DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AI24

Endangered and Threatened Wildlife and Plants; Final Designations or Nondesignations of Critical Habitat for 101 Plant Species From the Island of Oahu, HI

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), designate critical habitat pursuant to the Endangered Species Act of 1973, as amended (Act), for 99 of the 101 species known historically from the Hawaiian island of Oahu. A total of approximately 22,274 hectares (ha) (55,040 acres (ac)) of land on Oahu fall within the boundaries of the 303 critical habitat units designated for the 99 species. This critical habitat designation requires the Service to consult under section 7 of the Act with regard to actions carried out, funded, or authorized by a Federal agency. Section 4 of the Act requires us to consider economic and other relevant impacts when specifying any particular area as critical habitat. This rule also determines that designating critical habitat would not be prudent for two species (*Cyrtandra crenata* and *Pritchardia kaalae*). We solicited data and comments from the public on all aspects of the proposed rule, including data on economic and other impacts of the designation.

DATES: This rule becomes effective on July 17, 2003.

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

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

SUPPLEMENTARY INFORMATION:

Disclaimer

Designation of critical habitat provides little additional protection to species. In 30 years of implementing the ESA, the Service has found that the designation of statutory critical habitat provides little additional protection to most listed species, while consuming significant amounts of scarce conservation resources. The present system for designating critical habitat has evolved since its original statutory prescription into a process that provides little real conservation benefit, is driven by litigation rather than biology, forces decisions to be made before complete scientific information is available, consumes enormous agency resources that would otherwise be applied to actions of much greater conservation benefit, and imposes huge social and economic costs. The Service believes that rational public policy demands serious attention to this issue in order to allow our limited resources to be applied to those actions that provide the greatest benefit to the species most in need of protection.

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

While attention to and protection of habitat is paramount to successful conservation actions, we have consistently found that, in most circumstances, the designation of critical habitat is of little additional value for most listed species, yet it consumes large amounts of conservation resources. [Sidle (1987. Env. Manage.11(4):429–437) stated, ''Because the ESA can protect species with and without critical habitat designation, critical habitat designation may be redundant to the other consultation requirements of section 7.''] Currently, only 306 species or 25% of the 1,211 listed species in the U.S. under the jurisdiction of the Service have designated critical habitat. We address the habitat needs of all 1,211 listed species through conservation mechanisms such as listing, section 7 consultations, the Section 4 recovery planning process, the Section 9 protective prohibitions of unauthorized take, Section 6 funding to the States, and the Section 10 incidental take permit process. The Service believes that it is these measures that may make the difference between extinction and survival for many species.

Procedural and Resource Difficulties in Designating Critical Habitat

With a budget consistently inadequate to fund all of the petition review, listing, and critical habitat designation duties required of us by statute, we have in the past prioritized our efforts and focused our limited resources on adding species in need of protection to the lists of threatened or endangered species. We have been inundated with lawsuits for our failure to designate critical habitat, and we face a growing number of lawsuits challenging critical habitat determinations once they are made. These lawsuits have subjected the Service to an ever-increasing series of court orders and court-approved settlement agreements, compliance with which now consumes nearly the entire listing program budget. This leaves the Service with little ability to prioritize its activities to direct scarce listing resources to the listing program actions with the most biologically urgent species conservation needs.

The consequence of the critical habitat litigation activity is that limited listing funds are used to defend active lawsuits, to respond to Notices of Intent (NOIs) to sue relative to critical habitat, and to comply with the growing number of adverse court orders. As a result, listing petition responses, the Service's own proposals to list critically imperiled species, and final listing determinations on existing proposals are significantly delayed. Litigation over critical habitat issues for species already listed and receiving the Act's full protection has precluded or delayed many listing actions nationwide.

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

The costs resulting from the designation include legal costs, the cost of preparation and publication of the designation, the analysis of the economic effects and the cost of requesting and responding to public comment, and in some cases the costs of compliance with NEPA, all are part of the cost of critical habitat designation. None of these costs result in any benefit to the species that is not already afforded by the protections of the Act enumerated earlier, and they directly reduce the funds available for direct and tangible conservation actions.

Background

In the List of Endangered and Threatened Plants (50 CFR 17.12(h)),

there are 101 plant species that, at the time of listing, were reported from the island of Oahu and are at issue in this final rule. These species and their distribution by island are identified in Table 1 in the **Federal Register** notice proposing this critical habitat designation (67 FR 37107–37272; chart page 37108).

Fifty-seven of these species are endemic to the island of Oahu, while 44 species are reported from one or more other islands, as well as Oahu. Each of these species is described in more detail below in the section ''Discussion of Plant Taxa.'' Although we considered designating critical habitat on Oahu for each of the 101 plant species, for the reasons described below, the final designation includes critical habitat for 99 of 101 plant species. We have designated critical habitat on other islands (Kauai, Niihau, Maui, and Molokai) for species that are also reported from Oahu. Critical habitat may be designated for the species that are also reported from the island of Hawaii in a subsequent rulemaking.

The Island of Oahu

The island of Oahu was formed from the remnants of two large shield volcanoes, the younger Koolau volcano to the east and the older Waianae volcano to the west (60 FR 51398; Service 1995a, 1996b). Their original shield volcano shape has been lost as a result of extensive erosion, and today these volcanoes are called mountains or ranges and consist of long, narrow ridges. The Koolau Mountains were built by eruptions that took place primarily along a northwest-trending rift zone and formed a range now approximately 60 kilometers (km) (37 miles (mi)) long (Service 1996b). Median annual rainfall for the Koolau Mountains varies from 100 to 710 centimeters (cm) (40 to 280 inches (in)), most of which is received at higher elevations along the entire length of the windward (northeastern) side (Service 1996b).

The Waianae Mountains were built by eruptions that took place primarily along three rift zones. The two principal rift zones run in a northwestward and south-southeastward direction from the summit, and a lesser one runs to the northeast. The range is approximately 32 km (20 mi) long. The caldera lies between the north side of Makaha Valley and the head of Nanakuli Valley (MacDonald *et al.* 1983). The Waianae Mountains are in the rain shadow of the parallel Koolau Mountains and receive much less rainfall, except for Mt. Kaala, the highest point on Oahu at an elevation of 1,225 meters (m) (4,020 feet (ft)) (Wagner *et al.* 1999). The median annual rainfall for the Waianae Mountains varies from 51 to 190 cm (20 to 75 in), with only the small summit area of Mt. Kaala receiving the highest amount (Service 1995a).

Discussion of the Plant Taxa

Species Endemic to Oahu

Abutilon sandwicense (No common name (NCN))

Abutilon sandwicense, a member of the mallow family (Malvaceae) and a short-lived perennial, is a shrub that grows to 3 m (5 ft) tall and is covered with short glandular hairs. This species is distinguished from others in the genus by the green or reddish-brown tipped petals that extend beyond the sepals (Bates 1999).

Abutilon sandwicense has been observed flowering in winter and spring. By summer, most plants have flowered, and the fruits have usually dried up by fall. Fruit capsules develop within six weeks. Although seedlings are often initially abundant, few plants appear to survive to maturity for unknown reasons (56 FR 55770). Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors.

Historically, *Abutilon sandwicense* was known from nearly the entire length of the Waianae Mountains, from Makaleha Valley to Nanakuli Valley. This species is now known from Huliwai Gulch, Kaawa Gulch, Kaimuhole Gulch, Palikea Gulch, Makaha Valley, Makaha-Waianae Kai Ridge, Makaleha Valley, Manuwai Gulch, Halona subdistrict, Mikilua subdistrict, Alaiheihe Gulch, and Nanakuli Valley on Federal, State, private, city, and county lands. The 30 known occurrences contain an estimated 253 to 263 individuals (Bates 1999; Hawaii Heritage Program (HINHP) Database 2001).

Abutilon sandwicense typically grows on steep slopes or gulches in dry to mesic lowland forest between 149 and 875 m (489 and 2,870 ft) elevation. Associated native species include *Antidesma pulvinatum* (hame), *Diospyros sandwicensis* (lama), *Elaeocarpus bifidus* (kalia), *Eugenia reinwardtiana* (nioi), *Hibiscus arnottianus* (kokio keokeo), *Metrosideros polymorpha* (ohia), *Myrsine lanaiensis* (kolea), *Nestegis sandwicensis* (olopua), *Pipturus albidus* (mamaki), *Pisonia* sp. (papala kepau), *Pittosporum* sp. (hoawa), *Pleomele* sp. (hala pepe), *Psydrax odorata* (alahee), *Rauvolfia sandwicensis* (hao), *Reynoldsia sandwicensis* (ohe), and *Sapindus oahuensis* (lonomea) (Bates 1999; HINHP Database 2001; Environmental Division of the U.S. Army (EDA), *in litt.* 2001).

The major threats to *Abutilon sandwicense* are competition from the nonnative plant species *Ageratina riparia* (hamakua pamakani), *Aleurites moluccana* (kukui), *Clidemia hirta* (Koster's curse), *Ficus microcarpa* (Chinese banyan), *Grevillea robusta* (silk oak), *Hyptis pectinata* (Comb hyptis), *Ipomoea* sp. (morning glory), *Kalanchoe pinnata* (air plant), *Leucaena leucocephala* (koa haole), *Melia azedarach* (chinaberry), *Melinis minutiflora* (molasses grass), *Montanoa hibiscifolia* (tree daisy), *Oplismenus hirtellus* (basketgrass), *Panicum maximum* (Guinea grass), *Passiflora suberosa* (huehue haole), *Pimenta dioica* (allspice), *Psidium cattleianum* (strawberry guava), *Psidium guajava* (guava), *Rivina humilis* (coral berry), *Schinus terebinthifolius* (Christmasberry), *Syzygium cumini* (Java plum), and/or *Toona ciliata* (Australian red cedar); fire; damage from the black twig borer (*Xylosandrus compactus*) and Chinese rose beetle (*Adoretus sinicus*); habitat degradation and/or destruction by feral pigs (*Sus scrofa*) and goats (*Capra hircus*); and trampling by feral cattle (*Bos taurus*) (Service 1998b; 56 FR 55770).

Alsinidendron obovatum (NCN)

Alsinidendron obovatum, a member of the pink family (Caryophyllaceae) and a short-lived perennial, is a branching subshrub growing to 3 ft (1 m) tall with thick, somewhat fleshy leaves. This species and *Alsinidendron trinerve* can be distinguished from other members of the genus by their shrubby habit and fleshy purple sepals surrounding the capsule. This species differs from *A. trinerve* in having a more crowded inflorescence (flowering part of plant) with shorter peduncles (flower stalks) and sepals with a rounded tip (Wagner *et al.* 1999).

Alsinidendron obovatum generally flowers after about two years of growth. Plants flower and fruit year round, but flowering is usually heavier in winter and spring depending on the level of precipitation. Plants survive three to six years, unless there are drought conditions. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (56 FR 55770).

Historically, *Alsinidendron obovatum* was known from the northern and southern ends of the Waianae Range. This species remains in Keawapilau

Gulch, Kahanakaiki Gulch, Makaleha, Kapuna Gulch, and Pahole Gulch on Federal and State lands. The 6 known occurrences contain about 8 to 10 individuals (EDA Database 2001; HINHP Database 2001; Wagner *et al.* 1999).

Alsinidendron obovatum typically grows on ridges and slopes in lowland diverse mesic forest dominated by *Acacia koa* (koa) and *Metrosideros polymorpha* between 476 and 943 m (1,561 and 3,093 ft) elevation. Associated native species include *Alyxia oliviformis* (maile), *Antidesma platyphyllum* (hame), *Bidens torta* (kookoolau), *Cibotium chamissoi* (hapuu), *Coprosma sp.* (pilo), *Hedyotis terminalis* (manono), *Ilex anomala* (kawau), *Machaerina* sp. (uki), *Peperomia* sp. (ala ala wai nui), *Perrottetia sandwicensis* (olomea), *Pipturus* sp. (mamaki), *Psydrax odorata*, or the endangered *Cyanea longiflora* (haha) (HINHP Database 2001; EDA, in litt. 2001).

The major threats to *Alsinidendron obovatum* are competition from the aggressive nonnative plant species *Blechnum appendiculatum* (NCN), *Clidemia hirta*, *Grevillea robusta*, *Melinus minutiflora*, *Paspalum conjugatum* (Hilo grass), *Psidium cattleianum*, *Rubus argutus* (prickly Florida blackberry), *Schinus terebinthifolius*, and/or *Stachytarpheta dichotoma* (owi); habitat degradation by feral pigs; trampling by humans; rockslides; and the small number of occurrences and individuals, which make the species highly vulnerable to extinction from random environmental events (Service 1998b; 56 FR 55770).

Alsinidendron trinerve (NCN)

Alsinidendron trinerve, a member of the pink family (Caryophyllaceae) and a short-lived perennial, is very similar in appearance to *A. obovatum* but differs in that it has a more open inflorescence with peduncles more than 2 cm (0.8 in) long and sepals with an acute tip (Wagner *et al.* 1999).

Alsinidendron trinerve flowers and fruits throughout the year with the possible exception of fall (56 FR 55770). Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors.

Historically, *Alsinidendron trinerve* was known from the north-central and southern Waianae Mountains. This species is known to be in Makaleha Gulch, on Mt. Kaala and Puu Kalena on Federal and State lands. The 13 known occurrences total between 18 and 34 individuals (EDA Database 2001; HINHP Database 2001).

Alsinidendron trinerve typically grows on slopes in wet forest or the wetter portions of diverse mesic forest dominated by *Metrosideros polymorpha* and *Ilex anomala* or *Metrosideros polymorpha* montane wet forest between 833 and 1,233 m (2,732 and 4,044 ft) elevation. Associated native species include *Broussaisia arguta* (kanawao), *Coprosma ochracea* (pilo), *Diplazium sandwichianum* (hoio), *Gunnera* sp. (apeape), *Hedyotis* sp. (NCN), *Machaerina* sp., *Nothoperanema rubiginosa*, *Peperomia* sp., *Perrottetia sandwicensis*, *Phyllostegia* sp. (NCN), *Pipturus albidus*, or *Vaccinium* sp. (ohelo) (HINHP Database 2001; Wagner *et al.* 1999; EDA, *in litt.* 2001).

The major threats to *Alsinidendron trinerve* are competition from the aggressive nonnative plant species *Buddleia asiatica* (butterfly bush), *Clidemia hirta*, *Kalanchoe pinnata*, and *Rubus argutus*; habitat degradation by feral pigs; trampling by humans along trails; and the small number of extant individuals, which makes the species highly vulnerable to extinction from random environmental events (Service 1998b; 56 FR 55770).

Chamaesyce celastroides var. *kaenana* (Akoko)

Chamaesyce celastroides var. *kaenana*, a member of the spurge family (Euphorbiaceae) and a short-lived perennial, is a low-growing or upright shrub to 5 ft (1.5 m) tall with milky sap. Its leaves fall off during the dry season, are mostly hairless, and are arranged in two opposite rows along the stem. This species is distinguished from other members of the genus in the area in which it grows in that it is a woody shrub rather than an herb or small subshrub (Koutnik and Huft 1999).

Chamaesyce celastroides var. *kaenana* has been observed flowering and fruiting throughout the year, probably in response to precipitation. Fruits mature in three to four weeks and plants live from five to 10 years. No additional information is available on flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, or limiting factors (56 FR 55770).

