoniana* ssp. *chamissoniana* | | *10 | | | | | | *10 |
| *Viola helenae* | [6]5 | | | | | | | [6]5 |
| *Viola kauaiensis* var. *wahiawaensis* | [1]5 | | | | | | | [1]5 |
| *Viola lanaiensis* | | | | *8 | | | | 8 |
| *Viola oahuensis* | | *10 | | | | | | 10 |
| *Wilkesia hobdyi* | 9 | | | | | | | 9 |
| *Xylosma crenatum* | [1]5 | | | | | | | [1]5 |
| *Zanthoxylum dipetalum* var. *tomentosum* | | | | | | [1]7 | | [1]7 |
| *Zanthoxylum hawaiiense* | 2 | | 1 | 0 | 1 | *6 | | 10 |

* Including on lands excluded under 4(b)(2)).
† Critical habitat not prudent.
[1] We do not believe that sufficient suitable habitat currently exists to reach the recovery goal of 8 to 10 populations.
[2] We are unable to identify any habitat essential to its conservation on the island.
[3] Habitat not essential to the conservation of the species.
[4] We plan to publish a separate rule to designate critical habitat for the species.
[5] Only one population of greater than 50,000 mature individuals is required for recovery of this species.
[6] Five to six populations required for recovery.
[7] At least 10 populations of 2,000 individuals are required for recovery of this species.
[8] At least five populations on Nihoa and one to three additional populations on another island.

This table includes the following information: (1) The number of populations on each island we believe the designated critical habitat or other habitat essential for the conservation of the species can provide for; (2) the species for which we are unable to identify any habitat essential to their conservation (*e.g., Adenophorus periens* on Maui); (3) the species for which sufficient habitat essential to their conservation is not available for at least eight populations (*e.g., Alsinidendron obovatum* on the island of Oahu); the species for which we determined the designation of critical habitat is not prudent (*e.g., Pritchardia kaalae*); proposed critical habitat identified as not essential during the public comment periods and removed from final designation (*e.g.,* proposed critical habitat for *Sesbania tomentosa* on Kahoolawe); the species for which the general recovery goal of 8 to 10 populations does not apply (*e.g., Hesperomannia lydgatei*); and the species whose population recovery goals include habitat that has been excluded from critical habitat designation under section 4(b)(2) of the Act.

**Required Determinations**

*Regulatory Planning and Review*

In accordance with Executive Order 12866, the Office of Management and Budget (OMB) has determined that this critical habitat designation is not a significant regulatory action. This rule will not have an annual economic effect of $100 million or more or adversely affect any economic sector, productivity, competition, jobs, the environment, or other units of government. This designation will not create inconsistencies with other agencies' actions or otherwise interfere with an action taken or planned by another agency. It will not materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients. Finally, this designation will not raise novel legal or policy issues. Accordingly, OMB has not formally reviewed this final critical habitat designation.

*Regulatory Flexibility Act (5 U.S.C. 601 et seq.)*

Under the Regulatory Flexibility Act (RFA) (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (*i.e.*, small businesses, small organizations, and small governmental jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the RFA to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities.

Based on the information in our economic analysis (draft economic analysis and addendum), we are certifying that the critical habitat designation for 41 island of Hawaii plant species will not have a significant effect on a substantial number of small entities because a substantial number of small entities are not affected by the designation.

SBREFA does not explicitly define either ''substantial number'' or ''significant economic impact.'' Consequently, to assess whether a ''substantial number'' of small entities is affected by this designation, this analysis considers the relative number of small entities likely to be impacted in the area. Similarly, this analysis considers the relative cost of compliance on the revenues/profit margins of small entities in determining whether or not entities incur a ''significant economic impact.'' Only small entities that are expected to be directly affected by the designation are considered in this portion of the analysis. This approach is consistent with several judicial opinions related to the scope of the RFA (*Mid-Tex Electric Co-Op, Inc.* v. *F.E.R.C.* and *America Trucking Associations, Inc.* v. *EPA*.)

Small entities include small organizations, such as independent nonprofit organizations, and small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents, as well as small businesses. By this definition, Federal and State governments and Hawaii County are not a small governmental jurisdictions because its population was 148,677 in 2000.

SBREFA further defines ''small organization'' as any not-for-profit enterprise that is independently owned and operated and is not dominant in its field. TNCH is a large organization that is dominant in the conservation and land management field on the Big Island. Thus, according to RFA/SBREFA definitions, TNCH is not likely to be considered a small organization. Kamehameha Schools is the largest charitable trust in Hawaii, as well as the State's largest private landowner; it also has a substantial investment in securities and owns real estate in other states. In 2001, Kamehameha Schools had over $1 billion in revenues, gains, and other support (Kamehameha Schools 2001). Thus, it is not likely to be considered a small organization.

To determine if the rule would affect a substantial number of small private entities, we consider the number of small entities affected within particular types of economic activities (*e.g.,* housing development, grazing, oil and gas production, timber harvesting) in this particular area/market affected by the regulation. We apply the ''substantial number'' test individually to each industry to determine if certification is appropriate. In estimating the numbers of small entities potentially affected, we also consider whether their activities have any Federal involvement. Some kinds of activities are unlikely to have any Federal involvement, and so will not be affected by critical habitat designation.

The primary projects and activities by private entities that might be directly affected by the designation that could affect small entities include farming and ranching operations and lending institutions. Based on our draft economic analysis and addendum, there were 1,400 diversified farmers and 470 ranchers in Hawaii County in 2000. The 2000 average annual sales for diversified farmers on the island of Hawaii were $59,600 per farmer, and the average annual sales for ranchers were $30,100 per rancher (DBEDT 2002). Since $8,700 is 15 percent of the average annual sales for a diversified farmer and 29 percent of the average annual sales for a rancher, it is assumed that critical habitat will have a significant economic impact (*i.e.*, 3 percent or more of a business's annual sales) on the farmers or ranchers. However, there are 1,400 diversified farmers and 470 ranchers on the island of Hawaii. Based on the annual sales figures, we can define most of these farmers and ranchers as small businesses (*i.e.*, less than $750,000 in annual sales). Five farmers or ranchers represent 0.3 percent of the number of diversified farmers and 1 percent of the number of ranchers on the island of Hawaii. This does not equal a substantial number of the small businesses in either the diversified farming or ranching industries.

Our economic analysis also found there are between two and three small lending institutions on the island of Hawaii that may be involved in section 7 consultations regarding HUD loan programs. Participation in the consultation was estimated to cost $1,400, and conducting the biological survey was estimated to cost $3,900, so the total impact was estimated to be $5,300 per lending institution. The average annual revenues for the two to three small lending institutions is unknown. If they each earn less than $176,700 in annual sales ($5,300 divided by 3 percent), the economic impact attributable to critical habitat would be a significant economic impact to the lending institutions (*i.e.*, greater than 3 percent of annual sales). There are currently 26 mortgage lending institutions on the island of Hawaii. Of these, 23 meet the SBA definition of a small business (*i.e.*, less that $6 million in annual sales) (Dun & Bradstreet 2002). Two to three lending institutions out of 23 (9 to 13 percent) will potentially be subject to a significant economic impact. This does not equal a substantial number of the small lending institutions on the island of Hawaii.

The actual impacts of the final rule may even be smaller. These estimates were based on the proposed designations. However, this final rule designates 92,737 ha (229,147 ac) less than had been proposed, or a 52 percent reduction.

These conclusions are supported by the history of consultations on the island of Hawaii. Since these 41 plant species were listed (between 1991 and 1996), we have conducted 21 informal consultations and only two formal consultations on the island of Hawaii, 11 of which concerned PTA, in addition to consultations on Federal grants to State wildlife programs, which also do not affect small entities. The 21 informal consultations have concerned 10 of the 41 species (*Asplenium fragile* var. *insulare, Mariscus fauriei, Neraudia ovata, Nothocestrum breviflorum, Plantago hawaiensis, Pleomele hawaiiensis, Portulaca sclerocarpa, Sesbania tomentosa, Silene hawaiiensis,* and *Solanum incompletum*).

One of the two formal consultations involving the 41 species was conducted with the Army regarding the addition of two firing lanes to Range 8 at PTA. *Silene hawaiiensis,* one of the 41 species, was the only listed species addressed in the biological opinion, which concluded that with implementation of the preferred alternative and accompanying mitigation procedures, the project was not likely to jeopardize the continued existence of the species. The other formal consultation was with the Federal Highway Administration (FHWA) on realignment of and improvements to Saddle Road. *Silene hawaiiensis* and the palila (or honeycreeper, *Loxioides bailleui*), a listed bird, were the two species addressed in the biological opinion, which concluded that with the conservation and mitigation measures built into the project by FHWA, the project was not likely to jeopardize the continued existence of the two species and was not likely to adversely modify critical habitat for the palila. Neither of the two formal consultations directly affected or concerned small entities. In both consultations, we concluded that the preferred alternative for the project, with accompanying conservation and mitigation procedures, was not likely to jeopardize the continued existence of the species. The only ongoing project is the Saddle Road realignment, which does not directly affect small entities. Neither of these formal consultations directly affected or concerned small entities, nor does the ongoing project directly affect small entities. As a result, the requirement to reinitiate consultation for ongoing projects will not affect a substantial number of small entities on the island of Hawaii.

Three of the 21 informal consultations that have been conducted on the island of Hawaii concern the National Park Service's Hawaii Volcanoes National Park: One on fence construction for the purpose of excluding ungulates and regarding three of the 41 species (*Asplenium fragile* var. *insulare, Plantago hawaiensis,* and *Silene hawaiiensis*) as well as 1 listed bird and 2 listed plants not included in the 41 species in today's rule; 1 on use of the Marsokhod planetary rover at Kilauea Volcano's summit regarding *Silene hawaiiensis;* and 1 on outplanting food plants for the endangered Hawaiian nene goose regarding *Sesbania tomentosa* and 2 listed birds. Four informal consultations were conducted with the Army Corps of Engineers (ACOE): 1 for the Defense Environmental Restoration Program on removal of unexploded ordnance from the former Waikoloa Maneuver Area regarding *Portulaca sclerocarpa;* 1 on the Alenaio Stream flood control project in Hilo regarding *Asplenium fragile* var. *insulare* as well as several listed birds and a listed plant not included in today's rule; 1 for the Multi-Purpose Range Complex at PTA regarding *Asplenium fragile* var. *insulare, Hedyotis coriacea, Silene hawaiiensis, Silene lanceolata,* and 1 listed plant not in today's rule; and 1 consultation for the Endangered Species Management Plan for PTA regarding 8 of the 41 species (*Asplenium fragile* var. *insulare, Hedyotis coriacea, Portulaca sclerocarpa, Silene hawaiiensis, Silene lanceolata, Solanum incompletum, Tetramolopium arenarium,* and *Zanthoxylum hawaiiense*) and 3 listed plants not in today's rule. Eleven informal consultations were conducted with the Army concerning PTA: 3 on archery hunts regarding *Silene hawaiiensis* and 3 listed plants not in today's rule; 1 on a grenade machine gun range regarding *Asplenium fragile* var. *insulare* and *Silene hawaiiensis;* 1 on a quarry rock crusher regarding *Silene hawaiiensis* and a listed plant not in today's rule; 1 on the proposed acquisition of a Parker Ranch parcel regarding *Silene lanceolata* and a listed plant not in today's rule; 1 on military training regarding *Hedyotis coriacea, Portulaca sclerocarpa, Silene hawaiiensis, Silene lanceolata, Tetramolopium arenarium,* and *Zanthoxylum hawaiiense;* 2 on threats to rare plants from feral ungulates regarding 8 of the 41 species (*Asplenium fragile* var. *insulare, Hedyotis coriacea, Portulaca sclerocarpa, Silene hawaiiensis, Silene lanceolata, Solanum incompletum, Tetramolopium arenarium, and Zanthoxylum hawaiiense*) as well as 3 listed plants not in today's rule; 1 on the Ecosystem Management Plan regarding 9 of the 41 species (*Asplenium fragile* var. *insulare, Hedyotis coriacea, Neraudia ovata, Portulaca sclerocarpa, Silene hawaiiensis, Silene lanceolata, Solanum incompletum, Tetramolopium arenarium,* and *Zanthoxylum hawaiiense*) as well as the listed Hawaiian hoary bat and 2 listed plants not in today's rule; and 1 consultation concerning PTA's Ecosystem Management Plan, Endangered Species Management Plan, and Fire Management Plan regarding the same 9 species, bat, and 2 listed plants referred to just above. Two informal consultations were conducted with the FHWA on Kealakehe Parkway construction regarding 3 of the 41 species (*Mariscus fauriei, Nothocestrum breviflorum,* and *Pleomele hawaiiensis*) as well as 1 listed plant not included in the 41 species in today's rule, and *Pritchardia affinis,* for which we determine that the designation of critical habitat is not prudent in today's rule.

None of these informal consultations directly affected or concerned small entities. In all 21 informal consultations, we concurred with each agency's determination that the project, as proposed or modified, was not likely to adversely affect listed species. The only ongoing projects are Kealakehe Parkway and those concerning military training and management plans at PTA, which do not directly affect small entities. None of these consultations directly affected or concerned small entities, and none of the ongoing projects directly affect small entities. As a result, the requirement to reinitiate consultation for ongoing projects will not affect a substantial number of small entities on the island of Hawaii.

Even where the requirements of section 7 might apply due to critical habitat, based on our experience with section 7 consultations for all listed species, virtually all projects—including those that, in their initial proposed form, would result in jeopardy or adverse modification determinations under section 7—can be implemented successfully with, at most, the adoption of reasonable and prudent alternatives. These measures by definition must be economically feasible and within the scope of authority of the Federal agency involved in the consultation.

For these reasons, we are certifying that the designation of critical habitat for *Achyranthes mutica, Adenophorus periens, Argyroxiphium kauense, Asplenium fragile* var. *insulare, Bonamia menziesii, Clermontia drepanomorpha, Clermontia lindseyana, Clermontia peleana, Clermontia pyrularia, Colubrina oppositifolia, Cyanea hamatiflora* ssp. *carlsonii, Cyanea platyphylla, Cyanea shipmanii, Cyanea stictophylla, Cyrtandra giffardii, Cyrtandra tintinnabula, Delissea undulata, Diellia erecta, Flueggea neowawraea, Gouania vitifolia, Hibiscadelphus giffardianus, Hibiscadelphus hualalaiensis, Hibiscus brackenridgei, Ischaemum byrone, Isodendrion hosakae, Mariscus fauriei, Melicope zahlbruckneri, Neraudia ovata, Nothocestrum breviflorum, Phyllostegia racemosa, Phyllostegia velutina, Phyllostegia warshaueri, Plantago hawaiensis, Pleomele hawaiiensis, Portulaca sclerocarpa, Sesbania tomentosa, Sicyos alba, Silene hawaiiensis, Solanum incompletum, Vigna o-wahuensis,* and *Zanthoxylum dipetalum* ssp. *tomentosum* will not have a significant economic impact on a substantial number of small entities. Therefore, a regulatory flexibility analysis is not required.

*Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 804(2))*

Under the Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 801 *et seq.*), this rule is not a major rule. Our detailed assessment of the economic effects of this designation are described in the draft economic analysis and the final addendum to the economic analysis. Based on the effects identified in these documents, we believe that this rule will not have an annual effect on the economy of $100 million or more; will not cause a major increase in costs or prices for consumers, and will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises. Refer to the final addendum to the economic analysis for a discussion of the effects of this determination.

*Executive Order 13211*

On May 18, 2001, the President issued Executive Order 13211, on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. Although this rule is a significant regulatory action under Executive Order 12866, it is not expected to significantly affect energy production supply and distribution facilities because no significant energy production, supply, and distribution facilities are included within designated critical habitat. Further, for the reasons described in the economic analysis, we do not believe that designation of critical habitat for the 41 species on the island of Hawaii will affect future energy production. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

*Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)*

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*):

(a) This rule will not ‘‘significantly or uniquely’’ affect small governments. A small Government Agency Plan is not required. Small governments will not be affected unless they propose an action requiring Federal funds, permits, or other authorizations. Any such activities will require that the Federal agency ensure that the action will not adversely modify or destroy designated critical habitat.

(b) This rule will not produce a Federal mandate on State or local governments or the private sector of $100 million or greater in any year; that is, it is not a ‘‘significant regulatory action’’ under the Unfunded Mandates Reform Act. The designation of critical habitat imposes no obligations on State or local governments.

*Takings*

In accordance with Executive Order 12630 (‘‘Government Actions and Interference with Constitutionally Protected Private Property Rights’’), we have analyzed the potential takings implications of designating critical habitat for the 41 species from the island of Hawaii in a takings implications assessment. The takings implications assessment concludes that this final rule does not pose significant takings implications.

*Federalism*

In accordance with Executive Order 13132, this final rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with Department of Interior policy, we requested information from appropriate State agencies in Hawaii. This rule imposes no regulatory requirements unless an agency is seeking Federal funding or authorization, so it does not have Federal implications. In addition, this rule will not have substantial direct compliance costs because many of the planned projects that could affect critical habitat have no Federal involvement.

The designations may have some benefit to these governments, in that the areas essential to the conservation of these species are more clearly defined, and the primary constituent elements of the habitat necessary to the survival of the species are specifically identified. While this definition and identification do not alter where and what federally sponsored activities may occur, they may assist these local governments in long-range planning, rather than waiting for case-by-case section 7 consultation to occur.

*Civil Justice Reform*

In accordance with Executive Order 12988, the Department of the Interior’s Office of the Solicitor has determined that this rule does not unduly burden the judicial system and does meet the requirements of sections 3(a) and 3(b)(2) of the Order. We have designated critical habitat in accordance with the provisions of the Endangered Species Act. The rule uses standard property descriptions and identifies the primary constituent elements within the designated areas to assist the public in understanding the habitat needs of the 41 plant species from the island of Hawaii.

*Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)*

This rule does not contain any information collection requirements for which OMB approval under the Paperwork Reduction Act is required. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number.

*National Environmental Policy Act*

We have determined that we do not need to prepare an Environmental Assessment and/or an Environmental Impact Statement as defined by the National Environmental Policy Act of 1969 in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act. We published a notice outlining our reason for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This determination does not constitute a major Federal action significantly affecting the quality of the human environment.

*Government-to-Government Relationship With Tribes*

In accordance with the President's memorandum of April 29, 1994, ''Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951) Executive Order 13175 and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. We have determined that there are no Tribal lands essential for the conservation of these 41 plant species. Therefore, designation of critical habitat for these 41 species does not involve any Tribal lands.

*References Cited*

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

*Authors*

The primary authors of this final rule are staff of the Pacific Islands Fish and Wildlife Office (see **ADDRESSES** section).

**List of Subjects in 50 CFR Part 17**

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

**Regulation Promulgation**

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

## PART 17—[AMENDED]

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

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

■ 2. Amend § 17.12(h), the List of Endangered and Threatened Plants, as set forth below:

■ a. Under the table's heading FLOWERING PLANTS, by revising the entries for *Achyranthes mutica, Argyroxiphium kauense, Bonamia menziesii, Clermontia drepanomorpha, Clermontia lindseyana, Clermontia peleana, Clermontia pyrularia, Colubrina oppositifolia, Cyanea hamatiflora* ssp. *carlsonii, Cyanea platyphylla, Cyanea shipmanii, Cyanea stictophylla, Cyrtandra giffardii, Cyrtandra tintinnabula, Delissea undulata, Flueggea neowawraea, Gouania vitifolia, Hibiscadelphus giffardianus, Hibiscadelphus hualalaiensis, Hibiscus brackenridgei, Ischaemum byrone, Isodendrion hosakae, Mariscus fauriei, Melicope zahlbruckneri, Neraudia ovata, Nothocestrum breviflorum, Phyllostegia racemosa, Phyllostegia velutina, Phyllostegia warshaueri, Plantago hawaiensis, Pleomele hawaiiensis, Portulaca sclerocarpa, Sesbania tomentosa, Sicyos alba, Silene hawaiiensis, Solanum incompletum, Vigna o-wahuensis,* and *Zanthoxylum dipetalum* ssp. *tomentosum* to read as follows; and

■ b. Under the table's heading FERNS AND ALLIES, by revising the entries for *Adenophorus periens, Asplenium fragile* var. *insulare,* and *Diellia erecta* to read as follows.

### § 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

| Species | | Historic range | Family | Status | When listed | Critical habitat | Special rules |
|---|---|---|---|---|---|---|---|
| Scientific name | Common name | | | | | | |
| FLOWERING PLANTS | | | | | | | |
| * | * | * | * | * | | * | * |
| *Achyranthes mutica.* | None | U.S.A (HI) | Amaranthaceae | E | 592 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Argyroxiphium kauense.* | Mauna Loa silversword. | U.S.A. (HI) | Asteraceae | E | 497 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Bonamia menziesii.* | None | U.S.A. (HI) | Convolvulaceae | E | 559 | 17.99(a)(1), (e)(1), (i), and (k). | NA |
| * | * | * | * | * | | * | * |
| *Clermontia drepanomorpha.* | Oha wai | U.S.A. (HI) | Campanulaceae | E | 595 | 17.99(k) | NA |
| *Clermontia lindseyana.* | Oha wai | U.S.A. (HI) | Campanulaceae | E | 532 | 17.99(e)(1) and (k). | NA |
| * | * | * | * | * | | * | * |
| *Clermontia peleana.* | Oha wai | U.S.A. (HI) | Campanulaceae | E | 532 | 17.99(k) | NA |
| *Clermontia pyrularia.* | Oha wai | U.S.A. (HI) | Campanulaceae | E | 532 | 17.99(k) | NA |

| Species | | Historic range | Family | Status | When listed | Critical habitat | Special rules |
|---|---|---|---|---|---|---|---|
| Scientific name | Common name | | | | | | |
| * | * | * | * | * | | * | * |
| *Colubrina oppositifolia*. | Kauila | U.S.A. (HI) | Rhamnaceae | E | 532 | 17.99(e)(1), (i), and (k). | NA |
| * | * | * | * | * | | * | * |
| *Cyanea hamatiflora* ssp. *carlsonii*. | Haha | U.S.A. (HI) | Campanulaceae | E | 532 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Cyanea platyphylla*. | Haha | U.S.A. (HI) | Campanulaceae | E | 595 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Cyanea shipmanii* | Haha | U.S.A. (HI) | Campanulaceae | E | 532 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Cyanea stictophylla*. | Haha | U.S.A. (HI) | Campanulaceae | E | 532 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Cyrtandra giffardii* | Haiwale | U.S.A. (HI) | Gesneriaceae | E | 532 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Cyrtandra tintinnabula*. | Haiwale | U.S.A. (HI) | Gesneriaceae | E | 532 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Delissea undulata* | None | U.S.A. (HI) | Campanulaceae | E | 593 | 17.99(a)(1) and (k). | NA |
| * | * | * | * | * | | * | * |
| *Flueggea neowawraea*. | Mehamehame | U.S.A. (HI) | Euphorbiaceae | E | 559 | 17.99(a)(1), (c), (e)(1), (i) and (k). | NA |
| * | * | * | * | * | | * | * |
| *Gouania vitifolia* | None | U.S.A. (HI) | Rhamnaceae | E | 541 | 17.99(e)(1), and (k). | NA |
| * | * | * | * | * | | * | * |
| *Hibiscadelphus giffardianus*. | Hau kuahiwi | U.S.A. (HI) | Malvaceae | E | 595 | 17.99(k) | NA |
| *Hibiscadelphus hualalaiensis*. | Hau kuahiwi | U.S.A. (HI) | Malvaceae | E | 595 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Hibiscus brackenridgei*. | Mao hau hele | U.S.A. (HI) | Malvaceae | E | 559 | 17.99(c), (e)(1), (i), and (k). | NA |
| * | * | * | * | * | | * | * |
| *Ischaemum byrone*. | Hilo ischaemum | U.S.A. (HI) | Poaceae | E | 532 | 17.99(a)(1), (c), (e)(1), and (k). | NA |
| *Isodendrion hosakae*. | Aupaka | U.S.A (HI) | Violaceae | T | 414 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Mariscus fauriei* | None | U.S.A (HI) | Cyperaceae | E | 532 | 17.99(c) and (k) | NA |
| * | * | * | * | * | | * | * |
| *Melicope zahlbruckneri*. | Alani | U.S.A (HI) | Rutaceae | E | 595 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Neraudia ovata* | None | U.S.A (HI) | Urticaceae | E | 595 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Nothocestrum breviflorum*. | Aiea | U.S.A (HI) | Solanaceae | E | 532 | 17.99(k) | NA |

| Species | | Historic range | Family | Status | When listed | Critical habitat | Special rules |
|---|---|---|---|---|---|---|---|
| Scientific name | Common name | | | | | | |
| * | * | * | * | * | | * | * |
| *Phyllostegia racemosa*. | Kiponapona | U.S.A (HI) | Lamiaceae | E | 595 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Phyllostegia velutina*. | None | U.S.A (HI) | Lamiaceae | E | 595 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Phyllostegia warshaueri*. | None | U.S.A (HI) | Lamiaceae | E | 595 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Plantago hawaienis*. | Laukahi kuahiwi | U.S.A (HI) | Plantaginaceae | E | 532 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Pleomele hawaiiensis*. | Hala pepe | U.S.A (HI) | Liliaceae | E | 595 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Portulaca sclerocarpa*. | Poe | U.S.A (HI) | Portulacaceae | E | 532 | 17.96(b) and 17.99(k). | NA |
| * | * | * | * | * | | * | * |
| *Sesbania tomentosa*. | Ohai | U.S.A (HI) | Fabaceae | E | 559 | 17.99(a)(1), (c), (e)(1), (g), (i), and (k). | NA |
| * | * | * | * | * | | * | * |
| *Sicyos alba* | Anunu | U.S.A (HI) | Cucurbitaceae | E | 595 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Silene hawaiiensis* | None | U.S.A (HI) | Caryophyllaceae | T | 532 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Solanum incompletum*. | Popolo ku mai | U.S.A (HI) | Solanaceae | E | 559 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| *Vigna o-wahuensis*. | None | U.S.A (HI) | Fabaceae | E | 559 | 17.99(e)(1), (i), and (k). | NA |
| * | * | * | * | * | | * | * |
| *Zanthoxylum dipetalum* var. tomentosum. | Ae | U.S.A (HI) | Rutaceae | E | 595 | 17.99(k) | NA |
| * | * | * | * | * | | * | * |
| FERNS AND ALLIES | | | | | | | |
| *Adenophorus periens*. | Pendent kihi fern | U.S.A (HI) | Grammitidaceae | E | 559 | 17.99(a)(1), (c), (i), and (k). | NA |
| * | * | * | * | * | | * | * |
| *Asplenium fragile* var. insulare. | None | U.S.A (HI) | Aspleniaceae | E | 553 | 17.99(e)(1) and (k). | NA |
| * | * | * | * | * | | * | * |
| *Diellia erecta* | Asplenium-leaved diellia. | U.S.A (HI) | Aspleniaceae | E | 559 | 17.99(a)(1), (c), (e)(1), (i), and (k). | NA |
| * | * | * | * | * | | * | * |

■ 3. Amend § 17.99 as set forth below:

■ a. By revising the section heading to read as follows; and

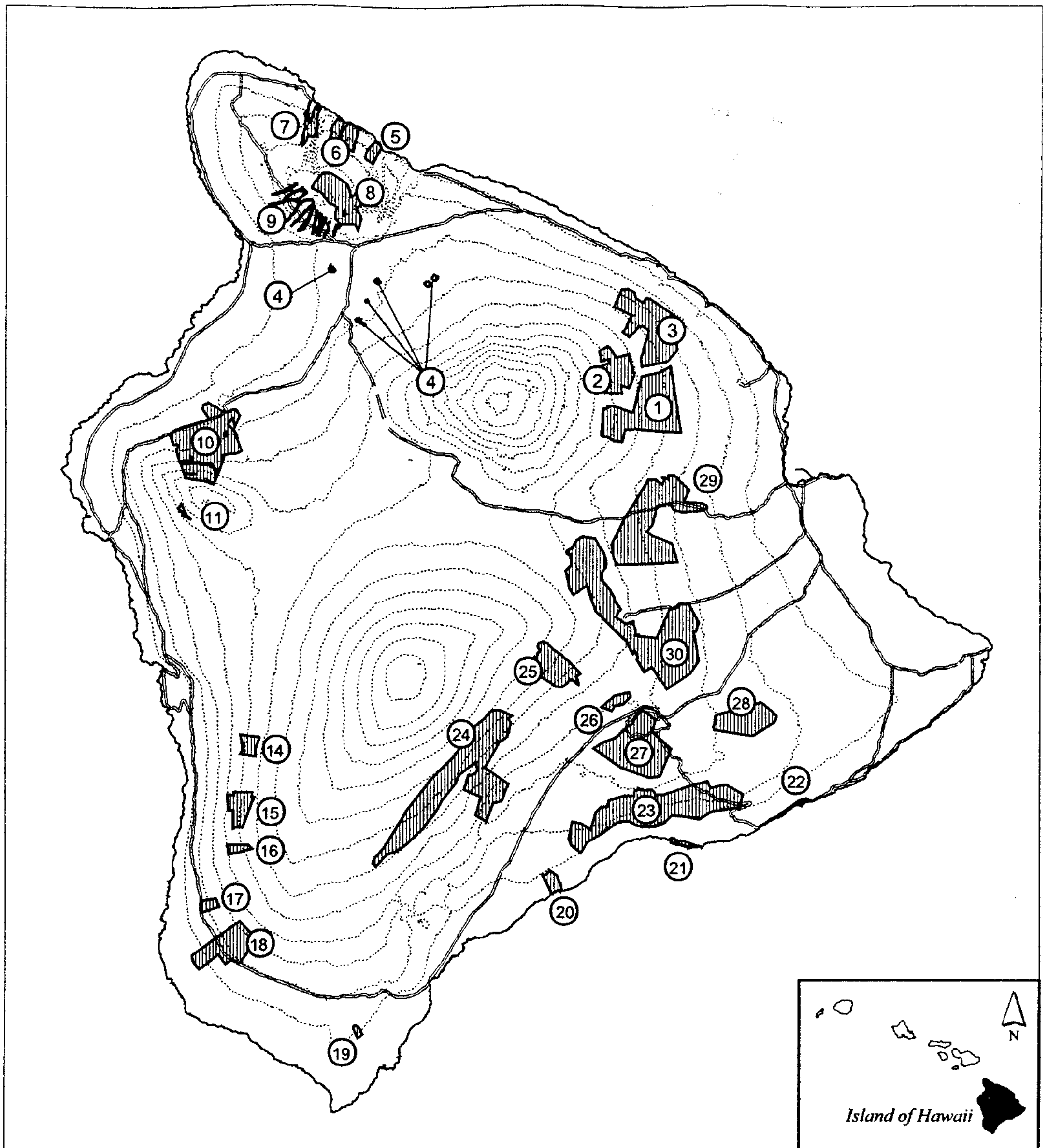
■ b. By adding new paragraphs (k) and (l) to read as follows.