Historically, *Chamaesyce celastroides* var. *kaenana* was known from the northwestern end of the Waianae Mountains as well as from one collection from the southeastern end of the Koolau Mountains. This taxon remains at Kaena Point, Keawaula, Alau Gulch, Waianae Kai, and Kahanahaiki on State land and land under Federal jurisdiction. The 15 known occurrences contain 569 individuals (HINHP Database 2001; Koutnik and Huft 1999).

Chamaesyce celastroides var. *kaenana* typically grows in coastal dry shrubland on windward talus slopes, leeward rocky cliffs, open grassy slopes, or on vegetated cliff faces between sea level and 862 m (0 and 2,827 ft) elevation. Associated native species include *Artemisia australis* (ahinahina), *Boerhavia* sp. (alena), *Chamaesyce celastroides* var. *amplectans* (akoko), *Dodonaea viscosa* (aalii), *Gossypium tomentosum* (mao), *Heteropogon contortus* (pili grass), *Jacquemontia ovalifolia* ssp. *sandwicensis* (pauohiiaka), *Lipochaeta lobata* (nehe), *Myoporum sandwicense* (naio), *Plumbago zeylanica* (iliee), *Psilotum nudum* (moa), *Psydrax odorata*, *Santalum* sp. (iliahi), *Sida fallax* (ilima), or *Waltheria indica* (uhaloa) (HINHP Database 2001; EDA, *in litt.* 2001).

The major threats to *Chamaesyce celastroides* var. *kaenana* are competition from the nonnative plant species *Acacia confusa* (Formosan koa), *Grevillea robusta*, *Hyptis pectinata*, *Leucaena leucocephala*, *Melinis repens* (natal redtop), *Panicum maximum*, *Pluchea carolinensis* (sourbush), and/or *Schinus terebinthifolius*; fire; and effects of recreational activities (Service 1998b; 56 FR 5577).

Chamaesyce deppeana (Akoko)

Chamaesyce deppeana, a member of the spurge family (Euphorbiaceae) and a short-lived perennial, is an erect subshrub up to 1.2 m (4 ft) tall with fuzzy branches. This species is distinguished from others in the genus by the following combination of characters: Leaves arranged in two rows on opposite sides of the branches, leaves glabrous, leaf apex notched, leaf margin toothed, and cyathia (flower cluster) width (Koutnik and Huft 1999).

Chamaesyce deppeana has been observed in flower in May and September. No further information is available on flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Chamaesyce deppeana* was known only from southern Oahu. Because the few collections that were made were collected prior to the 20th century, it was thought to be extinct. In 1986, Joel Lau and Sam Gon of The Nature Conservancy of Hawaii (TNCH) rediscovered *C. deppeana* on State land in the southern Koolau Mountains of Oahu in Nuuanu Pali Wayside State Park near the Pali Lookout, a popular tourist attraction. About 50 individuals grow near there (HINHP Database 2001; Koutnik and Huft 1999).

The habitat of the only known occurrence of *Chamaesyce deppeana* is windward-facing ridge crests, cliff faces, and mixed native cliffs with such plant species as *Bidens sandvicensis* (kookoolau) or *Metrosideros polymorpha* between 274 and 661 m (899 and 2,168 ft) elevation (HINHP Database 2001).

The major threats to the single known occurrence of *Chamaesyce deppeana* are competition for water, space, light, and nutrients with the nonnative plant species *Casuarina equisetifolia* (common ironwood), *Paspalum conjugatum*, and *Schinus terebinthifolius*; and extinction due to naturally caused events because of the limited number of individuals and restricted range. Fire and impact by humans threaten the species as well (HINHP Database 2001; Service 1998b; 59 FR 14482).

Chamaesyce herbstii (Akoko)

Chamaesyce herbstii, a member of the spurge family (Euphorbiaceae) and a short-lived perennial, is a small tree ranging from 3 to 8 m (10 to 26 ft) tall with thin, leathery leaves arranged in pairs on the same plane. This species is distinguished from others in the genus by the length of the flowering stalk and the color of the angular fruits (Koutnik and Huft 1999).

Chamaesyce herbstii has been observed in flower year-round in January, May, July, September, and October. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Chamaesyce herbstii* was known from scattered occurrences in the northern and central Waianae Mountains on the island of Oahu. Currently, this species is known from 4 occurrences with between 162 and 164 individuals in the central and northern Waianae Mountains, South Ekahanui Gulch, Pahole (Kukuiula) Gulch, Kapuna Gulch, and West Makaleha-Central Makaleha. These occurrences are found on private and State lands (Geographic Decision Systems International (GDSI) 2001; HINHP Database 2001).

Chamaesyce herbstii typically grows in shaded gulch bottoms and slopes in mesic *Acacia koa-Metrosideros polymorpha* lowland forests or diverse mesic forests at elevations between 435 and 886 m (1,427 and 2,906 ft). Associated plant species include *Antidesma platyphyllum*, *Coprosma* sp., *Diplazium sandwichianum*, *Hedyotis* sp., *Hibiscus arnottianus* var. *arnottianus* (kokio keokeo), *Melicope* sp. (alani), *Morinda trimera* (noni), *Pipturus albidus*, *Pouteria sandwicensis* (alaa), *Pteralyxia* sp. (kaulu), *Urera glabra* (opuhe), or *Xylosma* sp. (maua) (HINHP Database 2001; EDA, *in litt.* 2001).

The primary threats to *Chamaesyce herbstii* are habitat degradation and/or destruction by feral pigs; competition with nonnative plant species such as *Clidemia hirta*, *Grevillea robusta*, *Passiflora suberosa*, *Psidium cattleianum*, and *Schinus terebinthifolius*; potential fire; a risk of extinction from naturally occurring events (such as hurricanes) and/or reduced reproductive vigor due to the small number of remaining occurrences (HINHP Database 2001; Service 1998b; 61 FR 53089).

Chamaesyce kuwaleana (Akoko)

Chamaesyce kuwaleana, a member of the spurge family (Euphorbiaceae) and a short-lived perennial, is an erect shrub 20 to 90 cm (8 to 36 in) tall with leaves arranged in two rows along the stem. This species is distinguished from other species of the genus in its habitat by its stalked, oval to rounded leaves with untoothed margins and by the bent stalk supporting the small fruit capsule (Koutnik and Huft 1999).

Chamaesyce kuwaleana bears fruit in spring and early summer and has usually finished fruiting by fall. No further information is available on flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (56 FR 55770).

Historically, *Chamaesyce kuwaleana* was known from the central Waianae Mountains and Moku Manu Island off the eastern coast of Oahu. This species is currently known only from Kauaopuu Peak, Mauna Kuwale, Waianae Kai-Lualualei Ridge, Puu Kailio, and Kauaopuu in the Waianae Mountains, on Federal and State lands. The 5 occurrences contain around 2,000 individuals (GDSI 2001; HINHP Database 2001; Koutnik and Huft 1999).

Chamaesyce kuwaleana typically grows in thin guano soil on basaltic rock, on arid, exposed volcanic cliffs, on dry or mesic rocky ridges, or on sparsely vegetated slopes between sea level and 596 m (0 to 1,955 ft) elevation. Associated native species include *Artemisia* sp. (hinahina), *Bidens* sp. (kookoolau), *Carex* sp. (NCN), *Chamaesyce* sp. (akoko), *Dodonaea viscosa*, *Heteropogon contortus*, *Plectranthus parviflorus* (ala ala wai nui), *Schiedea* sp. (NCN), or *Sida fallax* (HINHP Database 2001; Koutnik and Huft 1999; Service 1998b).

The major threats to *Chamaesyce kuwaleana* are competition from the nonnative plant species *Cenchrus ciliaris* (buffelgrass), *Kalanchoe pinnata*, *Leucaena leucocephala*, *Melinis repens*, *Opuntia* sp. (prickly pear), and *Schinus terebinthifolius*; fire; two-spotted leafhoppers (*Saphonia rufofascia*); and the small number of occurrences, which makes the species highly vulnerable to extinction from random environmental events (HINHP Database 2001; Service 1998b; 56 FR 55770).

Chamaesyce rockii (Akoko)

Chamaesyce rockii, a member of the spurge family (Euphorbiaceae) and a short-lived perennial, is usually a compact shrub or sometimes a small tree typically ranging from 0.5 to 2 m (1.6 to 6.6 ft) tall, but in protected sites it has been known to reach 4 m (13 ft) in height. This species differs from others in the genus in that it has large, red, capsular fruit (Koutnik and Huft 1999).

Chamaesyce rockii has been observed fruiting in February. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Chamaesyce rockii was known historically from scattered occurrences along the Koolau Mountains on the island of Oahu. Today, 20 occurrences are located in Waikakalaua Gulch, Kaukonahua-Kahana summit area, Punaluu-Kaluanui, Peahinaia Trail Laie-Kaipapau-Kawai Nui junction area, Puu Keahiakahoe, Halawa Trail, summit ridge between Aiea Ridge Trail and Waimano Trail, Ewa Forest Reserve, Halemano Gulch, Kawaiiki-Opaeula Ridge, Puu Kainapuaa, Kawai Iki Stream, Maakua Gulch, and Kaipapau-Loloa Ridge, on State, Federal, and private lands. Currently the total number of plants is estimated to be between 641 and 773 (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Chamaesyce rockii typically grows on gulch slopes, gulch bottoms, and ridge crests in wet *Metrosideros polymorpha-Dicranopteris linearis* (uluhe) forest and shrubland between 208 and 871 m (682 and 2,857 ft) in elevation. Associated plant species include *Bidens* sp., *Antidesma platyphyllum*, *Broussaisia arguta*, *Cibotium* sp. (hapuu), *Coprosma longifolia* (pilo), *Diplopterygium pinnatum* (uluhe lau nui), *Dubautia laxa* (naenae pua melemele), *Hedyotis terminalis*, *Machaerina* sp., *Melicope* spp., *Myrsine juddii* (kolea), *Psychotria* spp. (kopiko), and *Wikstroemia* sp. (akia) (HINHP Database 2001).

The primary threats to *Chamaesyce rockii* are habitat degradation and/or destruction by feral pigs; trail clearing;

potential impacts from military activities; and competition with nonnative plant species such as *Clidemia hirta*, *Leptospermum scoparium* (tea tree), *Paspalum conjugatum*, *Psidium cattleianum*, and *Pterolepis glomerata* (NCN) (HINHP Database 2001; Service 1998b; 61 FR 53089).

Cyanea acuminata (Haha)

Cyanea acuminata, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is an unbranched shrub 0.3 to 2 m (1 to 6.6 ft) tall with inversely lance-shaped to narrowly egg-shaped or elliptic leaves. This species is distinguished from others in this endemic Hawaiian genus by the color of the petals and fruit and the length of the calyx (the outer of two series of floral leaves) lobes, flowering stalk, and leaf stalks (Lammers 1999).

Cyanea acuminata has been observed fruiting in February and November. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Cyanea acuminata* was known from 31 scattered occurrences in the Koolau Mountains of Oahu. Currently, fewer than 200 plants are known from 20 occurrences on private, city, county, State, and Federal lands on Puu o Kona, near South Kaukonahua Stream, in Halemano Gulch, Kawai Iki Gulch, near Poamoho Stream, on Schofield-Waikane Trail, Helemano-Punaluu summit ridge, Konahuanui, in Kamana Nui Valley, Pukele, in Makaua Gulch, on Niu-Waimanalo summit ridge, Waahila Ridge, Kaipapau, Puu Keahia Kahoe, Kaala, Kaluanui, Pia Gulch, Makaleha, and Maakua Gulch (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Cyanea acuminata typically grows on slopes, ridges, or stream banks between 216 and 1,208 m (708 and 3,962 ft) elevation. The plants are found in *Metrosideros polymorpha-Dicranopteris linearis*, *Acacia koa-M. polymorpha* wet or mesic forest or shrubland, or *Diospyros sandwicensis-M. polymorpha* lowland mesic forest with one or more of the following associated native species: *Antidesma* sp. (hame), *Broussaisia argutas*, *Chamaesyce* sp., *Charpentiera* sp. (papala), *Cyrtandra* spp. (hai wale), *Diplazium sandwichianum*, *Dryopteris sandwicensis* (palapalaia), *Dubautia laxa*, *Freycinetia arborea* (ieie), *Hibiscus* sp. (aloalo), *Hedyotis* sp., *Ilex anomala*, *Labordia* sp. (kamakahala), *Machaerina* sp., *Melicope* spp., *Perrottetia sandwicensis*, *Phyllostegia* sp., *Pipturus albidus*, *Pisonia* sp., *Psychotria* sp., *Sadleria* sp. (amau), *Syzygium sandwicensis*, *Touchardia latifolia* (olona), or *Wikstroemia* sp. (ohia ha) (HINHP Database 2001; Lammers 1999).

The major threats to *Cyanea acuminata* are habitat degradation and/or destruction by feral pigs; potential impacts from military activities; potential predation by rats (*Rattus rattus*); competition with the nonnative plant species *Ageratina adenophora* (Maui pamakani), *Aleurites moluccana*, *Clidemia hirta*, *Cordyline fruticosa* (ti), *Dioscorea* sp. (yam), *Erigeron karvinskianus* (daisy fleabane), *Musa* sp. (banana), *Passiflora suberosa*, *Rubus argutus*, and *Schinus terebinthifolius*; a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining individuals (HINHP Database 2001; Service 1998b; 61 FR 53089).

Cyanea crispa (NCN)

Cyanea crispa, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is an unbranched shrub with leaves clustered at the ends of succulent stems. It is distinguished from other species in this endemic Hawaiian genus by its leaf shape, distinct calyx lobes, and the length of the flowers and stalks of flower clusters (Lammers 1999).

Cyanea crispa was observed in flower in April 1930. It was more recently observed fruiting in June and September. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b; 59 FR 14482).

Historically, *Cyanea crispa* was known from scattered locations throughout the upper elevations of the Koolau Mountains of Oahu from Kaipapau Valley to Waialae Iki Ridge. This species is now known from Federal, State, city, county, and private lands in Hidden Valley, Palolo Valley, Kapakahi Gulch, Moanalua Valley, Wailupe, Koolau Summit Trail, Kawaipapa Gulch, Maakua Gulch, Kaipapa Gulch, Maunawili, and Pia Valley. There are a total of 11 occurrences containing a total of 56 individual plants (EDA Database 2001; HINHP Database 2001).

Cyanea crispa is found in habitats ranging from steep, open mesic forests to gentle slopes or moist gullies of closed wet forests and stream banks, at elevations between 56 and 959 m (184 and 3,146 ft). Associated native plant species include *Antidesma platyphylla*, *Boehmeria grandis* (akolea), *Broussaisia argutus*, *Christella cyatheoides* (kikawaio), *Cibotium chamissoi*, *Cyrtandra* spp., *Diospyros* sp. (lama), *Dubautia* sp. (naenae), *Metrosideros polymorpha*, *Perrottetia sandwicensis*, *Pipturus albidus*, *Pisonia umbellifera* (papala kepau), *Psychotria* sp., or *Touchardia latifolia* (HINHP Database 2001; Service 1998b).