**§ 17.99 Critical habitat; plants on the islands of Kauai, Niihau, Molokai, Maui, Kahoolawe, Oahu, and Hawaii, HI, and on the Northwestern Hawaiian Islands.**

(k) *Maps and critical habitat unit descriptions for the island of Hawaii, HI.* The following sections contain the legal descriptions of the critical habitat units designated for the island of Hawaii. Existing manmade features and structures within the boundaries of the mapped unit, such as buildings, roads, aqueducts and other water system features (including but not limited to pumping stations, irrigation ditches, pipelines, siphons, tunnels, water tanks, gaging stations, intakes, reservoirs, diversions, flumes, and wells; existing trails), campgrounds and their immediate surrounding landscaped area, scenic lookouts, remote helicopter landing sites, existing fences, telecommunications towers and associated structures and equipment, electrical power transmission lines and distribution and communication facilities and regularly maintained associated rights-of-way and access ways, radars, telemetry antennas, missile launch sites, arboreta and gardens, heiau (indigenous places of worship or shrines) and other archaeological sites, airports, other paved areas, and lawns and other rural residential landscaped areas do not contain the primary constituent elements described for each species in paragraph (l) of this section and therefore are not included in the critical habitat designations. Coordinates are in UTM Zone 5 with units in meters using North American Datum of 1983 (NAD83). The following map shows the general locations of the 99 critical habitat units designated on the island of Hawaii.

(1) **Note:** Map 1—Index map follows:

BILLING CODE 4310–55–P




**Map 1**
**Big Island Final Critical Habitat - Island Index Map**

Final Big Island Critical Habitat Unit

Major Roads

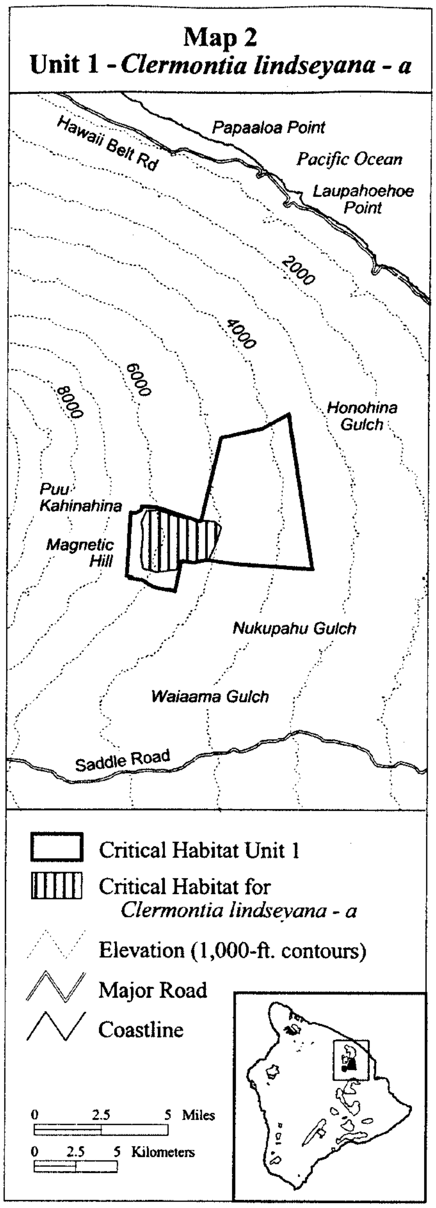
Coastline

Elevation (500-ft. contours)

(2) Hawaii 1—*Clermontia lindseyana*—a (1,337 ha, 3,303 ac)

(i) Unit consists of the following 18 boundary points: Start at 259287, 2189980; 258514, 2190124; 258227, 2189531; 257076, 2189405; 256231, 2189611; 256096, 2190304; 256159, 2190978; 256258, 2191715; 256132, 2192452; 256438, 2193135; 257202, 2193171; 258074, 2192865; 259566, 2192515; 260015, 2192551; 260564, 2192488; 260937, 2192137; 260600, 2191095; 260195, 2190187; return to starting point.

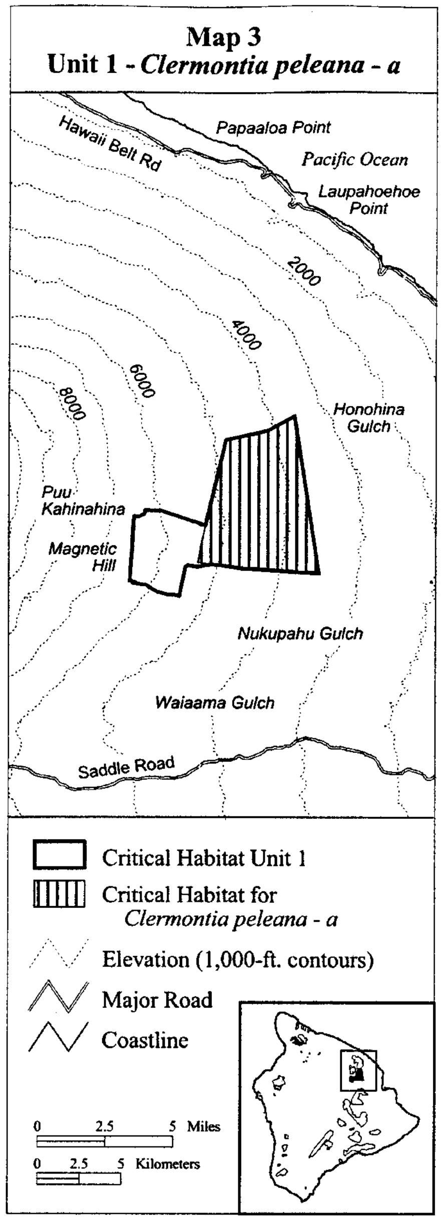
(ii) **Note:** Map 2 follows:




(3) Hawaii 1—*Clermontia peleana*—a (4,704 ha, 11,624 ac)

(i) Unit consists of the following seven boundary points: Start at 261799, 2189905; 259290, 2190265; 259437, 2191186; 260905, 2197592; 263380, 2198183; 264962, 2199047; 266443, 2189598; return to starting point.

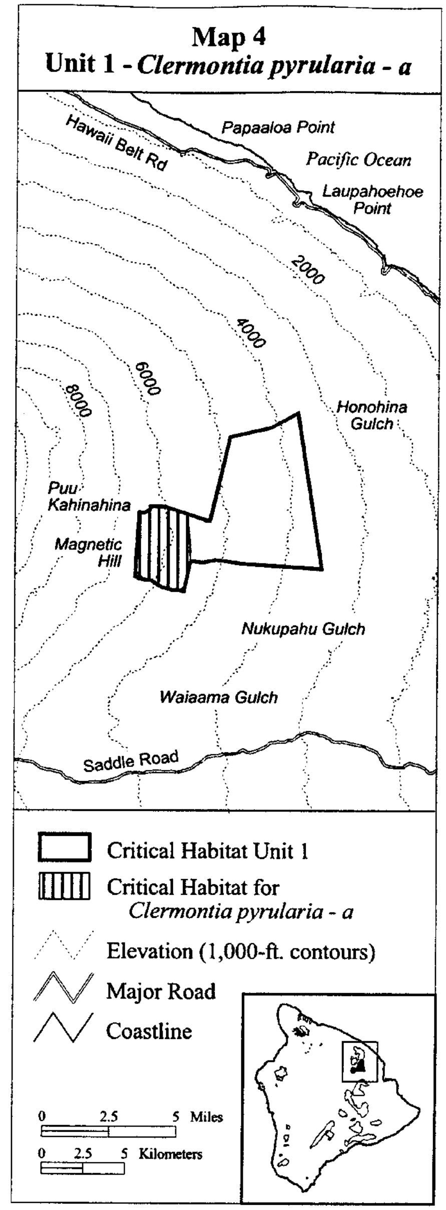
(ii) **Note:** Map 3 follows:




(4) Hawaii 1—*Clermontia pyrularia*—a (1,378 ha, 3,405 ac)

(i) Unit consists of the following 21 boundary points: Start at 258551, 2191038; 258529, 2189991; 258210, 2188565; 257890, 2188331; 257487, 2188365; 256896, 2188490; 256215, 2188925; 255931, 2188918; 255675, 2189060; 255456, 2189333; 255283, 2189470; 255306, 2189929; 255346, 2190140; 255408, 2190618; 255387, 2191557; 255496, 2193031; 255782, 2193009; 256122, 2193173; 256270, 2193339; 257054, 2193360; 258360, 2192915; return to starting point.

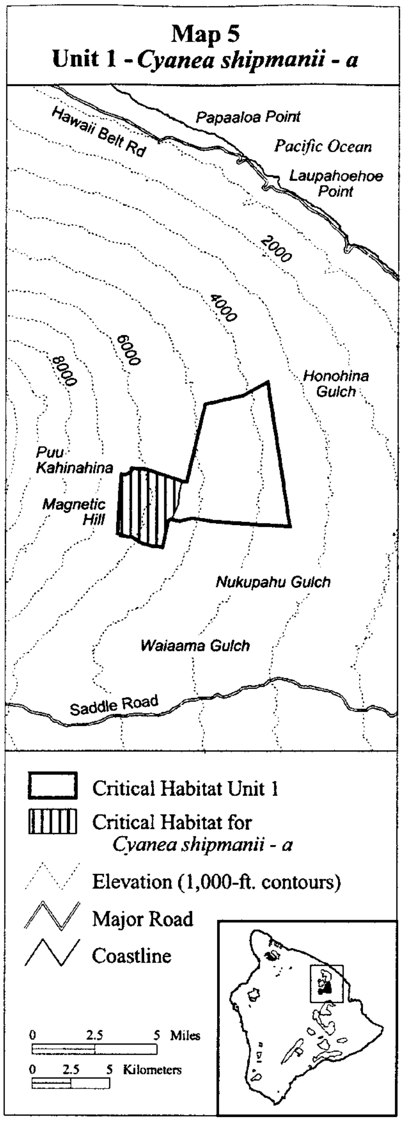
(ii) **Note:** Map 4 follows:




(5) Hawaii 1—*Cyanea shipmanii*—a (1,577 ha, 3,898 ac)

(i) Unit consists of the following 15 boundary points: Start at 258782, 2190167; 258548, 2189979; 258183, 2188260; 257434, 2188452; 256928, 2188480; 256188, 2188929; 255258, 2189156; 255505, 2193009; 255781, 2192991; 256152, 2193174; 256156, 2193377; 257053, 2193355; 259425, 2192593; 259263, 2191816; 259174, 2191010; return to starting point.

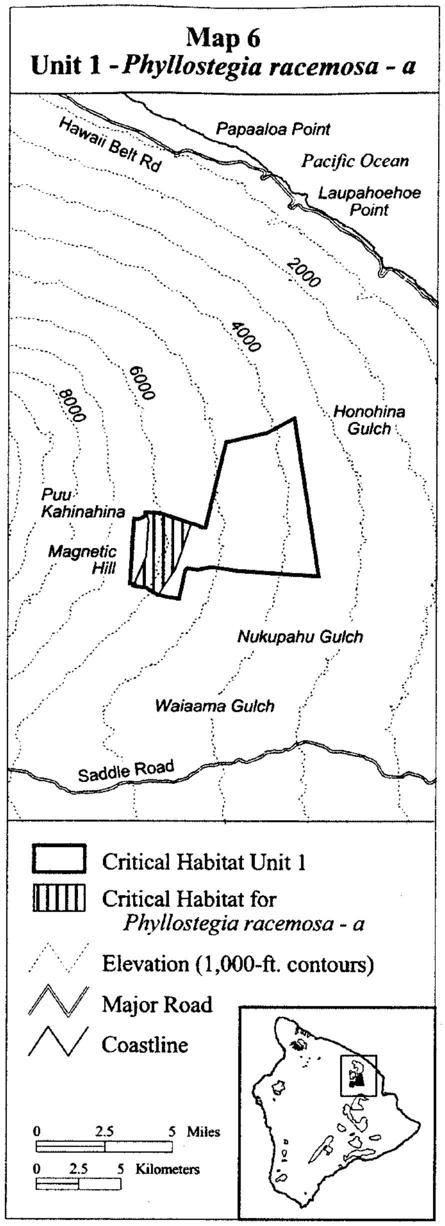
(ii) **Note:** Map 5 follows:




(6) Hawaii 1—*Phyllostegia racemosa*—a (938 ha, 2,317 ac)

(i) Unit consists of the following 14 boundary points: Start at 258101, 2190453; 257892, 2189913; 256913, 2188486; 256656, 2188640; 256222, 2188920; 255488, 2189023; 255638, 2189438; 256199, 2190746; 256201, 2190776; 256355, 2192927; 256193, 2193388; 257046, 2193366; 258868, 2192771; 258286, 2190933; return to starting point.

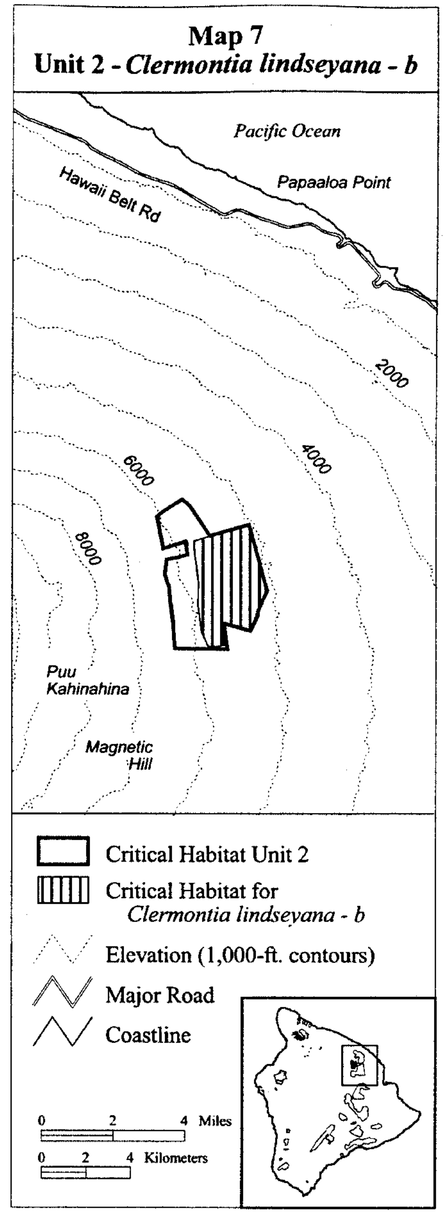
(ii) **Note:** Map 6 follows:




(7) Hawaii 2—*Clermontia lindseyana*—b (1,262 ha, 3,119 ac)

(i) Unit consists of the following 11 boundary points: Start at 257292, 2195256; 256959, 2195939; 256806, 2197162; 256815, 2198142; 256627, 2199661; 256609, 2200056; 259081, 2200802; 259908, 2197800; 259126, 2196047; 257939, 2196380; 257957, 2195319; return to starting point.