The major threats to *Cyanea crispa* are habitat alteration and predation by feral pigs; competition with the nonnative plant species *Arthrostemma ciliatum* (NCN), *Clidemia hirta*, *Psidium cattleianum*, *Psidium guajava*, *Pterolepis glomerata*, *Rubus rosifolius* (thimbleberry), *Schinus terebinthifolius*, *Setaria palmifolia* (palm grass), and *Zingiber zerumbet* (awapuhi); and extinction due to naturally occurring events and/or reduced reproductive vigor due to the small number of remaining individuals, their limited gene pool, and restricted distribution (Service 1998b; 59 FR 14482).

Cyanea grimesiana ssp. *obatae* (Haha)

Cyanea grimesiana ssp. *obatae*, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is a shrub, usually unbranched, growing from 1 to 3.2 m (3.3 to 10.5 ft) tall with wide, deeply lobed leaves. This subspecies can be distinguished from the other two by its short, narrow calyx lobes that are not fused or overlapping (Lammers 1999).

Cyanea grimesiana ssp. *obatae* flowers and fruits year round, depending on rainfall. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (59 FR 32932).

Historically, *Cyanea grimesiana* ssp. *obatae* was known from the southern Waianae Mountains from Puu Hapapa to Kaaikukai. This taxon is known to be extant in Kaluaa Gulch, Ekahanui Gulch, North Palawai Gulch, and Pahole Gulch. The occurrences are on State and private lands. A total of 8 occurrences are known that contain 16 individuals (GDSI 2000; HINHP Database 2001; Lammers 1999).

Cyanea grimesiana ssp. *obatae* typically grows on steep, moist, shaded slopes in diverse mesic to wet lowland forests between 404 and 1,075 m (1,325 and 3,528 ft) elevation. Associated native species include *Acacia koa*, *Antidesma platyphyllum*, *Chamaesyce* sp., *Charpentiera obovata* (papala), *Cibotium chamissoi*, *Claoxylon sandwicense* (poola), *Coprosma* sp., *Cyanea membranacea* (haha), *Cyrtandra waianaeensis* (hahala), *Diplazium sandwichianum*, *Dryopteris unidentata*

(akole), *Dubautia* sp., *Freycinetia arborea*, *Hedyotis acuminata* (au), *Hedyotis terminalis*, *Metrosideros polymorpha*, *Myrsine lessertiana* (kolea lau nui), *Nothocestrum* sp. (aiea), *Perrottetia sandwicensis*, *Pipturus albidus*, *Pisonia umbellifera*, *Pouteria sandwicensis*, *Psychotria hathewayi* (kopiko), *Rumex* sp. (sorrel), *Selaginella arbuscula* (lepelepe a moa), and *Streblus pendulinus* (aiai) (HINHP Database 2001; Lammers 1999; EDA, *in litt.* 2001).

The major threats to *Cyanea grimesiana* ssp. *obatae* are habitat degradation by feral pigs; competition from nonnative plant species such as *Ageratina riparia*, *Aleurites moluccana*, *Blechnum appendiculatum*, *Buddleia asiatica*, *Clidemia hirta*, *Christella parasitica* (NCN), *Lantana camara* (lantana), *Morella faya* (firetree), *Paspalum conjugatum*, *Passiflora suberosa*, *Psidium cattleianum*, *Rubus rosifolius*, *Schinus terebinthifolius*, *Setaria palmifolia*, and *Toona ciliata*; predation of seeds or fruits by introduced slugs; and extinction caused by naturally occurring events and/or reduced reproductive vigor due to the small number of extant individuals (HINHP Database 2001; Service 1998b; 59 FR 32932).

Cyanea humboltiana (Haha)

Cyanea humboltiana, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is an unbranched shrub 1 to 2 m (3.2 to 6.6 ft) tall with woody stems and inversely egg-shaped to broadly elliptic leaves. The leaf edges are hardened and have shallow, ascending, rounded teeth. This species differs from others in this endemic Hawaiian genus by the downward bending flowering stalk and the length of the flowering stalk (Lammers 1999).

Cyanea humboltiana has been observed in flower from September through January. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Cyanea humboltiana was known historically from 17 occurrences from the central portion to the southern end of the Koolau Mountains of Oahu. Currently, between 133 and 239 plants are known from 9 occurrences at Konahuanui summit, Moanalua-Kaneohe summit, Wailupe summit, Poamoho Trail, Opaeula Gulch, Maakua Gulch, Kaluanui, and Lulumahu Gulch. These occurrences are on Federal, private, State, city, and county lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Cyanea humboltiana is usually found in wet *Metrosideros polymorpha-Dicranopteris linearis* lowland shrubland between 261 and 959 m (856 and 3,146 ft) elevation. Associated native plant species include *Acacia koa, Bobea elatior* (ahakea), *Broussaisia arguta, Cibotium chamissoi, Dubautia laxa, Hedyotis terminalis, Ilex anomala, Machaerina angustifolia* (uki), *Melicope* sp., *Phyllostegia* sp., *Psychotria mariniana* (kopiko), *Sadleria* sp., *Scaevola mollis* (naupaka kuahiwi), *Syzygium sandwicensis, Wikstroemia* sp., and ferns (HINHP Database 2001).

The major threats to *Cyanea humboltiana* are habitat degradation and/or destruction by feral pigs; potential predation by rats; competition with the nonnative plant species *Axonopus fissifolius* (narrow-leaved carpet grass), *Clidemia hirta, Erigeron karvinskianus, Psidium cattleianum,* and *Pterolepis glomerata,* and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining occurrences. The Konahuanui summit occurrence is also threatened by trampling by hikers (HINHP Database 2001; Service 1998b; 61 FR 53089).

Cyanea koolauensis (Haha)

Cyanea koolauensis, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is an unbranched shrub 1 to 1.5 m (3.5 to 5 ft) tall with woody stems and linear to narrowly elliptic leaves with a whitish underside. The leaf edges are hardened with shallow, ascending, rounded teeth. *Cyanea koolauensis* is distinguished from other species in this endemic Hawaiian genus by the leaf shape and width; the whitish green lower leaf surface; and the lengths of the leaf stalks, calyx lobes, and hypanthium (base of flower) (Lammers 1999).

Cyanea koolauensis has been observed in flower and fruit during the months of May through August. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Cyanea koolauensis was known historically from 27 scattered occurrences throughout the Koolau Mountains on Oahu. Currently, 42 occurrences totaling fewer than 80 plants are known from the Waimea-Malaekahana Ridge to Hawaii Loa Ridge in the Koolau Mountains. These occurrences are on private, city, county, State, and Federal lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Cyanea koolauensis is usually found on slopes, stream banks, and ridge crests in wet *Metrosideros polymorpha-Dicranopteris linearis* forest or shrubland at elevations between 163 and 959 m (535 and 3,146 ft). Associated native plant species include *Acacia koa, Antidesma platyphyllum, Bidens* sp., *Bobea elatior, Broussaisia arguta, Cibotium* sp., *Diplopterygium pinnatum, Dubautia* sp., *Hedyotis* sp., *Machaerina* sp., *Melicope* sp., *Pittosporum* sp., *Pritchardia martii* (loulu hiwa), *Psychotria mariniana, Sadleria* sp., *Scaevola* sp. (naupaka), *Syzygium sandwicensis,* or *Wikstroemia* sp. (HINHP Database 2001; Lammers 1999).

The major threats to *Cyanea koolauensis* are habitat destruction by feral pigs; potential impacts from military activities; trail clearing; potential predation by rats; competition with the aggressive nonnative plant species *Clidemia hirta, Heliocarpus popayanensis* (moho), *Psidium cattleianum,* and *Pterolepis glomerata;* trampling by hikers; and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining individuals (HINHP Database 2001; Service 1998b; 61 FR 53089).

Cyanea longiflora (Haha)

Cyanea longiflora, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is an unbranched shrub 1 to 3 m (3.5 to 10 ft) long with woody stems and elliptic or inversely lance-shaped leaves. Mature leaves have smooth or hardened leaf edges with shallow, ascending, rounded teeth. *Cyanea longiflora* differs from others in this endemic Hawaiian genus by the fused calyx lobes (Lammers 1999).

Cyanea longiflora has been observed in flower in February, April, and May and in fruit in August. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Cyanea longiflora was known historically from five occurrences in the Waianae Mountains and six occurrences in the Koolau Mountains of Oahu. Currently, 4 occurrences with less than 217 individuals of this species are known on State, Federal, city, county, and private lands on Makaha-Waianae Kai Ridge, Makaha Valley, Kapuna Gulch, and Pahole Gulch in the Waianae Mountains (GDSI 2001; HINHP Database 2001; Service 1998b).

Cyanea longiflora is usually found on steep slopes, bases of cliffs, or ridge

crests in mesic *Acacia koa-Metrosideros polymorpha* lowland forest usually between 221 and 1,191 m (725 and 3,906 ft) elevation. Associated native plant species include *Antidesma* sp., *Cibotium* sp., *Coprosma* sp., *Dicranopteris linearis, Psychotria* sp., *Schiedea* sp., or *Syzygium sandwicensis* (HINHP Database 2001; Lammers 1999).

The major threats to *Cyanea longiflora* are habitat degradation and/or destruction by feral pigs; potential impacts from military activities; potential predation by rats; competition with the nonnative plant species *Psidium cattleianum* and *Rubus arguta*; potential fire; and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining, widely dispersed occurrences (HINHP Database 2001; Service 1998b; 61 FR 53089).

Cyanea pinnatifida (Haha)

Cyanea pinnatifida, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is a shrub, usually unbranched, growing from 0.8 to 3.0 m (2.6 to 10 ft) tall, with deeply lobed leaves. This species differs from other members of the genus on Oahu by its leaves, which are deeply cut into two to six lobes per side. The only other member of the genus on Oahu with lobed leaves has 9 to 12 lobes per side (Lammers 1999).

Cyanea pinnatifida has been observed flowering in August. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Cyanea pinnatifida* was known from the central Waianae Mountains. The last known wild individual died in August 2001 (HINHP Database 2001; Lammers 1999; Trae Menard, TNCH, pers. comm., 2001). Currently, this species is known only from individuals under propagation at the University of Hawaii's Lyon Arboretum and the National Tropical Botanical Garden (G. Koob, pers. comm., 2002).

Cyanea pinnatifida typically grows on steep, wet, rocky slopes in diverse mesic forest between 450 and 881 m (1,476 and 2,890 ft) elevation. Associated native plant species include *Canavalia* sp. (awikiwiki), *Diplazium sandwichianum, Pipturus albidus, Pisonia sandwicensis* (aulu), *Pisonia umbellifera, Psychotria* sp., *Strongylodon ruber* (nunuiiwi), and native ferns (HINHP Database 2001; Lammers 1999).

The major threats to *Cyanea pinnatifida* are competition from the nonnative plant species *Aleurites moluccana, Blechnum appendiculatum, Clidemia hirta, Passiflora suberosa, Psidium cattleianum, Psidium guajava*, and *Toona ciliata*; habitat degradation by feral pigs; predation by slugs; and trampling by humans on or near trails (Service 1998b; 56 FR 55770).

Cyanea st-johnii (Haha)

Cyanea st-johnii, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is an unbranched shrub with a woody stem 30 to 60 cm (12 to 24 in) long and lance-shaped to inversely lance-shaped leaves. The leaf edges are thickened, are smoothly toothed, and curl under. This species is distinguished from others in this endemic Hawaiian genus by the length of the leaves, the distinctly curled leaf margins, and the petal color (Lammers 1999).

Cyanea st-johnii has been observed in flower in July through September. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Cyanea st-johnii was known historically from 11 occurrences in the central and southern Koolau Mountains of Oahu. Currently, 57 plants are known from 7 occurrences at Waimano Trail summit to Aiea Trail summit, the summit ridge crest between Manana and Kipapa Trails, between the summit of Aiea and Halawa trails, Summit Trail south of Poamoho Cabin, and Wailupe-Waimanalo summit ridge. These occurrences are found on city, county, private, and State lands, as well as lands under Federal jurisdiction (GDSI Database 2000; HINHP Database 2001).

Cyanea st-johnii typically grows on wet, windswept slopes and ridges between 415 and 959 m (1,361 and 3,146 ft) elevation in *Metrosideros polymorpha* mixed lowland shrubland or *Metrosideros polymorpha-Dicranopteris linearis* lowland shrubland. Associated native plant species include *Alyxia oliviformis, Antidesma* sp., *Bidens macrocarpa* (kookoolau), *Broussaisia arguta, Chamaesyce clusiifolia* (akoko), *Cibotium* sp., *Dubautia laxa, Freycinetia arborea, Hedyotis* sp., *Labordia* sp., *Machaerina angustifolia, Melicope* sp., *Psychotria* sp., *Sadleria pallida* (amau), *Scaevola mollis*, or *Syzygium sandwicensis* (HINHP Database 2001).

The major threats to *Cyanea st-johnii* are habitat degradation and/or destruction by feral pigs; potential predation by rats; predation by slugs and snails; competition with the nonnative plant species *Andropogon virginicus* (broomsedge), *Axonopus fissifolius, Clidemia hirta*, and *Sacciolepis indica* (Glenwood grass); and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining occurrences and individuals. The plants between the summit of Aiea and Halawa Trail are also threatened by trampling by hikers (HINHP Database 2001; Service 1998b; 61 FR 53089).

Cyanea superba (NCN)

Cyanea superba, of member the bellflower family (Campanulaceae) and a short-lived perennial, is morphologically very different from its closest relatives. It grows to 6 m (20 ft) tall and has a terminal rosette of large leaves; each rosette is 50 to 100 cm long (20 to 40 in) and 10 to 20 cm (4 to 8 in) wide atop a single, unbranched trunk (Lammers 1999).

The flowering season of *Cyanea superba* varies from year to year depending on precipitation. It ranges from late August to early October. Generally, flowering is at its peak in early to mid-September. Fruits have been known to mature in two to five months, depending on climatic conditions (Service 1998b). Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors.

Historically, *Cyanea superba* was collected from the gulches of Makaleha on Mt. Kaala in the Waianae Mountains of Oahu. Currently, there are no natural occurrences and an outplanted population of 140 individuals on State and Federal lands in the Waianae Mountains (EDA Database 2001; GDSI 2001; HINHP Database 2001; Service 1998b; K. Kawela, pers. comm., 2003, M. Keir, pers. comm., 2001).

Cyanea superba grows in the understory on sloping terrain on well drained rocky substrate within mesic forest between 232 and 872 m (761 and 2,860 ft) in elevation with one or more of the following associated native species: *Diospyros* sp., *Hedyotis terminalis, Metrosideros polymorpha, Nestegis sandwicensis, Pisonia brunoniana* (papala kepau), *Psychotria* sp., and *Xylosma* sp. (HINHP Database 2001).

The major threats to *Cyanea superba* are degradation of its habitat due to competition with the nonnative plant species *Aleurites moluccana, Melinis minutiflora, Psidium cattleianum,* and *Schinus terebinthifolius*; wildfires generated in the nearby military firing range; habitat degradation by feral pigs;

a restricted range that makes it vulnerable to any local environmental disturbance or single incident that could destroy a significant percentage of the known individuals; and the limited gene pool that may depress reproductive vigor (HINHP Database 2001; Service 1998b; 56 FR 46235).