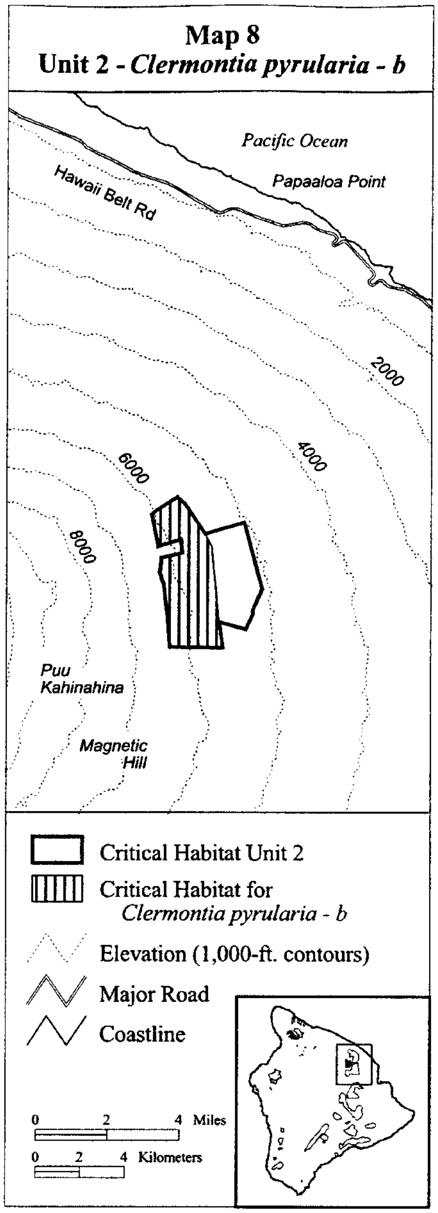
(ii) **Note:** Map 7 follows:




(8) Hawaii 2—*Clermontia pyrularia*—b (1,383 ha, 3,418 ac)

(i) Unit consists of the following 20 boundary points: Start at 255651, 2196455; 255597, 2196941; 255516, 2197725; 255512, 2197761; 255468, 2198050; 255421, 2198130; 255299, 2198552; 255372, 2199203; 256335, 2199414; 256242, 2200024; 255213, 2199704; 254946, 2201156; 255168, 2201360; 256079, 2201937; 256430, 2201672; 257336, 2200280; 257616, 2199751; 257968, 2196298; 258088, 2195186; 255745, 2195208; return to starting point.

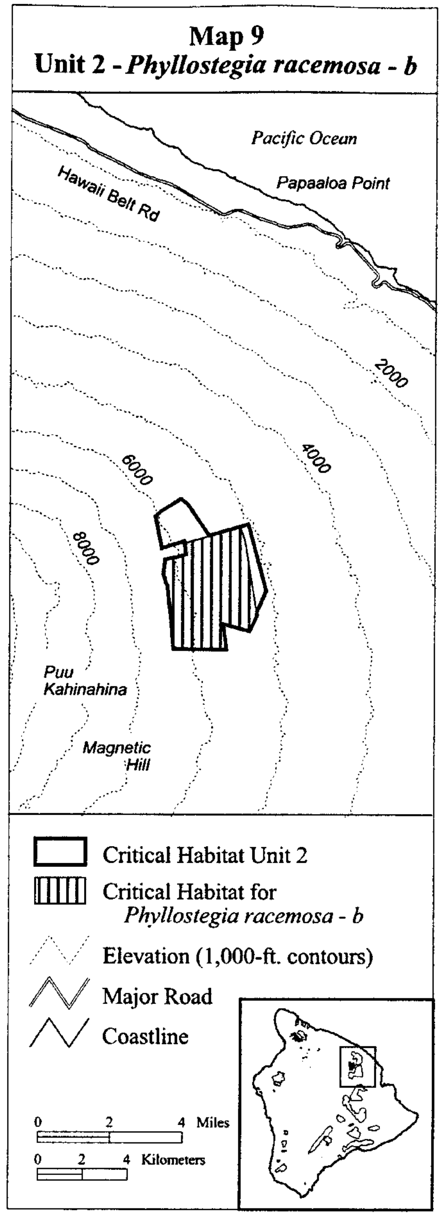
(ii) **Note:** Map 8 follows:




(9) Hawaii 2—*Phyllostegia racemosa*—b (1,683 ha, 4,158 ac)

(i) Unit consists of the following 13 boundary points: Start at 258723, 2200661; 258940, 2200060; 259480, 2196687; 259164, 2195977; 257990, 2196313; 258115, 2195161; 255794, 2195189; 255648, 2196936; 255554, 2197804; 255334, 2198495; 255397, 2199185; 256317, 2199426; 256234, 2199928; return to starting point.

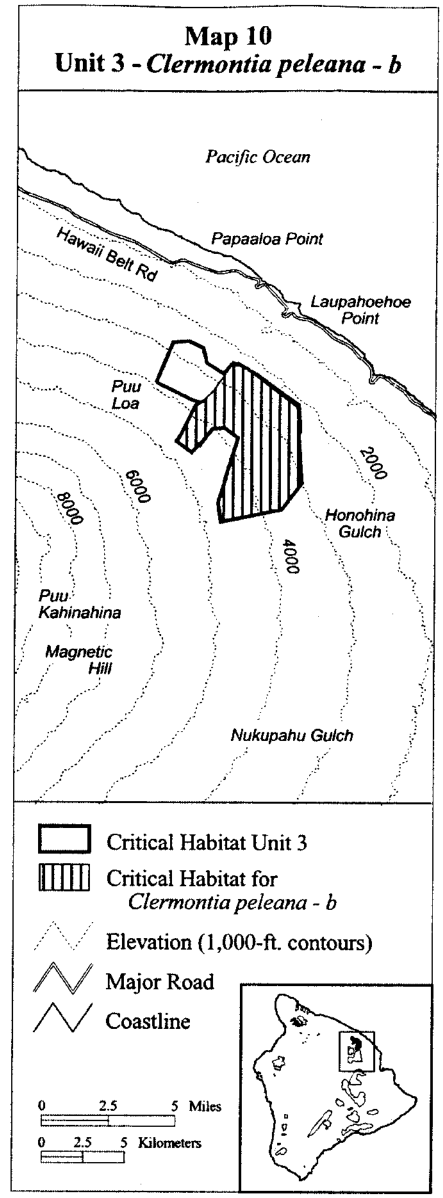
(ii) **Note:** Map 9 follows:




(10) Hawaii 3—*Clermontia peleana*—b (4,098 ha, 10,126 ac)

(i) Unit consists of the following 16 boundary points: Start at 265536, 2206014; 265870, 2201356; 264628, 2199741; 260958, 2198980; 260785, 2200155; 262026, 2204132; 261185, 2204813; 260398, 2204759; 259170, 2203211; 258222, 2203945; 258477, 2204289; 259386, 2206126; 259977, 2206520; 260443, 2206955; 261652, 2208710; 262533, 2208323; return to starting point.

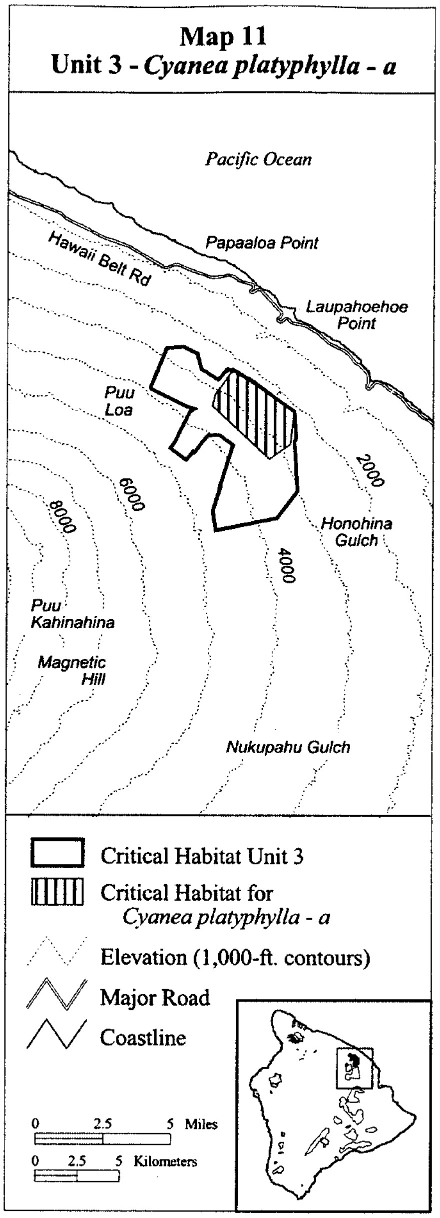
(ii) **Note:** Map 10 follows:




(11) Hawaii 3—*Cyanea platyphylla*—a (1,403 ha, 3,467 ac)

(i) Unit consists of the following eight boundary points: Start at 261936, 2208604; 263321, 2207740; 265617, 2206104; 265417, 2204172; 264174, 2203283; 260750, 2206482; 260875, 2207122; 261952, 2208637; return to starting point.

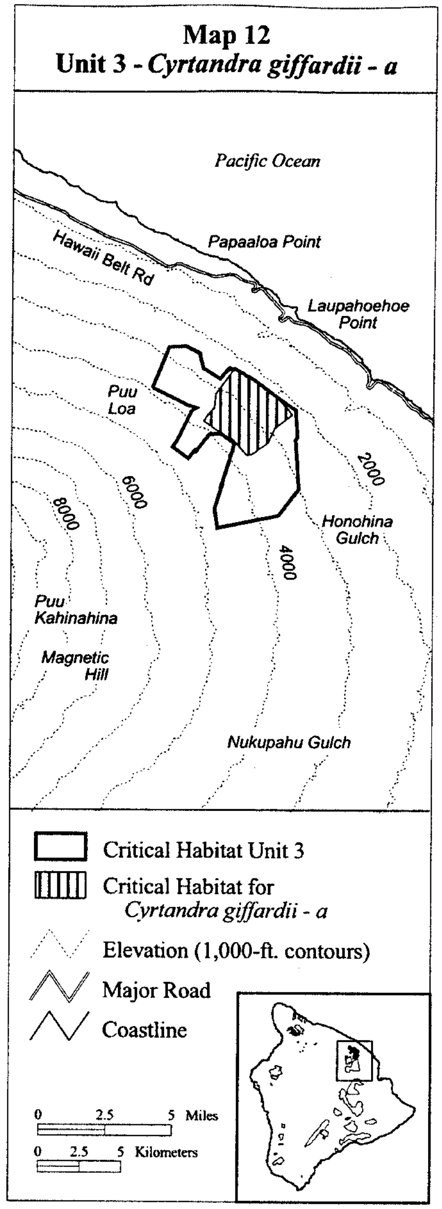
(ii) **Note:** Map 11 follows:




(12) Hawaii 3—*Cyrtandra giffardii*—a (1,510 ha, 3,731 ac)

(i) Unit consists of the following 22 boundary points: Start at 263977, 2204191; 263091, 2203511; 262736, 2203406; 261836, 2204431; 261358, 2204610; 261162, 2204774; 261114, 2204782; 260137, 2205484; 260269, 2205773; 260727, 2206307; 260808, 2207135; 261955, 2208667; 262335, 2208492; 262457, 2208405; 262682, 2208256; 262829, 2208171; 263062, 2208031; 264606, 2206914; 264702, 2206732; 265162, 2206251; 265443, 2205871; 264381, 2205051; return to starting point.

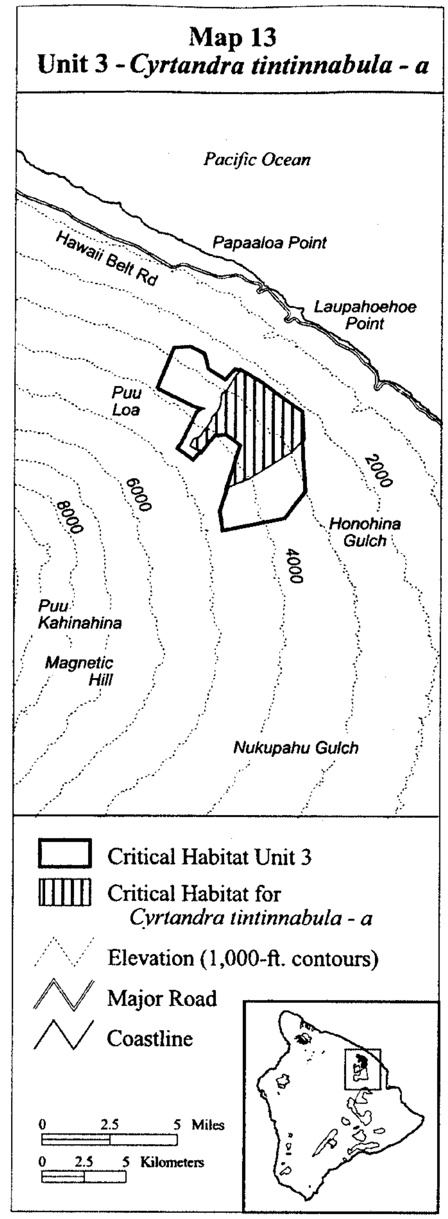
(ii) **Note:** Map 12 follows:




(13) Hawaii 3—*Cyrtandra tintinnabula*—a (2,322 ha, 5,738 ac)

(i) Unit consists of the following 30 boundary points: Start at 261996, 2208648; 262049, 2208624; 263522, 2207698; 265651, 2206158; 265754, 2204527; 265122, 2203759; 262570, 2202152; 261169, 2201554; 261944, 2204127; 261158, 2204766; 260467, 2204723; 260185, 2204367; 260136, 2204327; 260129, 2204298; 259641, 2203682; 259436, 2203822; 258995, 2204073; 259216, 2204499; 259562, 2204625; 259924, 2205129; 260239, 2205570; 260255, 2205790; 260539, 2206042; 260743, 2206373; 260822, 2206782; 260854, 2207176; 261184, 2207475; 261515, 2208026; 261720, 2208326; 261972, 2208593; return to starting point.

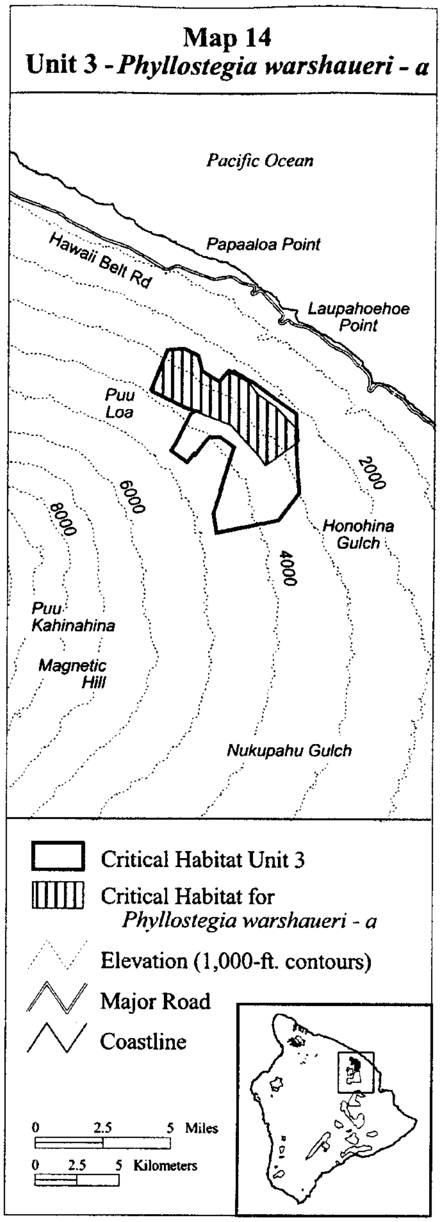
(ii) **Note:** Map 13 follows:




(14) Hawaii 3—*Phyllostegia warshaueri*—a (2,471 ha, 6,105 ac)

(i) Unit consists of the following 21 boundary points: Start at 257006, 2207522; 257019, 2207554; 257990, 2209960; 258969, 2210027; 258996, 2210030; 259000, 2210028; 259841, 2209621; 260070, 2208710; 261086, 2208085; 261545, 2208642; 262022, 2208476; 262839, 2208040; 263330, 2207359; 264502, 2206514; 265710, 2205217; 265744, 2204501; 265526, 2204234; 263864, 2203016; 263466, 2203598; 261804, 2205478; 259132, 2206487; return to starting point.

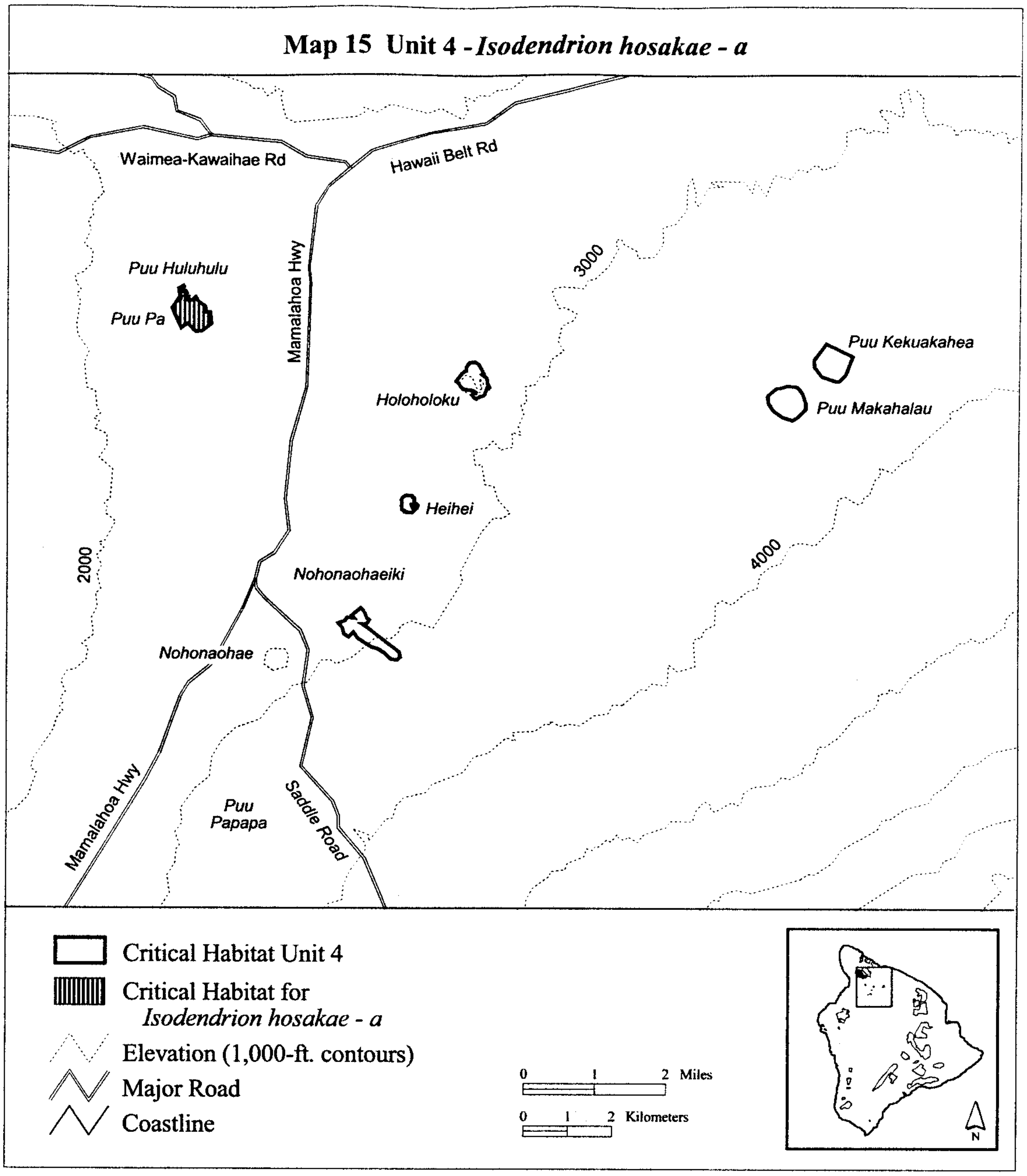
(ii) **Note:** Map 14 follows:




(15) Hawaii 4—*Isodendrion hosakae*—a (49 ha, 121 ac)

(i) Unit consists of the following 30 boundary points: Start at 216918, 2213235; 217016, 2213305; 217029, 2213274; 217005, 2213247; 217021, 2213158; 217073, 2213172; 217095, 2213120; 217071, 2213088; 217094, 2213045; 217129, 2213041; 217123, 2212977; 217141, 2212945; 217161, 2212966; 217207, 2212974; 217303, 2213051; 217353, 2212944; 217455, 2212885; 217511, 2212825; 217544, 2212704; 217624, 2212704; 217658, 2212443; 217423, 2212270; 217284, 2212268; 217105, 2212451; 216974, 2212346; 216772, 2212797; 216900, 2213009; 216946, 2212994; 216966, 2213060; 216928, 2213088; return to starting point.

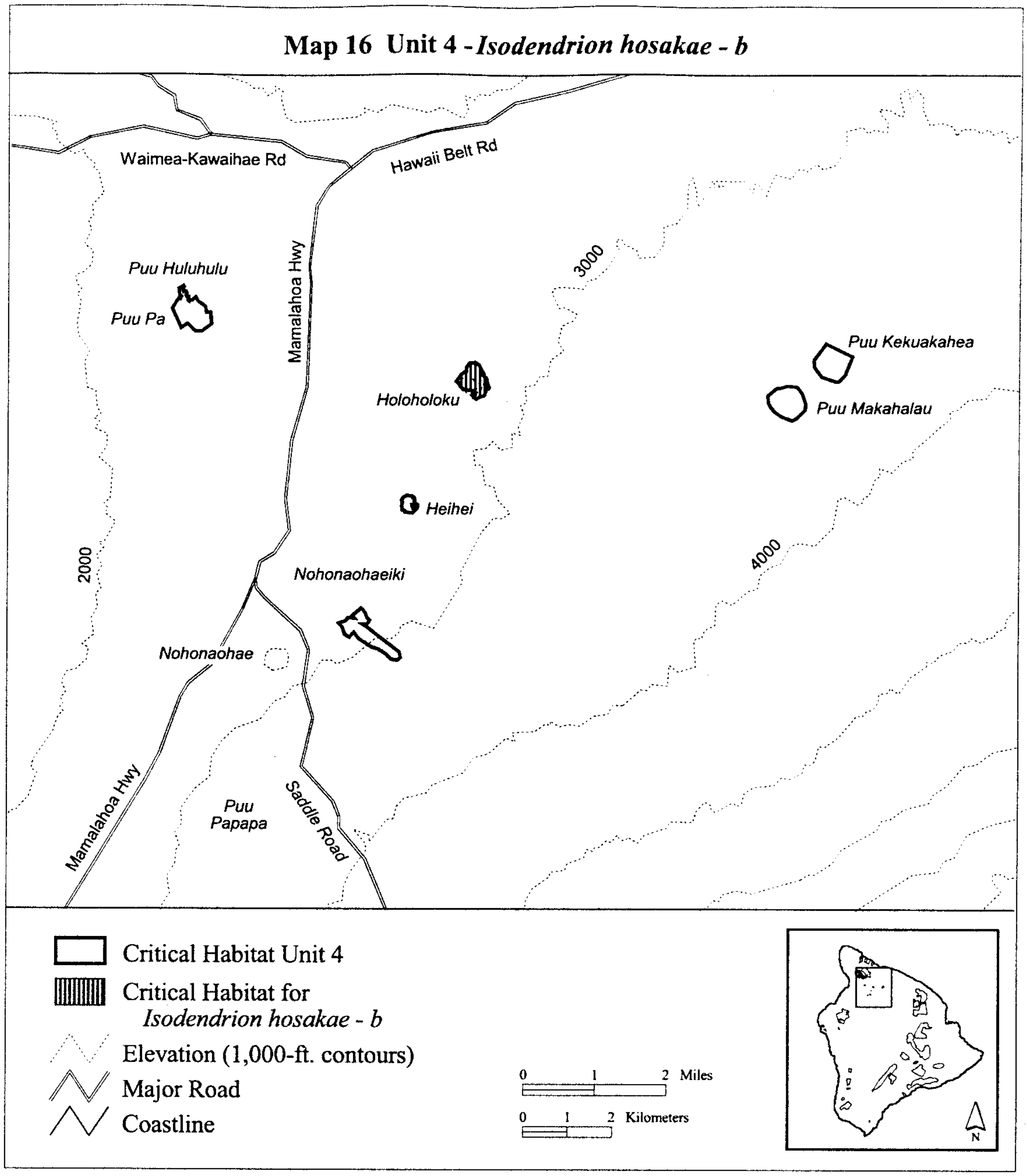
(ii) **Note:** Map 15 follows:




(16) Hawaii 4—*Isodendrion hosakae*—b (35 ha, 87 ac)

(i) Unit consists of the following 32 boundary points: Start at 223492, 2211567; 223608, 2211572; 223691, 2211528; 223727, 2211464; 223811, 2211316; 223763, 2211291; 223859, 2211232; 223887, 2211182; 223881, 2211116; 223938, 2211006; 223918, 2210977; 223876, 2210984; 223832, 2210851; 223809, 2210816; 223729, 2210799; 223636, 2210739; 223556, 2210796; 223552, 2210877; 223614, 2210869; 223630, 2210891; 223572, 2210924; 223506, 2210932; 223418, 2210946; 223338, 2210965; 223296, 2211003; 223244, 2211091; 223188, 2211145; 223294, 2211291; 223359, 2211352; 223406, 2211368; 223414, 2211415; 223415, 2211453; return to starting point.

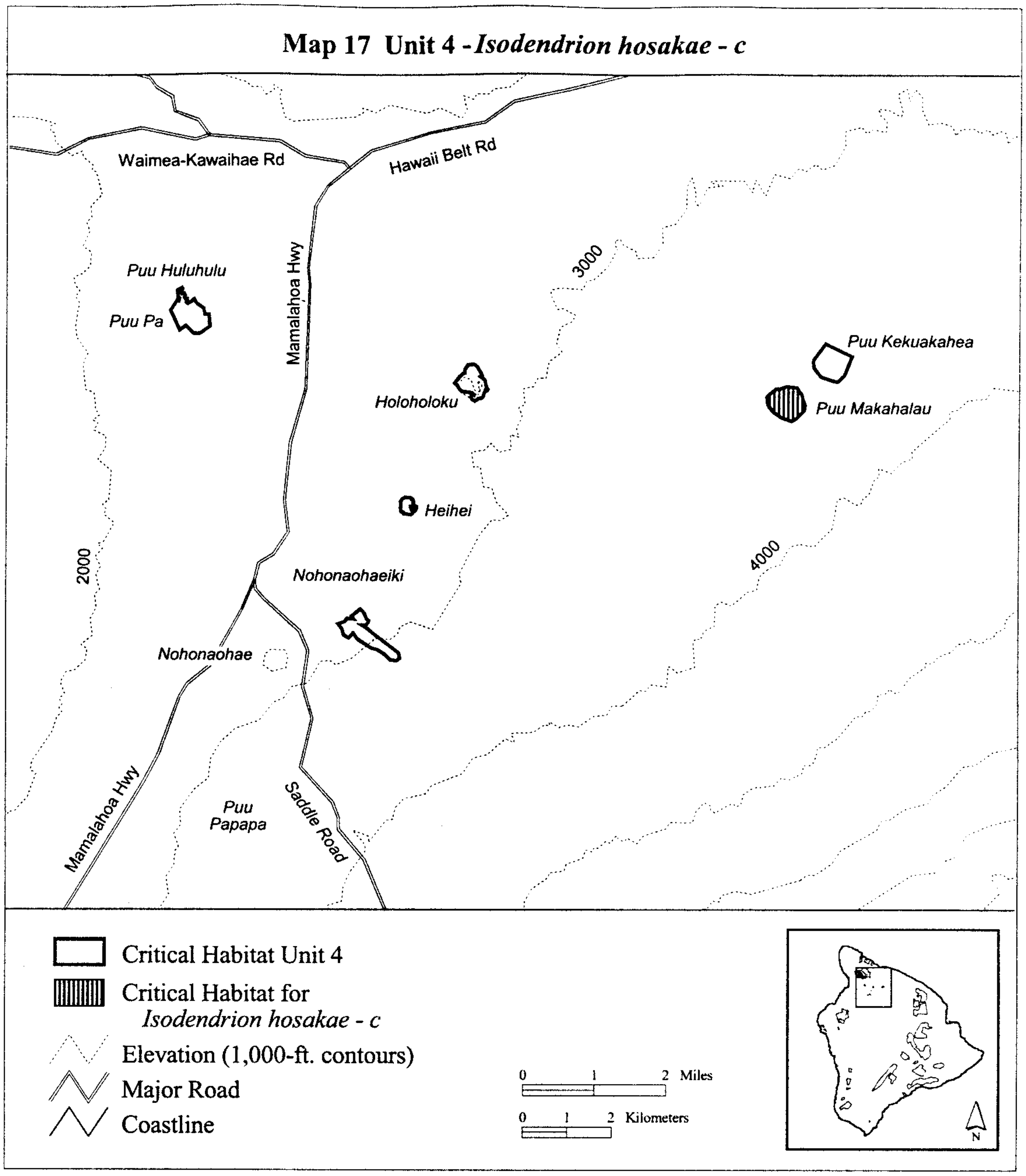
(ii) **Note:** Map 16 follows:




(17) Hawaii 4—*Isodendrion hosakae*—c (49 ha, 121 ac)

(i) Unit consists of the following 15 boundary points: Start at 230256, 2210857; 230438, 2210998; 230517, 2211001; 230682, 2211057; 230897, 2211021; 231011, 2210874; 231090, 2210642; 231078, 2210504; 230899, 2210322; 230783, 2210259; 230543, 2210360; 230357, 2210475; 230289, 2210576; 230244, 2210644; 230224, 2210817; return to starting point.