Cyanea truncata (Haha)

Cyanea truncata, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is an unbranched or sparsely branched shrub covered with small sharp prickles. Its oval leaves are wider above the middle and lined with hardened teeth along the margins. *Cyanea truncata* is distinguished from other members of this genus by the length of the flower cluster stalk and the size of the flowers and flower lobes (Lammers 1999).

Cyanea truncata was observed in flower in December 1919 and November 1980, the last time the species was observed at that population before feral pigs extirpated it. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b; 59 FR 14482).

Historically, *Cyanea truncata* was known from Punaluu, Waikane, and Waiahole in the northern Koolau Mountains of Oahu. Two occurrences are currently known to exist in Hanaimoa Gulch on State and private lands (GDSI 2001; HINHP Database 2001).

Cyanea truncata typically grows on windward slopes and stream banks in mesic to wet forests at elevations between 54 and 705 m (177 and 2,312 ft). Associated native plant species include *Cibotium chamissoi, Cyrtandra calpidicarpa* (haiwale), *Cyrtandra laxiflora* (haiwale), *Cyrtandra propinqua* (haiwale), *Diospyros sandwicensis, Hibiscus arnottianus, Metrosideros polymorpha, Neraudia melastomifolia* (maaloa), *Pipturus albidus,* or *Pisonia umbellifera* (HINHP Database 2001; Lammers 1999; Service 1998b).

The major threats to *Cyanea truncata* are habitat degradation and predation by feral pigs; competition with the invasive nonnative plant species *Christella parasitica, Clidemia hirta, Cordyline fruticosa, Oplismenus hirtellus,* and *Psidium cattleianum*; predation by rats and slugs; and extinction due to naturally caused events and/or reduced reproductive vigor due to the small number of remaining individuals (Service 1998b; 59 FR 14482).

Cyrtandra crenata (Haiwale)

Cyrtandra crenata, a member of the African violet family (Gesneriaceae) and a short-lived perennial, is a shrub 1 to 2 m (3 to 7 ft) tall with few branches and leaves arranged in whorls of three, which are tufted at the end of branches. *Cyrtandra crenata* is distinguished from other species in the genus by the combination of its three-leaf arrangement, bilaterally symmetrical calyx, and brownish, hemispherical glands (Wagner *et al.* 1999).

Cyrtandra crenata has been observed in flower in June. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b; 59 FR 14482).

Historically, *Cyrtandra crenata* was known from Waikane Valley along the Waikane-Schofield Trail in the Koolau Mountains and was last observed in 1947 (HINHP Database 2001).

Cyrtandra crenata typically grows on steep slopes, in ravines, or gulches in mesic to wet forests between elevations of 328 and 779 m (1,076 and 2,555 ft) with associated native plant species such as *Dicranopteris linearis, Machaerina angustifolia,* and *Metrosideros polymorpha* (HINHP Database 2001; Service 1998b; Wagner *et al.* 1999).

The primary threat to *Cyrtandra crenata* is extinction due to naturally caused events and/or reduced reproductive vigor due to the species' restricted range. No individuals are known to be extant at this time (Service 1998b; 59 FR 14482).

Cyrtandra dentata (Haiwale)

Cyrtandra dentata, a member of the African violet family (Gesneriaceae) and a short-lived perennial, is a sparingly branched shrub ranging from 1.5 to 5 m (5 to 16 ft) tall with papery textured leaves. This species is distinguished from others in the genus by the number and arrangement of the flowers, the length of the bracts and flower stalks, and the shape of the leaves (Wagner *et al.* 1999).

Cyrtandra dentata has been observed in flower and fruit in May and November. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Cyrtandra dentata was historically known from six occurrences in the Waianae Mountains and three occurrences in the Koolau Mountains of Oahu. Currently, this species is found only in Pahole Gulch, Kapuna Valley, Ekahanui Gulch, Keawapilau Gulch, Kahanahaiki, Kawai Iki Gulch, Opaeula Stream, and Makaleha Valley on Federal, State, city, and county lands (within TNCH's Honouliuli Preserve). The 11 known occurrences total 136 individuals (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Cyrtandra dentata typically grows in gulches, slopes, stream banks, or ravines in mesic or wet forest with associated native plant species such as *Acacia koa, Metrosideros polymorpha, Pipturus albidus, Pisonia sandwicensis, Pisonia umbellifera, Pouteria sandwicensis, Syzygium sandwicensis,* or *Urera glabra,* at elevations between 255 and 953 m (836 and 3,126 ft) (HINHP Database 2001; Wagner *et al.* 1999; EDA, *in litt.* 2001).

The major threats to *Cyrtandra dentata* are competition with the nonnative plant species *Aleurites moluccana, Belchnum appendiculatum, Christella parasitica, Clidemia hirta, Psidium cattleianum, Psidium guajava,* and *Schinus terebinthifolius;* potential predation by rats; potential fire; and a risk of extinction from naturally occurring events (such as landslides/hurricanes/flooding) and/or reduced reproductive vigor due to the small number of extant occurrences and individuals (HINHP Database 2001; Service 1998b; 61 FR 53089).

Cyrtandra polyantha (Haiwale)

Cyrtandra polyantha, a member of the African violet family (Gesneriaceae) and a short-lived perennial, is an unbranched or few-branched shrub 1 to 3 m (3 to 10 ft) in height with leathery, elliptic, unequal leaves. *Cyrtandra polyantha* is distinguished from other species in the genus by the texture and hairiness of the leaf surfaces and the length, shape, and degree of cleft of the calyx. This species differs from *C. crenata* by the lack of short-stalked glands and by its leathery leaves, opposite leaf arrangement, and radially symmetrical calyx (Wagner *et al.* 1999).

Nothing is known about the flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors for *Cyrtandra polyantha* (Service 1998b).

Historically, *Cyrtandra polyantha* was known from the Kalihi region and from Kulepeamoa Ridge above Niu Valley on the leeward (southwest) side of the southern Koolau Mountains. Currently, one occurrence with three individuals is extant on the summit ridge between Kuliouou and Waimanalo on State and private lands (HINHP Database 2001).

Cyrtandra polyantha grows on ridges in *Metrosideros polymorpha* mesic or

wet forests at elevations between 331 and 762 m (1,086 and 2,499 ft). *Cyrtandra polyantha* probably grows in association with *Broussaisia arguta, Coprosma foliosa* (pilo), *Dicranopteris linearis, Machaerina angustifolia,* and *Psychotria* sp. (HINHP Database 2001; Service 1998b).

The primary threats to *Cyrtandra polyantha* are habitat degradation by feral pigs; competition with the invasive plant species *Ageratina adenophora, Clidemia hirta, Erigeron karvinskianus,* and *Melinus minutiflora;* extinction due to naturally caused events and/or reduced reproductive vigor due to the small number of remaining individuals and their restricted distribution (HINHP Database 2001; Service 1998b; 59 FR 14482).

Cyrtandra subumbellata (Haiwale)

Cyrtandra submumbellata, a member of the African violet family (Gesneriaceae) and a short-lived perennial, is a shrub 2 to 3 m (6.6 to 10 ft) tall. Papery in texture, the leaves are almost circular to egg-shaped. It is distinguished from other species in the genus by its leaf shape and texture, the number of flowers per cluster, and the length of bracts, flower stem, calyx lobes, floral tube, and styles (Wagner *et al.* 1999).

Cyrtandra submumbellata has been observed in fruit in September. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Cyrtandra submumbellata* was known from the Koolau Mountains of Oahu. Currently, there are 5 occurrences containing 12 individuals in the central Koolau Mountains at Schofield-Waikane Trail, Puu Ohulehule, and in Kaukonahua drainage on Federal, private, and State lands (EDA Database 2001; HINHP Database 2001).

Cyrtandra submumbellata typically grows on moist, forested slopes or gulch bottoms dominated by *Metrosideros polymorpha* or in mixed *Metrosideros polymorpha-Dicranopteris linearis-Acacia koa* wet forests between 345 and 790 m (1,132 and 2,591 ft) elevation. Associated native plant species include *Boehmeria grandis, Broussaisia arguta, Dryopteris* sp. (palapalai), and *Machaerina* sp. (HINHP Database 2001; Service 1998b; Wagner *et al.* 1999).

The primary threats to *Cyrtandra submumbellata* are competition with the nonnative plant species *Clidemia hirta,* impacts from military activities, predation by rats, fire, and risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of extant occurrences and individuals (HINHP Database 2001; Service 1998b; 61 FR 53089).

Cyrtandra viridiflora (Haiwale)

Cyrtandra viridiflora, a member of the African violet family (Gesneriaceae) and a short-lived perennial, is a small shrub 0.5 to 2 m (1.6 to 6.6 ft) tall. This species is distinguished from others in the genus by the leaves, which are thick, fleshy, heart-shaped, and densely hairy on both surfaces (Wagner *et al.* 1999).

Cyrtandra viridiflora has been observed in flower and fruit from May through September. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Cyrtandra viridiflora* was known from scattered occurrences in the Koolau Mountains on the island of Oahu. Fifty-two plants are known from 23 occurrences at Puu Kainapuaa, Maakua-Kaipapau Ridge, Kawai Nui Drainage, Opaeula Gulch, and Kawai Nui-Laie Divide (GDSI 2001; HINHP Database 2001).

Cyrtandra viridiflora is usually found on wind-blown ridge tops in cloud-covered wet forest or shrubland at elevations between 443 and 867 m (1,453 and 2,844 ft). Associated native plant species include *Broussaisia arguta, Cheirodendron platyphyllum* (olapa), *Dicranopteris linearis, Diplopterygium pinnatum, Dubautia* sp., *Freycinetia arborea, Hedyotis* sp., *Ilex anomala, Machaerina* sp., *Melicope* sp., *Metrosideros polymorpha, Metrosideros rugosa* (lehua papa), *Psychotria* sp., or *Syzygium sandwicensis* (HINHP Database 2001; Wagner *et al.* 1999; EDA, *in litt.* 2001).

The major threats to *Cyrtandra viridiflora* are habitat degradation or destruction by feral pigs, impacts from military activities, predation by rats, competition with the nonnative plant species *Clidemia hirta* and *Psidium catteianum,* and risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining occurrences and individuals (HINHP Database 2001; Service 1998b; 61 FR 53089).

Delissea subcordata (Oha)

Delissea subcordata, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is a branched or unbranched shrub 1 to 3 m (3.5 to 10 ft) tall. This species is distinguished from others in this endemic Hawaiian genus by the shape and size of the leaves, the length of the calyx lobes and corolla, and the hairless condition of the anthers (Lammers 1999).

Fertile plants of *Delissea subcordata* have been observed in July. An examination of herbarium specimens shows that this plant flowers throughout the year. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Delissea subcordata* was known from scattered occurrences in the Waianae and Koolau Mountains of Oahu. A specimen collected by Mann and Brigham in the 1860s and labeled from the island of Kauai is believed to have been mislabeled. *Delissea subcordata* is now known from 21 occurrences at South Huliwai Gulch, Palikea Gulch, Kaluaa Gulch, South Mohiakea Gulch, Kahanahaiki Valley, Kapuhi Gulch, South Ekahanui Gulch, Waikoekoe Gulch, Pahole Gulch, Kaawa Gulch, North Palawai Gulch, Kealia land section, Kapuna Gulch, Keawapilau Gulch, North Huliwai Gulch, Kuaokala, and Kolekole. This species is found on private, Federal, and State lands. The total number of plants is estimated to be fewer than 70 (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Delissea subcordata typically grows on moderate to steep gulch slopes in mixed mesic forests between 162 and 1,025 m (531 and 3,362 ft) elevation. Associated native plant species include *Acacia koa, Alyxia oliviformis, Antidesma* sp., *Bobea* sp. (ahakea), *Chamaesyce multiformis* (akoko), *Charpentiera obovata, Claoxylon sandwicense, Diospyros hillebrandii* (lama), *Diospyros sandwicensis, Hedyotis acuminata, Metrosideros polymorpha, Myrsine lanaiensis, Nestegis sandwicensis, Pisonia* sp., *Pouteria sandwicensis, Psychotria hathewayi, Psydrax odorata,* or *Streblus pendulinus* (HINHP Database 2001; Service 1998b).

The major threats to *Delissea subcordata* are habitat degradation and/or destruction by pigs and goats; impacts from military activities, including road construction and housing development; predation by rats and slugs; competition with the nonnative plant species *Blechnum appendiculatum, Clidemia hirta, Grevillea robusta, Lantana camara, Melinus minutiflora, Oplismenus hirtellus, Passiflora suberosa, Pimenta dioica, Psidium cattleianum, Schinus terebinthifolius, Syzygium cumini,* and *Toona ciliata;* fire; and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of

remaining individuals (HINHP Database 2001; Service 1998b; 61 FR 53089).

Diellia falcata (NCN)

Diellia falcata, in the polypody family (Polypodiaceae) and a short-lived perennial fern, grows from a rhizome (underground stem) 1 to 5 cm (0.4 to 2 in) long and 0.5 to 2 cm (0.2 to 0.8 in) in diameter. The rhizome is covered with small black or maroon scales. This species is distinguished from others in the genus by the color and texture of its leaf stalk, the venation pattern of its fronds, the color of its scales, its rounded and reduced lower pinnae (leaflets), and its separate sori (spore clusters) arranged on marginal projections (Service 1998b; Wagner 1952).

Diellia falcata hybridizes with *Diellia unisora*. It has been observed with fronds bearing sori (spores) year-round. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Diellia falcata* was known from almost the entire length of the Waianae Mountains, from Manini Gulch to Palehua Iki, as well as from the Koolau Mountains of Oahu, from Kaipapau Valley to Aiea Gulch. This species remains in Waieli Gulch, Ekahanui Gulch, Makaleha Valley, Makaha Valley, Palikea Gulch, Makua Valley, Kaimuhole Gulch, Kuaokala-Manini Gulch, Pahole Gulch, Puu Ku Makalii, Kapuna Gulch, Mohiakea Gulch, Waianae Kai, Pualii Gulch, Napepeiauolelo Gulch, Kahanahaiki Valley, Nanakuli-Lualualei Ridge, Makua, Kamaileunu Ridge, Kaluaa Gulch, and Huliwai Gulch on Federal, State, city, county, and private lands. The 30 known occurrences contain fewer than 6,000 individuals (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Diellia falcata is a terrestrial fern that typically grows in deep shade or open understory on moderate to moderately steep slopes and gulch bottoms in diverse mesic forest between 224 and 953 m (735 and 3,126 ft) elevation. Associated native species include *Acacia koa, Alyxia oliviformis, Antidesma* sp., *Asplenium kaulfussii* (kuau), *Carex meyenii* (NCN), *Charpentiera* sp., *Claoxylon sandwicense, Coprosma foliosa, Diospyros hillebrandii, Diplazium sandwichianum, Doodia kunthiana* (okupukupu), *Dryopteris unidentata, Elaeocarpus bifidus, Freycinetia arborea, Hedyotis terminalis, Hibiscus* sp., *Melicope* sp., *Metrosideros polymorpha, Myrsine lanaiensis, Nephrolepis exaltata* (kupukupu), *Nestegis sandwicensis, Nothocestrum* sp., *Pipturus* sp., *Pisonia sandwicensis, Pouteria sandwicensis, Psychotria* sp., *Psydrax odorata, Sapindus oahuensis, Selaginella arbuscula, Sophora chrysophylla* (mamane), or *Xylosma* sp. (HINHP Database 2001).