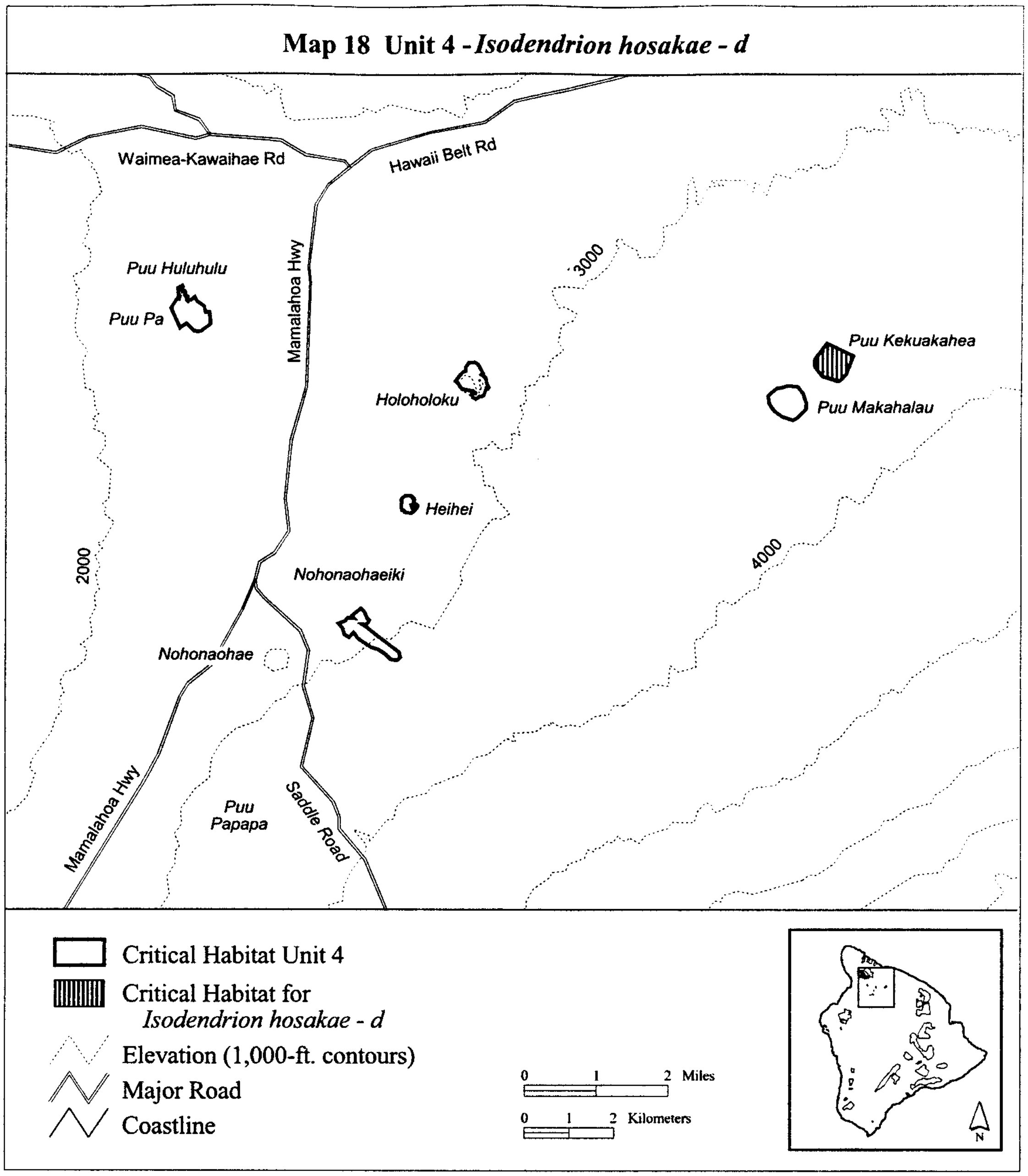
(ii) **Note:** Map 17 follows:




(18) Hawaii 4—*Isodendrion hosakae*—d (49 ha, 121 ac)

(i) Unit consists of the following nine boundary points: Start at 231266, 2211631; 231267, 2211631; 231537, 2212023; 232139, 2211722; 231979, 2211293; 231830, 2211149; 231774, 2211152; 231436, 2211271; 231277, 2211485; return to starting point.

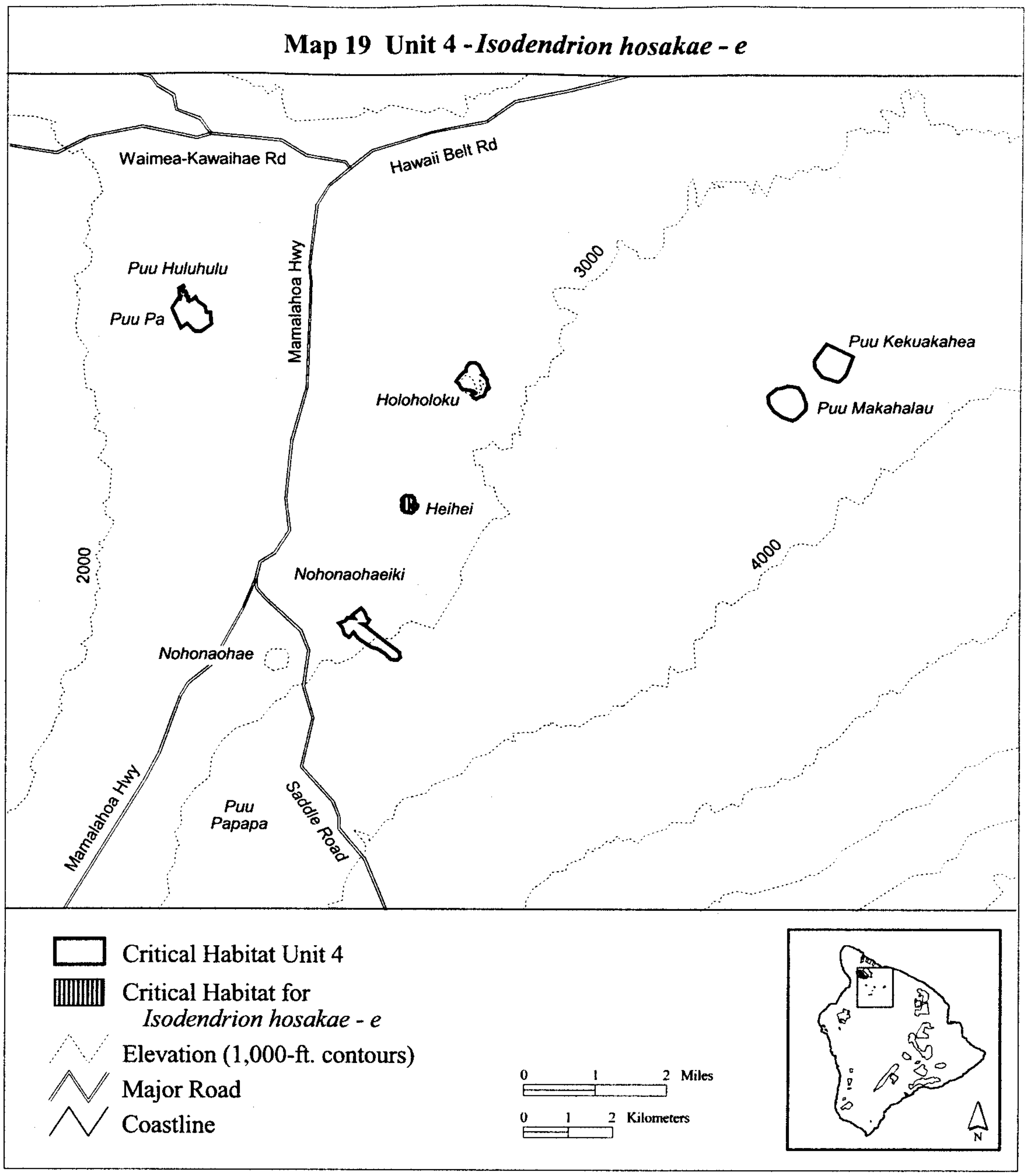
(ii) **Note:** Map 18 follows:




(19) Hawaii 4—*Isodendrion hosakae*—e (11 ha, 26 ac)

(i) Unit consists of the following 39 boundary points: Start at 222273, 2208478; 222265, 2208455; 222245, 2208415; 222245, 2208393; 222331, 2208332; 222330, 2208290; 222311, 2208248; 222279, 2208219; 222256, 2208215; 222254, 2208246; 222251, 2208259; 222230, 2208261; 222222, 2208286; 222213, 2208303; 222225, 2208306; 222227, 2208316; 222214, 2208320; 222209, 2208331; 222194, 2208337; 222189, 2208329; 222194, 2208324; 222202, 2208299; 222198, 2208283; 222219, 2208259; 222244, 2208216; 222238, 2208183; 222198, 2208149; 222045, 2208166; 222020, 2208212; 221971, 2208225; 221966, 2208306; 221969, 2208396; 221963, 2208440; 221988, 2208483; 222015, 2208509; 222077, 2208552; 222199, 2208535; 222218, 2208498; 222247, 2208498; return to starting point.

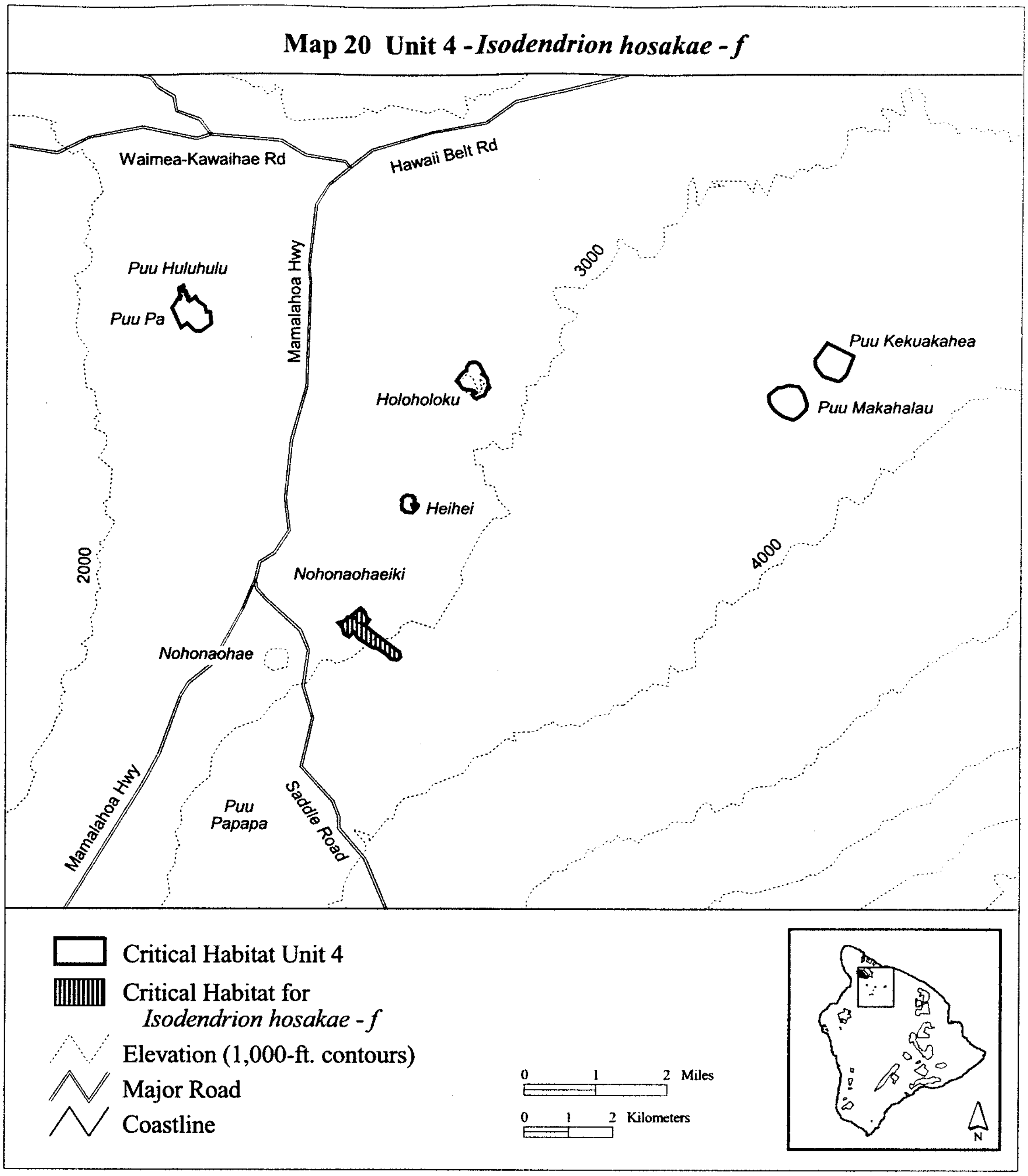
(ii) **Note:** Map 19 follows:




(20) Hawaii 4—*Isodendrion hosakae*—f (51 ha, 127 ac)

(i) Unit consists of the following 27 boundary points: Start at 221456, 2205056; 221315, 2205089; 220996, 2205294; 220895, 2205435; 220799, 2205324; 220680, 2205394; 220645, 2205535; 220550, 2205636; 220701, 2205687; 220754, 2205770; 220904, 2205756; 220861, 2205816; 221058, 2205989; 221139, 2205911; 221195, 2205756; 221253, 2205717; 221216, 2205641; 221179, 2205613; 221095, 2205611; 221197, 2205553; 221326, 2205451; 221675, 2205188; 221929, 2204996; 221948, 2204869; 221871, 2204802; 221737, 2204828; 221610, 2204957; return to starting point.

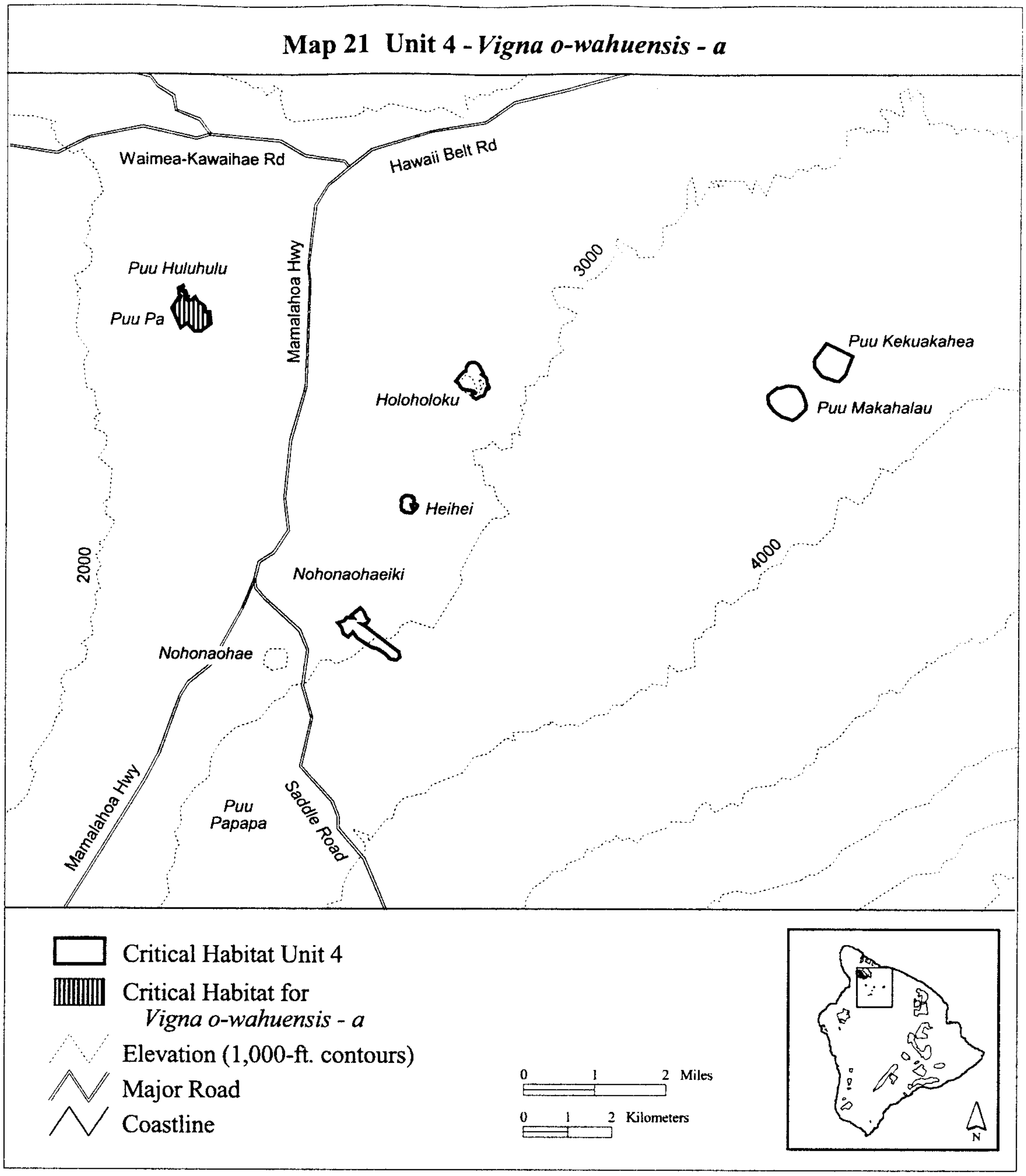
(ii) **Note:** Map 20 follows:




(21) Hawaii 4—*Vigna o-wahuensis*—a (49 ha, 121 ac)

(i) Unit consists of the following 30 boundary points: Start at 216918, 2213235; 217016, 2213305; 217029, 2213274; 217005, 2213247; 217021, 2213158; 217073, 2213172; 217095, 2213120; 217071, 2213088; 217094, 2213045; 217129, 2213041; 217123, 2212977; 217141, 2212945; 217161, 2212966; 217207, 2212974; 217303, 2213051; 217353, 2212944; 217455, 2212885; 217511, 2212825; 217544, 2212704; 217624, 2212704; 217658, 2212443; 217423, 2212270; 217284, 2212268; 217105, 2212451; 216974, 2212346; 216772, 2212797; 216900, 2213009; 216946, 2212994; 216966, 2213060; 216928, 2213088; return to starting point.

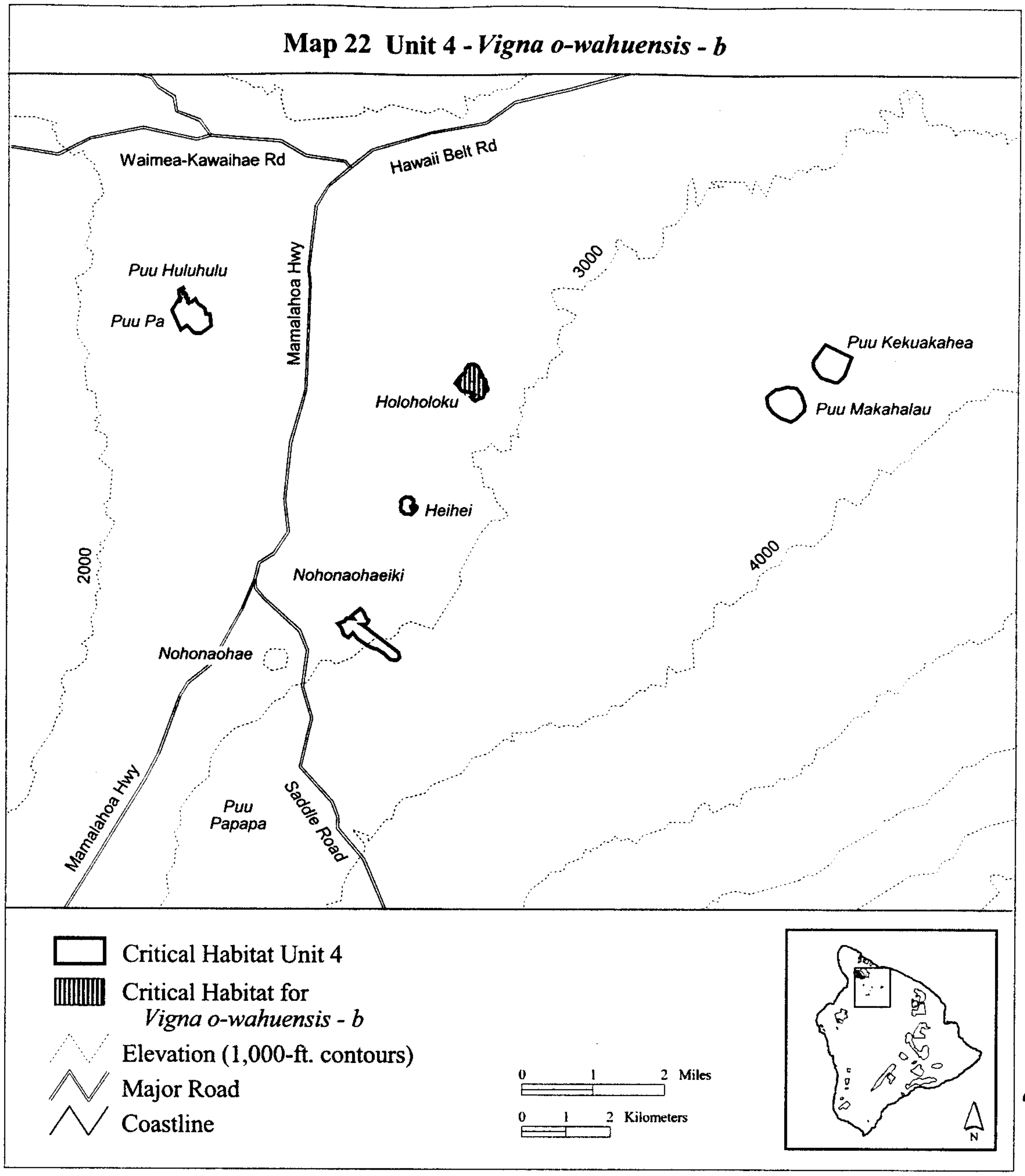
(ii) **Note:** Map 21 follows:




(22) Hawaii 4—*Vigna o-wahuensis*—b (35 ha, 87 ac)

(i) Unit consists of the following 32 boundary points: Start at 223492, 2211567; 223608, 2211572; 223691, 2211528; 223727, 2211464; 223811, 2211316; 223763, 2211291; 223859, 2211232; 223887, 2211182; 223881, 2211116; 223938, 2211006; 223918, 2210977; 223876, 2210984; 223832, 2210851; 223809, 2210816; 223729, 2210799; 223636, 2210739; 223556, 2210796; 223552, 2210877; 223614, 2210869; 223630, 2210891; 223572, 2210924; 223506, 2210932; 223418, 2210946; 223338, 2210965; 223296, 2211003; 223244, 2211091; 223188, 2211145; 223294, 2211291; 223359, 2211352; 223406, 2211368; 223414, 2211415; 223415, 2211453; return to starting point.

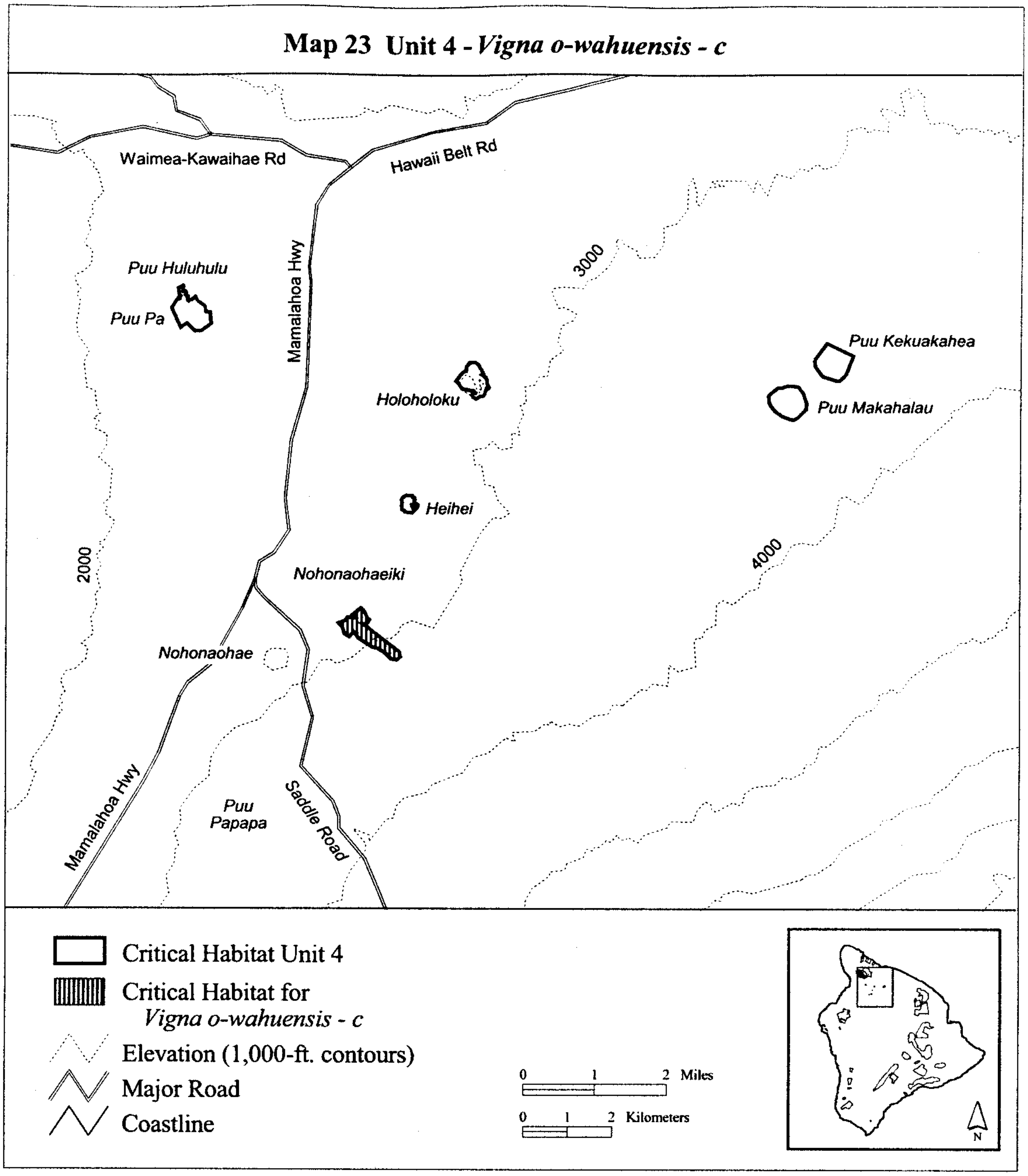
(ii) **Note:** Map 22 follows:




(23) Hawaii 4—*Vigna o-wahuensis*—c (51 ha, 127 ac)

(i) Unit consists of the following 27 boundary points: Start at 221456, 2205056; 221315, 2205089; 220996, 2205294; 220895, 2205435; 220799, 2205324; 220680, 2205394; 220645, 2205535; 220550, 2205636; 220701, 2205687; 220754, 2205770; 220904, 2205756; 220861, 2205816; 221058, 2205989; 221139, 2205911; 221195, 2205756; 221253, 2205717; 221216, 2205641; 221179, 2205613; 221095, 2205611; 221197, 2205553; 221326, 2205451; 221675, 2205188; 221929, 2204996; 221948, 2204869; 221871, 2204802; 221737, 2204828; 221610, 2204957; return to starting point.

(ii) **Note:** Map 23 follows:

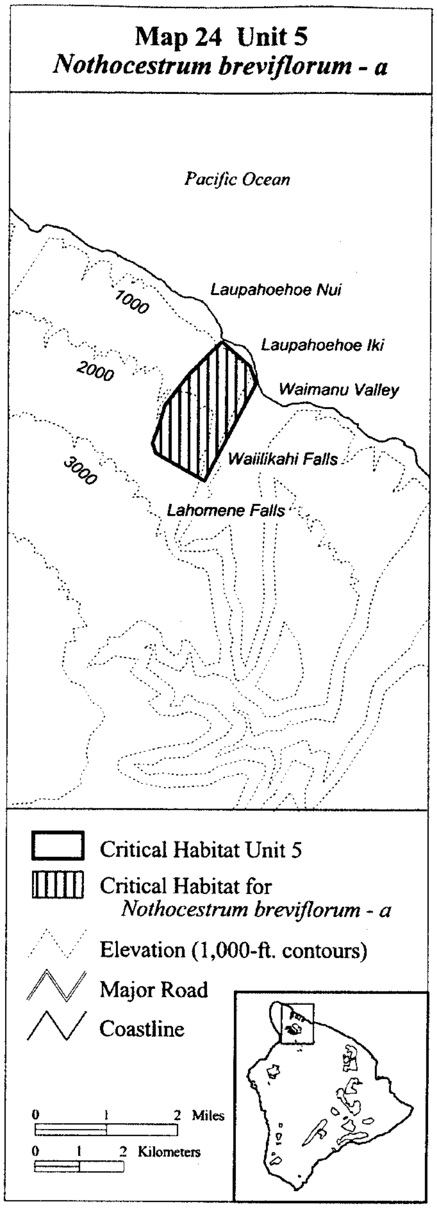


Map 23 Unit 4 - *Vigna o-wahuensis - c*
Waimea-Kawaihae Rd
Hawaii Belt Rd
Mamalahoa Hwy
Puu Huluhulu
Puu Pa
3000
Puu Kekuakahea
Holoholoku
Puu Makahalau
Heihei
4000
2000
Nohonaohaeiki
Nohonaohae
Mamalahoa Hwy
Puu Papapa
Saddle Road
Critical Habitat Unit 4
Critical Habitat for *Vigna o-wahuensis - c*
Elevation (1,000-ft. contours)
Major Road
Coastline
0 1 2 Miles
0 1 2 Kilometers
N

(24) Hawaii 5—*Nothocestrum breviflorum*—a (403 ha, 995 ac)

(i) Unit consists of the following 10 boundary points: Start at 223325, 2230961; 223717, 2230611; 223961, 2230395; 224099, 2230006; 222943, 2227775; 221847, 2228401; 221769, 2228638; 221914, 2229066; 222052, 2229490; 222606, 2230217; return to starting point.