The major threats to *Diellia falcata* are habitat degradation by feral goats and pigs; competition from the nonnative plant species *Aleurites moluccana, Ageratina riparia, Blechnum appendiculatum, Christella parasitica, Clidemia hirta, Grevillea robusta, Heliocarpus popayanensis, Kalanchoe pinnata, Lantana camara, Melinus minutiflora, Paspalum conjugatum, Passiflora ligularis* (sweet granadilla), *Passiflora suberosa, Pimenta dioica, Psidium cattleianum, Psidium guajava, Rubus argutus, Schefflera actinophylla* (octopus tree), *Schinus terebinthifolius, Syzygium cumini,* and *Toona ciliata;* and fire (HINHP Database 2001; Service 1998b; 56 FR 55770).

Diellia unisora (NCN)

Diellia unisora, a short-lived perennial in the polypody fern family (Polypodiaceae), grows from a slender, erect rhizome to reach 0.5 to 3 cm (0.2 to 1.2 in) in height and 0.5 to 1 cm (0.2 to 0.4 in) in diameter. The rhizome is covered with the bases of the leaf stalks and a few small black scales. This species is distinguished from others in the genus by a rhizome completely covered by the persisting bases of the leaf stalks and few, very small scales; by sori mostly confined to the upper pinnae margins; and by delicate fronds gradually and symmetrically narrowing toward the apex (Wagner 1952).

Diellia unisora hybridizes with *Diellia falcata*. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Diellia unisora* was known from steep, grassy, rocky slopes on the western side of the Waianae Mountains of Oahu. This species is known to be extant in the southern Waianae Mountains at South Ekahanui Gulch, Palawai Gulch, and the Pualii-Napepeiauolelo Ridge. The 4 known occurrences, which are on State and private lands, contain fewer than 800 individuals (GDSI 2001; HINHP Database 2001).

Diellia unisora is a terrestrial fern that typically grows on moderate to steep slopes or gulch bottoms in deep shade or open understory, mesic forest between 382 and 953 m (1,253 and 3,126 ft) elevation. Associated native species include *Acacia koa, Alyxia oliviformis, Antidesma* sp., *Bidens torta, Carex meyenii, Chamaesyce multiformis, Coprosma* sp., *Dodonaea viscosa, Doryopteris unidentata, Eragrostis grandis* (lovegrass), *Hedyotis schlechtendahliana* (kopa), *Hedyotis terminalis, Metrosideros polymorpha, Myrsine lessertiana, Rumex* sp., *Psychotria* sp., or *Selaginella arbuscula* (HINHP Database 2001; 59 FR 32932).

The major threats to *Diellia unisora* are habitat degradation by feral pigs and competition from the nonnative plant species *Ageratina riparia, Blechnum appendiculatum, Clidemia hirta, Melinis minutiflora, Passiflora suberosa, Psidium cattleianum, Schefflera actinophylla,* and *Schinus terebinthifolius* (HINHP Database 2001; 59 FR 32932).

Dubautia herbstobatae (Naenae)

Dubautia herbstobatae, a member of the aster family (Asteraceae) and a short-lived perennial, is a small, spreading shrub to 50 cm (20 in) tall. *Dubautia herbstobatae* is distinguished from other species on Oahu in this endemic genus by the outer bracts of the flower heads being fused, forming a cup surrounding the florets, and by one large vein showing in each leaf (Carr 1999).

Dubautia herbstobatae is likely out-crossing and possibly self-incompatible (*i.e.*, pollen from the same plant will not produce seed). Flowering usually occurs in May and June. Pollination is almost certainly achieved by insect activity, and fruit dispersal is probably quite localized (Service 1998b). Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors.

Dubautia herbstobatae is known to be extant in 12 occurrences in the northern Waianae Mountains, on Ohikilolo and Kamaileunu Ridges, Keaau, and Waianae Kai on State lands and land under Federal jurisdiction. Fewer than 100 individuals are known from these locations (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Dubautia herbstobatae typically grows on rock outcrops, ridges, moderate slopes, or vertical cliffs in dry or mesic shrubland at elevations between 266 and 978 m (872 and 3,208 ft). Associated native species include *Artemisia australis, Bidens torta, Carex meyenii, Chamaesyce celastroides* (akoko), *Dodonaea viscosa, Eragrostis variabilis* (kawelu), *Metrosideros polymorpha,* and *Schiedea mannii* (NCN) (HINHP Database 2001; 56 FR 55770; EDA, *in litt.* 2001).

The major threats to *Dubautia herbstobatae* are habitat degradation by

feral goats and pigs; competition from the nonnative plant species *Ageratina riparia, Bromus mollis* (soft chess), *Grevillea robusta, Leucaena leucocephala, Melinis minutiflora, Melinis repens,* and *Schinus terebinthifolis;* fire; visitation and possible trampling by humans; and a risk of extinction from naturally occurring events due to the small number of remaining individuals (56 FR 55770).

Eragrostis fosbergii (Fosberg's love grass)

Eragrostis fosbergii, a member of the grass family (Poaceae), is a short-lived perennial species with stout, tufted culms (stems), which are 61 to 102 cm (24 to 40 in) long and usually arise from an abruptly bent woody base. This species is distinguished from others in the genus by its stiffly ascending flowering stalk and the long hairs on the margins of the glumes (floral bracts) and occasionally on the margins of the lemmas (floral bracts) (O'Connor 1999).

No information is available on flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Eragrostis fosbergii* was known only from the Waianae Mountains of Oahu, from the slopes of Mount Kaala, and in Waianae Kai and its associated ridges. Only four individuals are known to remain in Waianae Kai and on Kumaipo Trail in four occurrences on Federal and State lands (GDSI 2001; HINHP Database 2001).

Eragrostis fosbergii typically grows on ridge crests or moderate slopes in dry and mesic forests between 578 and 941 m (1,896 and 3,086 ft) elevation. Associated native plant species include *Acacia koa, Alyxia oliviformis, Bidens* sp., *Chamaesyce* sp., *Dodonaea viscosa, Doodia* sp. (oku pukupulauii), *Eragrostis grandis, Melicope* sp., *Metrosideros polymorpha, Nephrolepis exaltata, Psydrax odorata,* or *Sphenomeris* sp. (palaa) (HINHP Database 2001; 61 FR 53089).

The major threats to *Eragrostis fosbergii* are degradation of habitat by feral pigs and goats; competition with nonnative plant species such as *Grevillea robusta, Psidium cattleianum,* and *Schinus terebinthifolis;* trampling by hikers; hybridization with *Eragrostis grandis;* and a threat of extinction from random environmental events and/or reduced reproductive vigor due to the small number of remaining occurrences and individuals (HINHP Database 2001; Service 1998b; G. Koob, pers. comm., 2001).

Gardenia mannii (Nanu)

Gardenia mannii, a short-lived perennial member of the coffee family (Rubiaceae), is a tree 5 to 15 m (16 to 50 ft) tall. This species is distinguished from others in the genus by the shape and number of the calyx spurs (Wagner *et al.* 1999).

Gardenia mannii has been observed in flower and fruit in June and September. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Gardenia mannii* was known from 7 widely scattered occurrences in the Waianae Mountains and 39 occurrences distributed along almost the entire length of the Koolau Mountains of Oahu. Currently, there are 49 occurrences of *Gardenia mannii* at Haleauau Gulch, Peahinaia Ridge, Kaunala Gulch and Kaunala-Waimea Ridge, Castle Trail, Halawa Valley and Halawa-Kalauao Ridge, Moanalua Valley, Makaua-Kahana Ridge, Poamoho and Halemano Gulches, Kaluaa and Maunauna Gulches, Waimano Trail, Kawailoa Trail, Puu Hapapa and Waieli Gulch, Wiliwilinui Ridge, Koloa Stream, Waialae Nui-Kapakahi Ridge, Manaiki Valley, Laie Trail, Malaekahana-Waimea Summit Ridge, Haleauau Gulch, Schofield-Waikane Trail, Kaukonahua Gulch, Kapakahi Gulch, Manana Trail, Peahinaia Trail and Opaeula Stream, Kamana Nui Stream, Pukele, Hanaimoa Gulch, Papali Gulch, Kawai Nui, and Kaipapau Gulch. The 49 extant occurrences are on private, State, and Federal lands. The existing occurrences total between 69 and 80 plants (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Gardenia mannii is usually found on moderate to moderately steep gulch slopes, ridge crests, in gulch bottoms, and on stream banks in mesic or wet forests between 82 and 1,050 m (269 and 3,444 ft) in elevation. Associated native plant species include *Acacia koa, Alyxia oliviformis, Antidesma platyphyllum, Bobea* sp., *Boehmeria grandis, Broussaisia arguta, Cheirodendron* sp. (NCN), *Cibotium* sp., *Coprosma foliosa, Dicranopteris linearis, Elaeocarpus* sp., *Freycinetia arborea, Hedyotis acuminata, Ilex anomala, Melicope* sp., *Metrosideros polymorpha, Perottetia sandwicensis, Pipturus* sp., *Pisonia* sp., *Pouteria sandwicensis, Psychotria mariniana, Syzygium sandwicensis,* and *Thelypteris* sp. (HINHP Database 2001).

The major threats to *Gardenia mannii* are habitat degradation and/or destruction by feral pigs; potential impacts from military activities; competition with nonnative plant species such as *Clidemia hirta, Leptospermum scoparium, Passiflora suberosa, Psidium cattleianum, Psidium guajava, Rubus argutus,* and *Toona ciliata;* fire; and risk of extinction from random environmental events and/or reduced reproductive vigor due to the widely dispersed, small number of remaining individuals. The Kapakahi Gulch occurrence is also threatened by the black twig borer (HINHP Database 2001; Service 1998b; 61 FR 53089).

Hedyotis degeneri (NCN)

Hedyotis degeneri, a short-lived perennial member of the coffee family (Rubiaceae), is a prostrate shrub with four-sided stems and peeling, corky bark. This species can be distinguished from others in the genus on Oahu by its low-growing habit, the peeling corky layers on older stems, and the short, crowded, leafy shoots growing in the leaf axils; two varieties within the species are recognized: *Hedyotis degeneri* var. *coprosmifolia* and *Hedyotis degeneri* var. *degeneri* (Wagner *et al.* 1999).

This species has been observed in flower in June, July, and November, and in fruit in July. No further information is available on flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, or limiting factors (Service 1998b).

Historically, *Hedyotis degeneri* is known from Mt. Kaala in the northern Waianae Mountains. Variety *coprosmifolia* has not been collected since the 1980s, and no current occurrences are known. Four occurrences, totaling 60 individuals, of variety *degeneri* are known from Makaleha, Pahole Gulch, Kahanahaiki, and Alaiheihe Gulch on Federal, State, city, and county lands (GDSI 2001; HINHP Database 2001; Wagner *et al.* 1999).

Hedyotis degeneri typically grows on ridge crests in diverse mesic forest between 349 and 1,083 m (1,145 and 3,552 ft) elevation. Associated native species include *Alyxia oliviformis, Carex meyenii Chamaesyce multiformis, Cocculus* sp. (huehue), *Dicranopteris linearis, Diospyros sandwicensis, Dodonaea viscosa, Gahnia* sp. (NCN), *Hedyotis terminalis, Leptecophylla tameiameiae* (pukiawe), *Lobelia yuccoides* (panaunau), *Lysimachia hillebrandii* (kolokolo kuahiwi), *Metrosideros polymorpha, Pleomele* sp., *Psychotria hathewayi, Psydrax odorata,* or *Wikstroemia oahuensis* (akia) (HINHP Database 2001).

The major threats to *Hedyotis degeneri* are habitat destruction by feral pigs; competition from the nonnative plant species *Ageratina adenophora, Blechnum appendiculatum, Clidemia hirta, Grevillea robusta, Melinis minutiflora, Psidium cattleianum, Psidium guajava, Rubus argutus, Schinus terebinthifolius,* and *Toona ciliata;* and a threat of extinction from random environmental events and/or decreased reproductive vigor due to the small number of extant individuals and occurrences (HINHP Database 2001).

Hedyotis parvula (NCN)

Hedyotis parvula, a short-lived perennial member of the coffee family (Rubiaceae), is a small, many-branched shrub, either upright or sprawling, with stems usually no more than 30 cm (1 ft) in length. Closely spaced, overlapping leaves that are uniform in size along the stem distinguish this species from other members of the genus on Oahu (Wagner *et al.* 1999).

Hedyotis parvula has been observed flowering in both winter and summer. The plant is found in dry areas and flowering may be induced by rain. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Hedyotis parvula* was known from the central and southern Waianae Mountains, from Makaleha Valley to Nanakuli Valley. Currently, this species is known from five locations on Federal, State, city, and county lands at Makaleha Ridge, Makua-Keaau Ridge, Lualualei-Nananakuli Ridge, Ohikilolo Ridge, and Halona. Seven occurrences totaling between 116 and 131 individuals are known (EDA Database 2001; GDSI 2001; HINHP Database 2001; Wagner *et al.* 1999).

Hedyotis parvula typically grows on and at the base of cliff faces, rock outcrops, and ledges in mesic habitat at elevations between 331 and 1,160 m (1,086 and 3,805 ft). Associated native species include *Bidens* sp., *Carex* sp., *Chamaesyce* sp., *Dodonaea viscosa, Eragrostis* sp. (kawelu), *Metrosideros polymorpha, Metrosideros tremuloides* (lehua ahihi), *Plectranthus parviflorus, Psydrax odorata,* or *Rumex* sp. (HINHP Database 2001; Wagner *et al.* 1999; 56 FR 55770).

The major threats to *Hedyotis parvula* are habitat degradation by feral goats and pigs; competition from the nonnative plant species *Ageratina riparia, Melinis minutiflora, Morella faya,* and *Schinus terebinthifolius;* and a threat of extinction from random environmental events and/or decreased reproductive vigor due to the small number of individuals and occurrences (HINHP Database 2001; 56 FR 55770).

Labordia cyrtandrae (Kamakahala)

Labordia cyrtandrae, a short-lived perennial member of the logania family (Loganiaceae), is a shrub 0.7 to 2 m (2.3 to 6.6 ft) tall. This species is distinguished from others in the genus by its fleshy, hairy, cylindrical stem that flattens upon drying, the shape and length of the floral bracts, and the length of the corolla tube and lobes (Wagner *et al.* 1999).

Labordia cyrtandrae has been observed flowering from May through June, fruiting from July through August, and is sporadically fertile year-round. The flowers are functionally unisexual, and male and female flowers are on separate plants. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Labordia cyrtandrae* was known from both the Waianae and Koolau Mountains of Oahu. In the Koolau Mountains, this species extended from Kawailoa Trail to Waialae Iki, almost the entire length of the mountain range. This species currently is known only from 20 individuals in 10 occurrences in Haleauau Gulch, Mohiakea Gulch, Kaala, and Makaleha. These occurrences are on State, city, county, and private lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Labordia cyrtandrae typically grows in shady gulches, slopes, and glens in mesic to wet forests and shrublands dominated by *Metrosideros polymorpha, Diplopterygium pinnatum,* and/or *Acacia koa* between the elevations of 212 and 1,233 m (695 and 4,044 ft). Associated native plant species include *Antidesma* sp., *Artemisia australis, Bidens torta, Boehmeria grandis, Broussaisia arguta, Chamaesyce* sp., *Coprosma* sp., *Cyrtandra* sp., *Dicranopteris linearis, Diplazium sandwichianum, Dubautia plantaginea* (naenae), *Lysimachia hillebrandii, Peperomia membranacea* (ala ala wai nui), *Perrottetia sandwicensis, Phyllostegia* sp., *Pipturus albidus, Pouteria sandwicensis, Psychotria* sp., or *Rumex* sp. (HINHP Database 2001; Service 1998b).

The major threats to *Labordia cyrtandrae* are habitat degradation and/or destruction by feral pigs; potential impacts from military activities; competition with the nonnative plant species *Axonopus fissifolius, Clidemia hirta, Juncus planifolius* (NCN), *Psidium cattleianum, Rubus argutus, Setaria parviflora* (yellow foxtail), and *Schinus terebinthifolius;* fire; and risk of extinction from random environmental events and/or reduced reproductive vigor due to the small number of remaining individuals and occurrences (HINHP Database 2001; Service 1998b).

Lepidium arbuscula (Anaunau)

Lepidium arbuscula, a short-lived perennial member of the mustard family (Brassicaceae), is a gnarled shrub 0.6 to 1.2 m (2 to 4 ft) tall. The species is distinguished from others in the genus by its height (Wagner *et al.* 1999).

Lepidium arbuscula has been observed in flower in February. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Lepidium arbuscula* was known from 10 occurrences in the Waianae Mountains on Oahu. Currently, there are a total of approximately 1,000 individuals known from 12 occurrences on Federal, State, city, and county lands at Kamaileunu Ridge, Lualualei-Nanakuli Ridge, Kapuhi Gulch, northwest of Puu Kaua, Manini Gulch, Mohiakea Gulch, Ohikilolo Ridge, Makua-Keaau Ridge, the ridge between the Paahoa and Halona subdistricts, northwest of Puu Ku Makalii, and Halona subdistrict (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Lepidium arbuscula generally grows on exposed ridge tops and cliff faces in mesic and dry vegetation communities between 131 and 978 m (430 and 3,208 ft) elevation. This species is typically associated with native plant species such as *Artemisia australis, Bidens* sp., *Carex meyenii, Carex wahuensis* (NCN), *Chamaesyce multiformis, Dodonaea viscosa, Dryopteris unidentata, Dubautia* sp., *Eragrostis* sp., *Leptecophylla tameiameiae, Lysimachia hillebrandii, Metrosideros polymorpha, Peperomia* sp., *Psydrax odorata, Rumex albescens* (huahuako), *Schiedea ligustrina* (NCN), *Sida fallax,* or *Sophora chrysophylla* (HINHP Database 2001; Service 1998b).

The primary threats to *Lepidium arbuscula* are habitat degradation and/or destruction by feral goats, potential impacts from military activities, competition with nonnative plants, and fire. The occurrence at the head of Kapuhi Gulch is also threatened by its proximity to a road (HINHP Database 2001; 61 FR 53089).

Lipochaeta lobata var. *leptophylla* (Nehe)

Lipochaeta lobata var. *leptophylla,* a member of the aster family (Asteraceae),

is a low, somewhat woody, short-lived perennial herb with arched or nearly prostrate stems that may be up to 150 cm (59 in) long. Aside from being a coastal species, this species is the only member of its genus on Oahu with four-parted disk florets. This variety has narrower leaves, spaced more closely along the stem, than those of *Lipochaeta lobata* var. *lobata,* the only other variety of the species (Wagner *et al.* 1999).

Flowering of *Lipochaeta lobata* var. *leptophylla* is probably rain-induced. Occurrences may consist of fewer distinct individuals than it appears because many plants are connected underground by the roots and are probably clones. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Lipochaeta lobata* var. *leptophylla* was known from the southern Waianae Mountains of Oahu, from Kolekole Pass to Lualualei. Currently, there are a total of 147 individuals found in 4 occurrences on State, Federal, city, and county lands at Lualualei-Nanakuli Ridge, Kauhiuhi, Puu Hapapa, Mikilua, and Kamaileunu Ridge, (EDA Database 2001; GDSI 2001; HINHP Database 2001; Wagner *et al.* 1999).

Lipochaeta lobata var. *leptophylla* typically grows on cliffs, ridges, and slopes in dry or mesic shrubland at elevations between 256 and 978 m (840 and 3,208 ft). Associated native species include *Artemisia australis, Bidens* sp., *Carex meyenii, Diospyros* sp., *Dodonaea viscosa, Eragrostis* sp., *Melanthera tenuis* (nehe), *Peperomia* sp., *Psydrax odorata,* and *Stenogyne* sp. (NCN) (HINHP Database 2001; EDA, *in litt.* 2001).

The major threats to *Lipochaeta lobata* var. *leptophylla* include competition from nonnative plant species such as *Ageratina adenophora, Ageratina riparia, Erigeron karvinskianus, Grevillea robusta, Kalanchoe pinnata, Lantana camara, Leucaena leucocephala, Melinis minutiflora, Passiflora suberosa,* and *Schinus terebinthifolius;* habitat degradation by feral pigs and goats; fire; and a threat of extinction from random environmental events and/or decreased reproductive vigor due to the small number of individuals and occurrences (HINHP Database 2001).

Lipochaeta tenuifolia (Nehe)

Lipochaeta tenuifolia, a member of the aster family (Asteraceae), is a low growing, somewhat woody, short-lived perennial herb with short, more or less erect branches. Its five-parted disk florets and its deeply cut, stalkless leaves separate this species from other members of the genus (Wagner *et al.* 1999).

Lipochaeta tenuifolia has been observed flowering in April. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Lipochaeta tenuifolia occurs in the northern half of the Waianae Mountains of Oahu, from Kaluakauila Gulch to Kamaileunu Ridge and east to Mt. Kaala, and northwest, southwest, southeast, and north of Puu Ku Makalii on State, Federal, city, and county lands. The 41 known occurrences contain between 759 and 1,174 individuals (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Lipochaeta tenuifolia typically grows on ridgetops and bluffs in open areas, protected pockets of dry to mesic forests and shrublands, and forests dominated by Diospyros sandwicensis at elevations between 67 and 978 m (220 and 3,208 ft). Associated native species include *Artemisia australis, Bidens* sp., *Carex meyenii, Diospyros* sp., *Dodonaea viscosa, Doryopteris* sp. (kumu niu), *Dubautia* sp., *Eragrostis* sp., *Myoporum sandwicense, Osteomeles anthyllidifolia* (ulei), *Psydrax odorata, Reynoldsia sandwicensis, Rumex* sp., *Santalum* sp., *Sapindus oahuensis,* or *Schiedea* sp. (HINHP Database 2001; Wagner *et al.* 1999).

The major threats to *Lipochaeta tenuifolia* are habitat degradation by feral goats and pigs; competition for light and space from nonnative plant species including *Ageratina riparia, Aleurites moluccana, Blechnum appendiculatum, Coffea arabica* (coffee), *Grevillea robusta, Hyptis pectinata, Lantana camara, Leucaena leucocephala, Melinis minutiflora, Panicum maximum, Psidium cattleianum, Rivina humilis, Schinus terebinthifolius,* or *Toona ciliata;* and fire (HINHP Database 2001; 56 FR 55770).

Lobelia gaudichaudii ssp. *koolauensis* (NCN)

Lobelia gaudichaudii ssp. *koolauensis,* a short-lived perennial member of the bellflower family (Campanulaceae), is an unbranched, woody shrub 0.3 to 1 m (1 to 3.5 ft) tall. The species is distinguished from others in the genus by the length of the stem, the length and color of the corolla, the leaf width, the length of the floral bracts, and the length of the calyx lobes. The subspecies *koolauensis* is distinguished by the greenish or yellowish white petals and the branched flowering stalks (Lammers 1990; 61 FR 53089).

Lobelia gaudichaudii ssp. *koolauensis* has been observed in flower in September and in fruit in December. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Lobelia gaudichaudii* ssp. *koolauensis* was known from only two occurrences in the central Koolau Mountains on Oahu. Currently, this subspecies is known from five occurrences in the central Koolau Mountains, on Federal, State, and private lands at Waimano-Waiawa Ridge, Waimano, the plateau above Sacred Falls, and Kaukonahua Gulch. The total number of plants is estimated to be fewer than 270 (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Lobelia gaudichaudii ssp. *koolauensis* typically grows on moderate to steep slopes in *Metrosideros polymorpha* lowland wet shrublands and bogs at elevations between 383 and 867 m (1,256 and 2,844 ft). Associated native plant species include *Bidens* sp., *Broussaisia arguta, Cibotium* sp., *Dicanthelium koolauense* (NCN), *Isachne distichophylla* (ohe), *Machaerina angustifolia, Melicope* sp., *Sadleria pallida, Scaevola* sp., or *Vaccinium dentatum* (ohelo) (HINHP Database 2001; EDA, *in litt.* 2001).

The primary threats to *Lobelia gaudichaudii* ssp. *koolauensis* are habitat degradation and/or destruction by feral pigs; competition with the nonnative plant species *Axonopus fissifolius, Clidemia hirta, Pterolepis glomerata,* and *Sacciolepis indica;* trampling by hikers; landslides; and risk of extinction from random environmental events and/or reduced reproductive vigor of the few remaining individuals (HINHP Database 2001; 61 FR 53089).

Lobelia monostachya (NCN)

Lobelia monostachya, a short-lived perennial member of the bellflower family (Campanulaceae), is a prostrate woody shrub with stems 15 to 25 cm (6 to 10 in) long. The species is distinguished from others in the genus by its narrow, linear leaves without stalks and its short pink flowers (Lammers 1999).

This species has been observed in flower in May and June. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific

environmental requirements, and limiting factors (Service 1998b).

Historically, *Lobelia monostachya* was known only from the Koolau Mountains and had not been seen since its original discovery in the 1800s in Niu Valley, and in the 1920s in Manoa Valley. In 1994, Joel Lau discovered one individual in a previously unknown location in Wailupe Valley on State and private lands. Currently, one occurrence with a total of three plants is known (GDSI 2001; HINHP Database 2001).

Lobelia monostachya occurs on steep, sparsely vegetated cliffs in mesic shrubland between 44 and 614 m (144 and 2,014 ft) elevation. Associated native plant species include *Artemisia australis, Carex meyenii, Eragrostis* sp., or *Psilotum nudum* (HINHP Database 2001).

The major threats to *Lobelia monostachya* are predation by rats; competition with the nonnative plants *Ageratum riparia, Kalanchoe pinnata, Melinis minutiflora,* and *Schinus terebinthifolius;* and risk of extinction from random environmental events and/or reduced reproductive vigor due to the low number of individuals in the only known occurrence (HINHP Database 2001; 61 FR 53089).

Lobelia oahuensis (NCN)

Lobelia oahuensis, a short-lived perennial member of the bellflower family (Campanulaceae), is a stout, erect, unbranched shrub 1 to 3 m (3 to 10 ft) tall. *Lobelia oahuensis* differs from other members of the genus in having the following combination of characters: Erect stems 1 to 3 m (3 to 10 ft) long, dense rosettes of leaves at the end of stems, lower leaf surfaces covered with coarse grayish or greenish hairs, and flowers 42 to 45 millimeters (mm) (1.7 to 1.8 in) long (Lammers 1999).

This species has been observed in flower during November. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Lobelia oahuensis* was known from Kahana Ridge, Kipapa Gulch, and the southeastern Koolau Mountains of Oahu. The 12 current occurrences totaling 42 individuals are located on private, State, and Federal lands. These occurrences are on Mt. Olympus, Konahuanui summit, Waikakalaua-Waikane Ridge, Puu o Kona, the summit area between Aiea and Halawa Valley, Puu Keahiakahoe and the summit ridge south of Puu Keahiakahoe, Waialae Nui-Waimanalo and Kapakahi-Waimanalo, Puu Kalena, and Eleao (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Lobelia oahuensis grows on steep slopes between elevations of 415 and 959 m (1,361 and 3,146 ft) on summit cliffs in cloudswept wet forests or in lowland wet shrubland that is frequently exposed to heavy wind and rain. Associated native plant species include *Bidens* sp., *Broussaisia arguta, Cheirodendron trigynum* (olapa), *Cibotium* sp., *Dicranopteris linearis, Dubautia laxa, Freycinetia arborea, Hedyotis* sp., *Labordia hosakana* (kamakahala), *Lycopodiella cernua* (wawae iole), *Machaerina angustifolia, Melicope* sp., *Metrosideros polymorpha, Peperomia* sp., *Phyllostegia* sp., *Sadleria squarrosa* (apuu), *Scaevola* sp., *Syzygium sandwicensis, Vaccinium* sp., or *Wikstroemia* sp. (HINHP Database 2001; Lammers 1999; Service 1998b).

The primary threats to *Lobelia oahuensis* are competition with the nonnative plant species *Clidemia hirta, Erigeron karvinskianus, Paspalum conjugatum, Rubus argutus,* and *Rubus rosifolius,* and habitat degradation by feral pigs (HINHP Database 2001).

Melicope lydgatei (Alani)

Melicope lydgatei, a long-lived perennial member of the citrus family (Rutaceae), is a small shrub that has leaves arranged oppositely or in threes. The species' leaf arrangement, the amount of fusion of the fruit sections, and the hairless exocarp (outermost layer of the fruit wall) and endocarp (innermost layer) distinguish it from other species in the genus (Wagner *et al.* 1999).

This species has been observed in flower in May and in fruit from June to July. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Melicope lydgatei was formerly known throughout the Koolau Mountains of Oahu from Hauula to Kahana, Kipapa Gulch to Waimano, and Kalihi Valley to Wailupe Valley. Eighteen occurrences remain within its historical range on State and private lands along Poamoho Trail, Peahinaia Trail, and Manana Trail (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Melicope lydgatei typically grows in association with *Acacia koa, Bobea elatior, Dicranopteris linearis, Metrosideros polymorpha, Psychotria* sp., or *Syzygium sandwicensis* on ridges in mesic and wet forests at elevations between 349 and 671 m (1,145 and 2,201 ft) (HINHP Database 2001; Service 1998b; EDA, *in litt.* 2001).

The primary threat to *Melicope lydgatei* is a threat of extinction due to random environmental events and/or reduced reproductive vigor because of the small number of occurrences remaining (59 FR 14482).

Melicope saint-johnii (Alani)

Melicope saint-johnii, a long-lived perennial member of the rue family (Rutaceae), is a slender tree 3 to 6 m (10 to 20 ft) tall. This species is distinguished from others in the genus by the combination of the hairless exocarp, hairy endocarp, densely hairy petals, and sparsely hairy to smooth sepals (Stone *et al.* 1999).

No information exists on flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Melicope saint-johnii* was known from both the Waianae and Koolau Mountains at Makaha to Mauna Kapu in the Waianae Mountains and Papali Gulch in Hauula, Manoa-Aihualama, Wailupe, and Niu Valley in the Koolau Mountains. Today 6 occurrences of this species are found on Federal and private lands from the region between Puu Kaua and Puu Kanehoa to Mauna Kapu in the southern Waianae Mountains, with a total of fewer than 170 individuals (GDSI 2001; HINHP Database 2001).

Melicope saint-johnii typically grows on mesic forested ridges and gulch bottoms between the elevation of 240 and 953 m (787 and 3,126 ft). Associated native plant species include *Alyxia oliviformis, Artemisia australis, Bidens torta, Carex wahuensis, Coprosma longifolia, Eragrostis* sp., *Hedyotis schlechtendahliana, Labordia kaalae* (kamakahala), *Lysimachia hillebrandii, Metrosideros polymorpha, Panicum beechyi* (panic grass), *Pipturus albidus, Pittosporum* sp., *Pleomele halapepe* (hala pepe), *Psychotria hathewayi,* or *Rumex albescens* (HINHP Database 2001).

The primary threats to *Melicope saint-johnii* are habitat degradation and/or destruction by feral goats and pigs; potential predation by the black twig borer; potential fire; competition with nonnative plant species such as *Ageratina adenophora, Ageratina riparia, Clidemia hirta, Grevillea robusta, Lantana camara, Melinis minutiflora, Morella faya, Passiflora suberosa, Passiflora* sp., *Psidium cattleianum,* and *Schinus terebinthifolius;* and risk of extinction due to naturally occurring events and/or reduced reproductive vigor because of the few individuals remaining and their restricted distribution (HINHP

Database 2001; Service 1998b; 61 FR 53089).

Myrsine juddii (Kolea)

Myrsine juddii, short-lived perennial a member of the myrsine family (Myrsinaceae), is a many branched shrub ranging from 1 to 2 m (3.5 to 6.6 ft) tall. This species is distinguished from others in the genus by the hairiness of the lower leaf surface and the shape of the leaf base. In addition, the hairy leaves distinguish this species from all other species of *Myrsine* on Oahu (Wagner *et al.* 1999).

Myrsine juddii has been reported from only three occurrences in the central Koolau Mountains: the North Kaukonahua-Kahana Summit divide, Peahinaia Trail, and Puu Kainapuaa to Poamoho Trail. These occurrences are found on State and Federal lands. The total number of individuals is thought to be around 5,000 (GDSI 2001; HINHP Database 2001).

Myrsine juddii typically grows on ridge crests and gulch slopes in wet forests and shrublands dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha* and *Dicranopteris linearis* at elevations between 384 and 867 m (1,260 and 2,844 ft). Associated native plant species include *Cheirodendron platyphyllum, Cheirodendron trigynum, Machaerina* sp., *Melicope clusiifolia* (kolokolo mokihana), *Psychotria mariniana,* and *Syzygium sandwicensis* (GDSI 2001; HINHP Database 2001; Service 1998b; 61 FR 53089; EDA, *in litt.* 2001).

The primary threats to *Myrsine juddii* are habitat degradation and/or destruction by feral pigs; potential impacts from military activities; competition with nonnative plant species such as *Clidemia hirta* and *Psidium cattleianum;* and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of extant occurrences (HINHP Database 2001; Service 1998b; 61 FR 53089).

Neraudia angulata (NCN)

Neraudia angulata, a short-lived perennial member of the nettle family (Urticaceae), is an erect shrub up to 3 m (10 ft) tall. This species is distinguished from other species in its genus by the conspicuously angled, ridged, fleshy calyx in the female flower. There are two varieties, *N. angulata* var. *angulata* and *N. angulata* var. *dentata,* that differ in the types of leaf hairs on the lower surface of the leaves and the type of leaf margin (Wagner *et al.* 1999).

Neraudia angulata flowers and fruits from early spring to summer. Fruits mature in about one month. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Neraudia angulata* was known from almost the entire length of the Waianae Mountains, from Kaluakauila Gulch nearly to Puu Manawahua. This species is currently known from Kaluakauila Gulch along Makua-Keaau Ridge to Makaha-Waianae Kai Ridge, on Federal, State, city, county, and private lands. The 27 known occurrences are estimated to comprise approximately 51 individuals (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Neraudia angulata var. *angulata* typically grows on slopes, ledges, or gulches in lowland mesic or dry forest between 189 and 978 m (620 and 3,208 ft) elevation. Associated native plant species include *Artemisia australis, Bidens* sp., *Carex meyenii, Diospyros* sp., *Dodonaea viscosa, Hibiscus* sp., *Nestegis sandwicensis, Pisonia sandwicensis, Psydrax odorata,* or *Sida fallax. Neraudia angulata* var. *dentata* typically grows on cliffs, rock embankments, gulches, and slopes in mesic or dry forests between 110 and 978 m (361 and 3,208 ft) elevation. Associated native plant species include *Alyxia oliviformis, Antidesma pulvinatum, Artemisia australis, Bidens torta, Canavalia* sp., *Carex* sp., *Charpentiera* sp., *Diospyros hillebrandii, Diospyros sandwicensis, Dodonaea viscosa, Eragrostis* sp., *Hibiscus* sp., *Metrosideros polymorpha, Myrsine lanaiensis, Nestegis sandwicensis, Pisonia* sp., *Psydrax odorata, Rauvolfia sandwicensis, Sapindus oahuensis, Sida fallax,* or *Streblus pendulinus* (HINHP Database 2001; Service 1998b; 56 FR 55770; EDA, *in litt.* 2001).

The major threats to *Neraudia angulata* var. *angulata* are habitat degradation by feral goats and pigs; potential impacts from military activities; competition from the nonnative plant species *Ageratina riparia, Melinis minutiflora, Passiflora* sp., *Psidium cattleianum,* and *Schinus terebinthifolius;* fire; and a risk of extinction from naturally occurring events due to the small number of extant individuals. The major threats to *Neraudia angulata* var. *dentata* are habitat degradation by feral pigs and goats; fire; competition with the nonnative plant species *Ageratina adenophora, Ageratina riparia, Aleurites moluccana, Blechnum appendiculatum, Erigeron karvinskianus, Leucaena leucocephala, Melinis* sp., *Montanoa hibiscifolia, Oplismenus hirtellus, Passiflora suberosa, Pimenta dioica, Psidium guajava, Schefflera actinophylla, Schinus terebinthifolius, Syzygium cumini,* and *Tecoma castanifolia* (yellow elder); and a risk of extinction from naturally occurring events due to the small number of extant individuals (HINHP Database 2001; Service 1998b; 56 FR 55770).

Phyllostegia hirsuta (NCN)

Phyllostegia hirsuta, a short-lived perennial member of the mint family (Lamiaceae), is an erect subshrub or vine with stems densely covered with coarse or stiff hairs. This species is distinguished from others in the genus by the texture, hairiness, size of the leaves, and the length of the upper bracts (Wagner *et al.* 1999).

Phyllostegia hirsuta has been observed in flower in February and in fruit in June. Cultivated material flowered in July. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Phyllostegia hirsuta* was known from widespread locations in the Waianae and Koolau Mountains on Oahu. Currently, this species is found in 26 occurrences with a total of between 214 and 227 individuals from the ridge between Makaha and Waianae Kai to the south fork of North Palawai Gulch in the Waianae Mountains and from Kawainui Gulch in Kawailoa Training Area to south Kaukonahua drainage in the Koolau Mountains. These occurrences are on Federal, State, city, county, and private lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Phyllostegia hirsuta is usually found on steep, shaded slopes, cliffs, ridges, gullies, and stream banks in mesic or wet forests dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha* and *Dicranopteris linearis* between 195 and 1,202 m (640 and 3,943 ft) elevation. Associated native plant species include *Antidesma platyphyllum, Astelia* sp. (painiu), *Brousaissia arguta, Chamaesyce multiformis, Cibotium* sp., *Claoxylon sandwicense, Clermontia kekeana* (oha wai), *Coprosma longifolia, Cyanea membranacea, Cyrtandra waianaeensis, Diplazium sandwichianum, Dryopteris unidentata, Dubautia laxa, Dubautia sherffiana* (naenae), *Elaeocarpus bifidus, Freycinetia arborea, Hedyotis schlechtendahliana, Hedyotis terminalis, Hibiscus* sp., *Ilex anomala, Labordia kaalae, Liparis hawaiiensis* (awapuhiakanaloa), *Lysimachia*

hillebrandii, Machaerina angustifolia, Melicope sp., *Myrsine lessertiana, Myrsine sandwicensis* (kolea lau nui), *Neraudia* sp. (NCN), *Nothocestrum* sp., *Perottetia sandwicensis, Phyllostegia grandiflora* (kapana), *Pipturus* sp., *Pisonia* sp., *Pleomele* sp., *Pouteria sandwicensis, Psychotria* sp., *Rumex albescens, Scaevola gaudichaudiana* (naupaka kuahiwi), *Streblus pendulinus, Zanthoxylum kauaense* (ae), or native ferns (HINHP Database 2001; Service 1998b; 61 FR 53089).

The primary threats to *Phyllostegia hirsuta* are habitat degradation and/or destruction by feral pigs; potential impacts from military activities; rockslides; predation by rats; and competition with *Adiantum raddianum, Athyrium* sp. (NCN), *Axonopus fissifolius, Blechnum appendiculatum, Buddleia asiatica, Clidemia hirta, Drymaria cordata* (pipili), *Lantana camara, Melinis minutiflora, Passiflora suberosa, Paspalum conjugatum, Physalis peruviana* (poha), *Pimenta dioica, Psidium cattleianum, Rubus argutus, Rubus rosifolius,* or *Schinus terebinthifolius* (HINHP Database 2001).

Phyllostegia kaalaensis (NCN)

Phyllostegia kaalaensis, a member of the mint family (Lamiaceae), is a short-lived perennial herb. The egg-shaped leaves are 5 to 13 cm (2 to 5 in) long. The species is distinguished from others of the genus by the spreading, pointed teeth on the leaf edges and by the hairs along the margins of the calyx and bracts (Wagner *et al.* 1999).

No information is available on flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Phyllostegia kaalaensis was formerly known from only six scattered locations in the Waianae Mountains of Oahu. Currently, this species is known from 7 occurrences containing a total of fewer than 45 plants, in Waianae Kai, Pahole Gulch, central Ekahanui Gulch, Ekahanui Gulch, and Palikea Gulch. These occurrences are on State and private lands (GDSI 2001; HINHP Database 2001).

Phyllostegia kaalaensis is found on gulch slopes and bottoms and on almost vertical rock faces in mesic forest or *Sapindus oahuensis* forest between 374 and 796 m (1,227 and 2,611 ft) elevation. Associated native plant species include *Antidesma platyphyllum, Claoxylon sandwicense, Diplazium sandwichianum, Freycinetia arborea, Hibiscus* sp., *Myrsine lanaiensis, Myrsine lessertiana, Neraudia melastomifolia, Pipturus albidus, Pouteria sandwicensis, Psychotria hathewayi, Streblus pendulinus,* or *Urera glabra* (HINHP Database 2001).

The major threats to *Phyllostegia kaalaensis* are habitat degradation and/or destruction by feral pigs and goats; fire; trail clearing; competition with the nonnative plant species *Ageratina adenophora, Aleurites moluccana, Blechnum appendiculatum, Buddleia asiatica, Christella parasitica, Clidemia hirta, Cordyline fruticosa, Lantana camara, Oplismenus hirtellus, Passiflora edulis* (passion fruit), *Passiflora ligularis, Passiflora suberosa, Psidium cattleianum, Psidium guajava, Rubus rosifolius, Schinus terebinthifolius,* and *Toona ciliata;* and risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of occurrences and individuals (HINHP Database 2001; Service 1998b; 61 FR 53089).

Pritchardia kaalae (Loulu)

Pritchardia kaalae, a long-lived perennial member of the palm family (Arecaceae), is a single-stemmed palm up to 5 m (16 ft) tall. The waxy, hairless leaves are thin and papery or thick and leathery. Sometimes small points, dots, or linear, rusty scales are scattered on the lower leaf surface. *Pritchardia kaalae* is distinguished from other members of the genus by the hairless or scaly leaves (Read and Hodel 1999).

Pritchardia kaalae plants have been observed in fruit in April, August, and October and may fruit throughout the year. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Pritchardia kaalae* was known from scattered occurrences in the central and north-central Waianae Mountains of Oahu. Currently, 6 occurrences are known from Manuwai Gulch, East Makaleha, Kaumokunui Gulch, Waianae Kai-Haleauau summit divide, Makua-Keaau Ridge and Makaha Valley, totaling about 200 individuals. These occurrences are located on Federal, State, city, and county lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Pritchardia kaalae is typically found on steep slopes and gulches in mesic forest or shrubland between elevations of 421 and 1,123 m (1,381 and 3,683 ft). Associated native plant species include *Bidens* sp., *Dodonaea viscosa, Dubautia* sp., *Eragrostis* sp., *Metrosideros polymorpha, Metrosideros tremuloides, Myrsine* sp., *Pipturus* sp., or *Tetraplasandra* sp. (ohe ohe) (HINHP Database 2001; Service 1998b; 61 FR 53089; EDA, *in litt.* 2001).

Major threats to *Pritchardia kaalae* are habitat degradation by feral pigs and goats; fruit predation by rats; potential impacts from military activities; competition with the nonnative plant species *Ageratina adenophora, Rubus argutus,* and *Schinus terebinthifolius;* potential fire; and risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of occurrences (HINHP Database 2001; Service 1998b; 61 FR 53089).

Sanicula mariversa (NCN)

Sanicula mariversa, a short-lived perennial member of the parsley family (Apiaceae), is an upright herb, 40 to 70 cm (16 to 28 in) tall, that produces a caudex (a single branched stem from a sturdy base) growing just beneath the surface of the soil. The larger size of the plant and basal leaves, the color of the flower petals, and the hooked prickles on the fruit separate this species from others of the genus in Hawaii (Constance and Affolter 1999).

Sanicula mariversa is known to flower from February through May, and fruits can be found until August. Dry fruits remain on the plant for a long time and may persist beyond August. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Sanicula mariversa* was known from the central Waianae Mountains from Makua-Keaau Ridge to Kaluaa-Lualualei Summit Ridge. This species is now extant on Ohikilolo Ridge, Keaau-Makaha Ridge, Kamaileunu Ridge, and northwest of Puu Kanehoa on Federal, State, city, and county lands. The 4 known occurrences contain approximately 170 individuals (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Sanicula mariversa typically grows on well-drained, dry slopes and rock faces in mesic shrublands and open grassy areas at elevations between 582 and 978 m (1,909 and 3,208 ft). Associated native species include *Bidens torta, Carex meyenii, Doryopteris* sp., *Eragrostis* sp., *Metrosideros polymorpha,* or *Metrosideros tremuloides* (HINHP Database 2001; EDA, *in litt.* 2001).

The major threats to *Sanicula mariversa* are habitat degradation by feral goats; fire; erosion; competition from the nonnative plant species *Ageratina riparia, Erigeron karvinskianus, Melinus minutiflora, Schinus terebinthifolius,* and

Stachytarpheta dichotoma; trampling by humans on or near trails; and the risk of extinction due to the small number of occurrences (HINHP Database 2001; Service 1998b; 56 FR 55770).

Schiedea kaalae (NCN)

Schiedea kaalae, a short-lived perennial member of the pink family (Caryophyllaceae), has a short woody caudex less than 20 cm (8 in) long. This species can be distinguished from other members of its genus by its very short stems and its thick leaves with one conspicuous vein (Wagner *et al.* 1999).

This plant has been observed in flower from March through June. Based on field and greenhouse observations, *Schiedea kaalae* has bisexual flowers. A series of experimental self-pollinations, within-population crosses, and crosses among occurrences has demonstrated that *Schiedea kaalae* experiences moderately strong inbreeding depression. These results indicate that reductions in population size could result in expression of inbreeding depression among progeny, with potentially deleterious consequences for the long-term persistence of this species. Consistent with the evidence for inbreeding depression, *Schiedea kaalae* appears to be an out-crossing species. Under greenhouse conditions, flowers do not set seed unless hand-pollinated. In the field, this species was observed being visited by the introduced syrphid fly, *Simosyrphus grandicornis.* The fly did not appear to be foraging for nectar but may have been feeding on pollen. Individuals of *Schiedea kaalae* appear to be long-lived, but there is no evidence of regeneration from seed under field conditions. Seedlings of *Schiedea kaalae,* like those of other *Schiedea* species in mesic or wet sites, are apparently consumed by introduced slugs and snails, which have been observed feeding on *Schiedea membranacea,* a mesic forest species from Kauai. In contrast, *Schiedea* occurring in dry areas produce abundant seedlings following winter rains, presumably because dry areas have fewer nonnative predators. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b; Weller and Sakai, unpublished data).

Historically, *Schiedea kaalae* was known from the north-central and south-central Waianae Mountains and the northern Koolau Mountains of Oahu. This species remains on State and private lands at Pahole Gulch, Kaluaa Gulch, Puu Kaua, Palawai Gulch, Maakua Gulch, Huliwai Gulch, and Makaua Stream. The 7 known occurrences contain only 49 individuals (GDSI 2001; HINHP Database 2001).

Schiedea kaalae typically grows in deep shade on steep slopes, cliffs, and stream banks in diverse mesic and wet forests at elevations between 64 and 869 m (210 and 2,850 ft). Associated native species include *Alyxia oliviformis, Athyrium arnottii* (hoio), *Athyrium sandwichianum, Boehmeria grandis, Charpentiera sp., Claoxylon sandwicense, Cyrtandra calpidicarpa, Cyrtandra laxiflora, Diospyros hillebrandii, Dryopteris unidentata, Freycinetia arborea, Hedyotis acuminata, Nothocestrum longifolium* (aiea), *Pipturus albidus, Pisonia sandwicensis, Pisonia umbellifera, Pouteria sandwicensis, Psychotria hathewayi, Selaginella arbuscula,* or *Xylosma hawaiiense* (maua) (HINHP Database 2001; Service 1998b).

The major threats to *Schiedea kaalae* are habitat degradation by feral pigs and goats; competition from the nonnative plant species *Ageratina adenophora, Ageratina riparia, Blechnum appendiculatum, Christella parasitica, Clidemia hirta, Cordyline fruticosa, Melinus minutiflora, Morella faya, Oplismenus hirtellus, Passiflora suberosa, Psidium cattleianum, Psidium guajava, Rubus rosifolius,* and *Schinus terebinthifolius;* fire; predation by introduced slugs and snails; and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining individuals (HINHP Database 2001; Service 1998b).

Schiedea kealiae (Ma oli oli)

Schiedea kealiae, a short-lived perennial member of the pink family (Caryophyllaceae), is a subshrub with weakly ascending to sprawling stems that form loose clumps. The species is distinguished from others of this endemic Hawaiian genus by the length of the sepals and nectaries and by the stalkless glands found only on the flowering stalk (Wagner *et al.* 1999).

Schiedea kealiae has been observed in flower in December. A series of self-pollinations, within-population crosses, and crosses among occurrences has demonstrated that many related *Schiedea* species experience moderately strong inbreeding depression. These results indicate that reductions in population size could result in expression of inbreeding depression among progeny, with potentially deleterious consequences for the long-term persistence of the species. Individuals of *Schiedea kealiae* appear to be long-lived; however, there is no evidence of regeneration from seed under field conditions. Seedlings of *Schiedea* species occurring in mesic or wet sites are apparently consumed by introduced slugs and snails, which have been observed feeding on *Schiedea membranacea,* a mesic forest species from Kauai. In contrast, *Schiedea* occurring in dry areas produce abundant seedlings following winter rains, presumably because dry areas have fewer nonnative predators. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b; Weller and Sakai, unpublished data).

Historically, *Schiedea kealiae* was known from the northern Waianae Mountains and one collection from the Palikea area, near the southern end of the same mountain range. Currently, 4 occurrences totaling between 265 and 315 plants are located on the cliffs above Dillingham Airfield and Camp Erdman and at Kaena Point at the northern end of the Waianae Mountains. These occurrences are on private and State lands, as well as State lands under Federal jurisdiction (Army 2001b; GDSI 2001; HINHP Database 2001).

Schiedea kealiae is usually found on steep slopes and cliff faces and bases in dry remnant *Erythrina sandwicensis* forest at elevations between 46 and 341 m (151 and 1,118 ft). Associated native plant species include *Bidens* sp., *Hibiscus arnottianus, Lepidium bidentatum* (anaunau), *Lipochaeta remyi* (nehe), *Myoporum sandwicense, Plumbago zeylanica, Psydrax odorata, Sicyos* sp. (anunu), or *Sida fallax* (HINHP Database 2001).

The major threats to *Schiedea kealiae* are competition with the nonnative plant species *Leucaena leucocephala, Panicum maximum,* and *Schinus terebinthifolius;* predation by introduced slugs and snails; lack of a pollinator; and risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of existing occurrences. The Kaena Point occurrence is additionally threatened by naturally occurring rock slides and fire (HINHP Database 2001; Service 1998b; 61 FR 53089).

Silene perlmanii (NCN)

Silene perlmanii, a member of the pink family (Caryophyllaceae), is a short-lived perennial plant with stems that are woody at the base. It usually is much branched from the base and often forms clumps. It is the only species of the genus on Oahu and can be distinguished from other *Silene* species by its white petals and a calyx that is

more than 19 mm (0.7 in) long and densely covered with short hairs (Wagner *et al.* 1999).

Silene perlmanii flowers in the spring, depending on climatic conditions. Flowers last for one day. Fruits develop in a few weeks. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Silene perlmanii was discovered in the 1980s and was known from a few individuals in two occurrences in the southern Waianae Mountains on Federal and privately owned lands. The occurrences were about 1.6 km (1 mi) apart at Palikea and Palawai Gulch. Since December of 1997, no individuals are known to be extant in the wild. Currently, this species is known only from individuals under propagation at the National Tropical Botanical Garden (G. Koob, pers. comm. 2002; GDSI 2001; HINHP Database 2001; Service 1998b; 56 FR 55770).

Silene perlmanii typically grew on steep rocky slopes in *Acacia koa-Metrosideros polymorpha* lowland mesic forest at elevations between 493 and 919 m (1,617 and 3,014 ft) (HINHP Database 2001; Service 1998b; 56 FR 55770).

The major threats to *Silene perlmanii* are competition from the nonnative plant species *Ageratina adenophora, Erigeron karvinskianus, Melinis minutiflora, Morella faya, Passiflora suberosa,* and *Schinus terebinthifolius;* habitat degradation by feral pigs; and the risk of extinction from naturally occurring events and reduced reproductive vigor due to the small number of individuals believed to be extinct (HINHP Database 2001; Service 1998b; 56 FR 55770).

Stenogyne kanehoana (NCN)

Stenogyne kanehoana is a climbing vine in the mint family (Lamiaceae) with stems weakly four-angled, hairy, and 1 to 2 m (3 to 6 ft) long. *Stenogyne kanehoana* is distinguished from the only other member of the genus occurring on Oahu, *S. kaalae,* primarily by the size and color of its flowers. The flowers of *S. kanehoana* are large, white to yellow, and tipped in pink, while those of *S. kaalae* are small and deep purple (Weller and Sakai 1999).

Stenogyne kanehoana generally flowers from February through March, but flowering depends on precipitation, and flowers have been noted from January to as late as April. Fruits mature within six weeks. The lifespan of this species appears to be about seven to 12 years. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Stenogyne kanehoana was known from the east ridge of Puu Kanehoa in the Waianae Mountains, near the summit of the ridge connecting Puu Kanehoa with Puu Hapapa to the north and Puu Kaua to the south, a distance totaling approximately 2.8 km (1.7 mi). This population consisting of two plants near the summit of Puu Kanehoa on privately owned land was found dead recently. An additional occurrence in Kaluaa Gulch was discovered in 2000 by Joan Yoshioka of TNCH. This occurrence consists of one to six individual plants and is located on privately owned land (GDSI 2001; HINHP Database 2001; Service 1998b; 57 FR 20592).

The remnant occurrence of *Stenogyne kanehoana* is found in lowland mesic forest between 559 and 1,168 m (1,834 and 3,831 ft) elevation. Associated native plant species include *Acacia koa, Alyxia oliviformis, Bidens* sp., *Chamaesyce* sp., *Cibotium* sp., *Freycinetia arborea, Metrosideros polymorpha, Psychotria* sp., or *Scaevola* sp. (HINHP Database 2001).

The major threats to *Stenogyne kanehoana* are habitat degradation and competition for space, water, light, and nutrients by the nonnative species *Clidemia hirta, Paspalum conjugatum, Passiflora suberosa, Psidium cattleianum,* and *Schinus terebinthifolius.* The extremely small number of individual plants and their restricted distribution increases the potential for extinction from naturally occurring events. Other potential threats that have been suggested include fire and deforestation, but, at present, these probably are not serious threats to the species. Habitat degradation by feral pigs, predation by the two spotted leafhopper, and trampling by hikers are also thought to be threats to this species (HINHP Database 2001; Service 1998b; 57 FR 20592).

Tetramolopium filiforme (NCN)

Tetramolopium filiforme, a short-lived perennial member of the aster family (Asteraceae), is a dwarf shrub from 5 to 15 cm (2 to 6 in) tall with complexly branched stems. This species is distinguished from the other extant species on Oahu by its separate male and female flowers both on the same plant and its inflorescence of one to four heads (Lowrey 1999).

In cultivation, *Tetramolopium filiforme* germinates in about three weeks. Fifteen weeks after germination, the plants are approximately 9 cm (3.5 in) high and produce their first buds. The first blossoms are noted about 18 weeks after germination. During growth, an inflorescence forms at the apex of each shoot while new shoots develop laterally. *Tetramolopium filiforme* is relatively short-lived, usually living fewer than five years. In the wild, it usually flowers in the late winter or spring but flowering can also be induced by heavy rainfall. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Tetramolopium filiforme* was known from the northern Waianae Mountains, from Ohikilolo Ridge, Keaau Valley, and Makaha Valley. This species remains in Keaau Valley, Kahanahaiki Valley, Makua-Keaau Ridge, Lualualei, Waianae Kai, and Puu Kawiwi on Federal, State, city, and county lands. The 21 known occurrences are estimated to contain approximately 253 individuals (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Tetramolopium filiforme typically grows on dry cliff faces and ridges in dry and mesic forests at elevations of 247 to 978 m (810 to 3,208 ft). Associated native species include *Artemisia australis, Bidens torta, Carex meyenii, Dodonaea viscosa, Peperomia tetraphylla* (ala ala wai nui), *Schiedea* sp., or *Sida fallax* (HINHP Database 2001).

The major threats to *Tetramolopium filiforme* are habitat degradation by feral goats; competition from the nonnative plant species *Acacia confusa, Ageratina riparia, Erigeron karvinskianus, Kalanchoe pinnata, Lantana camara, Leucaena leucocephala, Melinis minutiflora, Melinis repens,* and *Schinus terebinthifolius;* fire; potential impacts from military activities; trampling or collection by humans on or near trails; and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining occurrences (HINHP Database 2001; Service 1998b).

Tetraplasandra gymnocarpa (Oheohe)

Tetraplasandra gymnocarpa, a long-lived perennial member of the ginseng family (Araliaceae), is a tree 2.5 to 10 m (8 to 33 ft) tall with 7 to 21 leathery, oval to elliptic leaflets per leaf. *Tetraplasandra gymnocarpa* is distinguished from all other species in the genus in that its ovary appears placed fully above the base of the flower (Lowrey 1999).

This species has been observed in flower in November 1991 and in fruit in May, September, and November. Little else is known about its flowering cycles,

pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Tetraplasandra gymnocarpa was historically known from Punaluu, Waikakalaua Gulch, Mount Olympus, and the region between Niu and Wailupe, all in the Koolau Mountains of Oahu. This species was also sighted in the Waianae Range at Palikea in 1954. Currently, 30 occurrences are scattered along the summit ridges of the Koolau Mountains from the region of Paumalu at the northern extreme to Kuliouou and Waimanalo at the southeasternmost point, on Federal, State, city, and county lands. Fewer than 100 individuals are known (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Tetraplasandra gymnocarpa is typically found on windswept summit ridges, on slopes, or in gullies in wet or sometimes mesic lowland forests and shrublands between elevations of 93 and 959 m (305 and 3,146 ft). Associated native plant species include *Acacia koa, Antidesma platyphyllum, Bidens* sp., *Bobea elatior, Broussaisia arguta, Cheirodendron* sp., *Cibotium chamissoi, Cibotium* spp., *Cyanea humboltiana, Dicranopteris linearis, Diplopterygium pinnatum, Dubautia laxa, Freycinetia arborea, Hedyotis fosbergii* (manono), *Hedyotis terminalis, Labordia* sp., *Lobelia hypoleuca* (kuhiaikamoowahie), *Machaerina angustifolia, Melicope* spp., *Metrosideros polymorpha, Myrsine fosbergii* (kolea), *Pouteria sandwicensis, Psychotria* spp., *Sadleria* spp., *Syzygium sandwicensis, Tetraplasandra oahuensis* (ohe mauka), or *Wikstroemia* sp. (HINHP Database 2001; Service 1998b; 59 FR 14482).

The major threats to *Tetraplasandra gymnocarpa* are competition with the nonnative plant species *Aleurites moluccana, Araucaria columnaris* (Norfolk Island pine), *Ardisia elliptica* (shoebutton ardisia), *Axonopus fissifolius, Clidemia hirta, Erigeron karvinskianus, Eucalyptus* sp. (gum tree), *Paspalum conjugatum, Psidium cattleianum, Pterolepis glomerata, Sacciolepis indica, and Setaria palmifolia;* the two-spotted leafhopper; habitat degradation by feral pigs; and reduced reproductive vigor due to the species' limited gene pool as a consequence of the small number of extant individuals (HINHP Database 2001; Service 1998b; 59 FR 14482).

Trematolobelia singularis (NCN)

Trematolobelia singularis, a short-lived perennial member of the bellflower family (Campanulaceae), is an unbranched shrub with stems 0.6 to 1.5 m (2 to 5 ft) long. This species differs from others of this endemic Hawaiian genus by the unbranched, erect flowering stalk (Lammers 1999).

This species has been observed in flower in October and has wind dispersed seeds. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Trematolobelia singularis has been reported only from the southern Koolau Mountains. Approximately 165 plants are known from 3 occurrences at Moanalua-Tripler Ridge summit to Puu Keahiakahoe, Konahuanui, and Puu Lanipo. These occurrences are found on State and private lands (GDSI 2001; HINHP Database