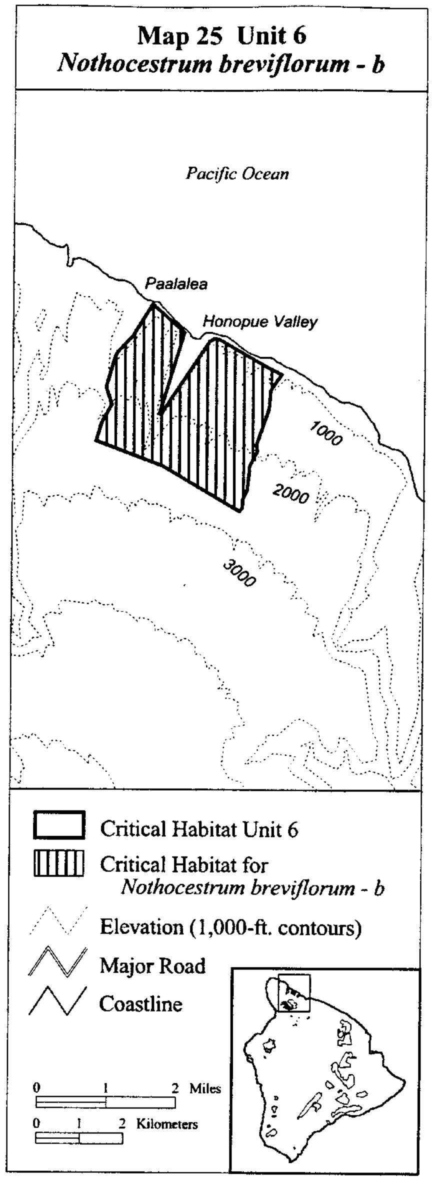
(ii) **Note:** Map 24 follows:




(25) Hawaii 6—*Nothocestrum breviflorum—b* (1,113 ha, 2,750 ac)

(i) Unit consists of the following 29 boundary points: Start at 217283, 2233128; 217629, 2233499; 218093, 2234242; 218828, 2233584; 218277, 2231773; 218266, 2231685; 218291, 2231675; 219411, 2233375; 219521, 2233443; 219655, 2233414; 220288, 2233050; 220656, 2232834; 221080, 2232612; 220999, 2232500; 220822, 2232233; 220802, 2231818; 220498, 2230963; 220529, 2230813; 220350, 2230453; 220296, 2229915; 220205, 2229697; 220190, 2229504; 220122, 2229416; 218354, 2230452; 216792, 2231049; 216919, 2231470; 217150, 2231890; 217026, 2232314; 217214, 2232981; return to starting point.

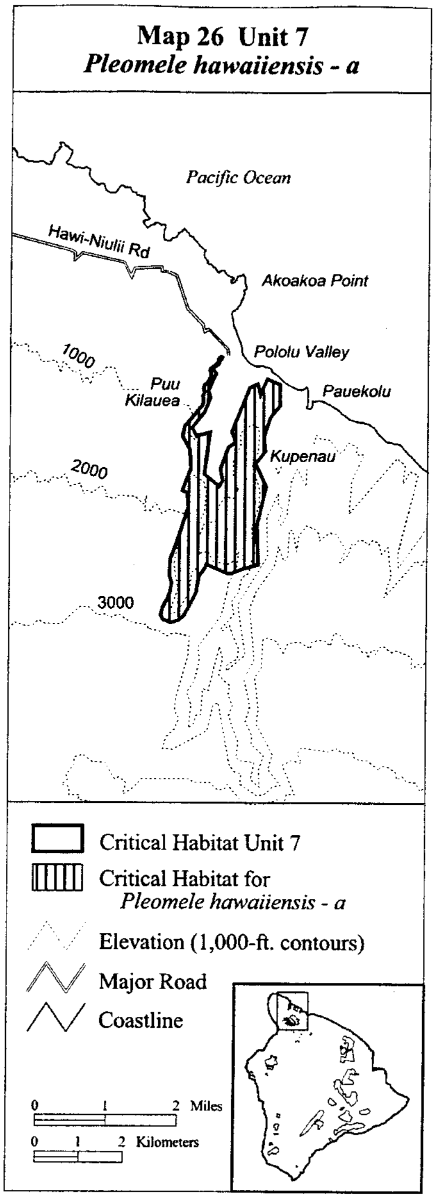
(ii) **Note:** Map 25 follows:




(26) Hawaii 7—*Pleomele hawaiiensis*—a (677 ha, 1,673 ac)

(i) Unit consists of the following 92 boundary points: Start at 213884, 2231521; 213842, 2231562; 213785, 2231427; 213666, 2231261; 213601, 2230893; 213453, 2230596; 213305, 2230350; 213204, 2230269; 213030, 2230210; 212859, 2230290; 212807, 2230381; 212812, 2230467; 212835, 2230541; 212877, 2230637; 212939, 2230736; 213011, 2230905; 213041, 2231129; 212997, 2231275; 213007, 2231651; 213147, 2232011; 213409, 2232858; 213387, 2233177; 213269, 2233218; 213462, 2233730; 213453, 2233976; 213443, 2234090; 213442, 2234162; 213373, 2234284; 213315, 2234388; 213271, 2234480; 213320, 2234721; 213371, 2234760; 213429, 2234835; 213464, 2234878; 213513, 2234943; 213559, 2235003; 213642, 2235106; 213659, 2235121; 213685, 2235147; 213724, 2235205; 213745, 2235328; 213734, 2235407; 213765, 2235497; 213747, 2235588; 213771, 2235662; 213817, 2235706; 213849, 2235729; 213891, 2235850; 213906, 2235884; 213908, 2235940; 213886, 2235998; 213892, 2236033; 214009, 2236115; 214062, 2236170; 214080, 2236202; 214083, 2236227; 214091, 2236260; 214140, 2236304; 214165, 2236296; 214069, 2236123; 213954, 2236053; 214016, 2235921; 213862, 2235537; 213901, 2235357; 213770, 2235029; 213484, 2234675; 213587, 2234485; 213891, 2234567; 213773, 2233608; 214112, 2233331; 214183, 2233458; 214141, 2233713; 214320, 2234212; 214483, 2234338; 214390, 2234581; 214802, 2235593; 214978, 2235684; 215037, 2235434; 215190, 2235808; 215483, 2235675; 215479, 2235179; 215269, 2234894; 215127, 2234463; 215158, 2234131; 214937, 2233848; 215182, 2233321; 214973, 2232427; 215018, 2231531; 214640, 2231432; 214495, 2231365; 214382, 2231329; 214332, 2231335; return to starting point.

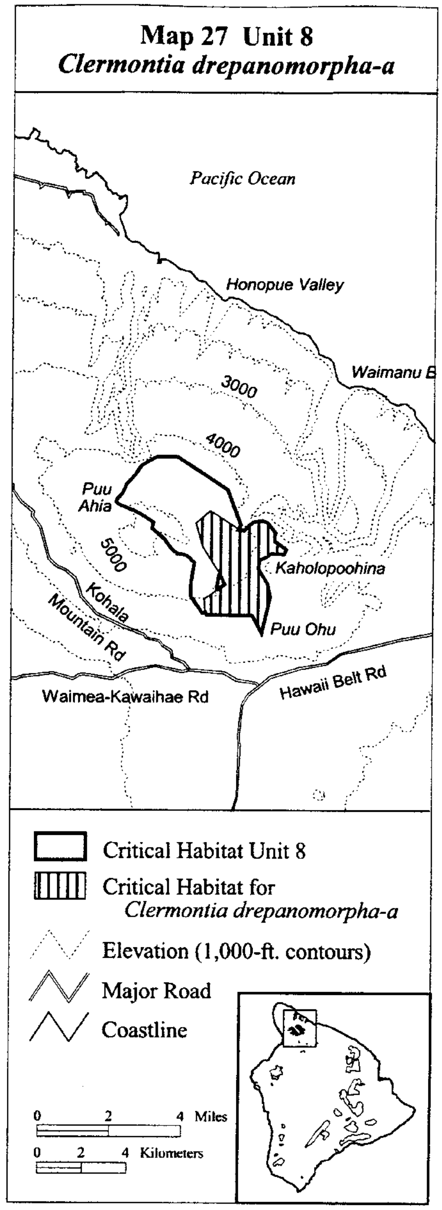
(ii) **Note:** Map 26 follows:




(27) Hawaii 8—*Clermontia drepanomorpha*—a (1,906 ha, 4,709 ac)

(i) Unit consists of the following 30 boundary points: Start at 214766, 2225082; 215176, 2225539; 215405, 2225905; 215716, 2226097; 216131, 2226318; 217035, 2226328; 218354, 2225470; 219286, 2224824; 219895, 2223228; 218899, 2220922; 218806, 2219907; 218769, 2219298; 218197, 2219271; 217672, 2220036; 217653, 2220562; 217819, 2221512; 217520, 2221821; 217378, 2221880; 217229, 2221937; 217063, 2221937; 216768, 2222158; 216463, 2222582; 215919, 2223071; 215956, 2223348; 215550, 2223643; 215070, 2223892; 214393, 2224156; 214299, 2224261; 214335, 2224407; 214570, 2224647; return to starting point.

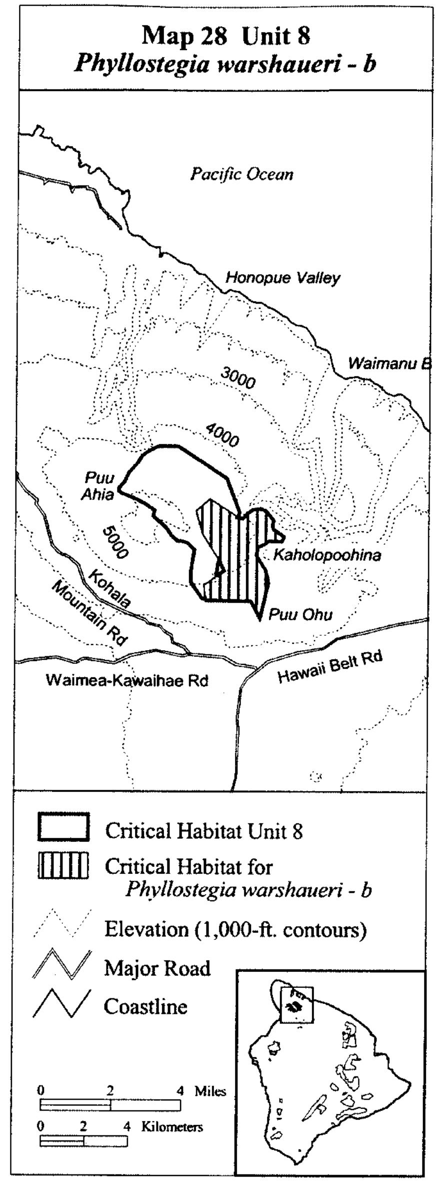
(ii) **Note:** Map 27 follows:




(28) Hawaii 8—*Phyllostegia warshaueri*—b (1,177 ha, 2,908 ac)

(i) Unit consists of the following 27 boundary points: Start at 218326, 2219182; 218265, 2219899; 218572, 2220103; 219186, 2220554; 218961, 2221066; 218183, 2222274; 217900, 2223294; 218531, 2223871; 219842, 2223011; 220052, 2222981; 220255, 2223197; 220513, 2223371; 220883, 2223437; 221142, 2223301; 221469, 2222879; 221431, 2222712; 221443, 2222484; 221956, 2222124; 221860, 2221917; 221276, 2221939; 221020, 2221746; 220775, 2221645; 220679, 2221263; 221125, 2220585; 221255, 2220003; 220857, 2218373; 220445, 2219168; return to starting point.

(ii) **Note:** Map 28 follows:




(29) Hawaii 9—*Achyranthes mutica*—a (63 ha, 157 ac)

(i) Unit consists of the following 82 boundary points: Start at 211908, 2224450; 211840, 2224339; 211562, 2224160; 211477, 2224142; 211418, 2224067; 211356, 2224034; 211319, 2223969; 211271, 2223951; 211220, 2223903; 211172, 2223900; 211144, 2223870; 211106, 2223860; 211053, 2223873; 210980, 2223837; 210916, 2223837; 210864, 2223788; 210802, 2223764; 210694, 2223796; 210650, 2223761; 210578, 2223756; 210489, 2223646; 210425, 2223652; 210359, 2223635; 210254, 2223626; 210218, 2223598; 210154, 2223584; 210056, 2223595; 209922, 2223585; 209805, 2223507; 209521, 2223432; 209365, 2223366; 209228, 2223347; 208930, 2223267; 208835, 2223286; 208830, 2223355; 208907, 2223389; 209205, 2223465; 209333, 2223482; 209483, 2223546; 209548, 2223555; 209606, 2223568; 209652, 2223593; 209761, 2223619; 209887, 2223699; 209956, 2223703; 209996, 2223703; 210057, 2223716; 210148, 2223704; 210219, 2223742; 210431, 2223770; 210529, 2223870; 210603, 2223875; 210683, 2224047; 210751, 2224079; 210773, 2224145; 210846, 2224182; 210875, 2224212; 210992, 2224241; 211084, 2224220; 211131, 2224248; 211225, 2224269; 211290, 2224395; 211339, 2224415; 211428, 2224394; 211464, 2224477; 211515, 2224517; 211607, 2224525; 211733, 2224561; 211824, 2224547; 211926, 2224590; 211986, 2224640; 212066, 2224670; 212094, 2224717; 212088, 2224750; 212115, 2224806; 212108, 2224823; 212219, 2224872; 212243, 2224820; 212243, 2224778; 212216, 2224731; 212213, 2224684; 212160, 2224595; return to starting point.

(ii) Excluding one area bounded by the following 31 points (8 ha, 19 ac): Start at 211235, 2224062; 211172, 2224016; 211129, 2224012; 211093, 2223986; 211042, 2223992; 210945, 2223954; 210872, 2223952; 210792, 2223885; 210751, 2223908; 210770, 2223960; 210841, 2223994; 210870, 2224063; 210928, 2224102; 210992, 2224116; 211080, 2224094; 211174, 2224135; 211293, 2224156; 211335, 2224196; 211345, 2224253; 211373, 2224282; 211439, 2224272; 211501, 2224297; 211562, 2224404; 211619, 2224407; 211657, 2224425; 211731, 2224441; 211766, 2224436; 211506, 2224267; 211403, 2224240; 211340, 2224159; 211274, 2224128; return to starting point.

(iii) **Note:** Map 29 follows: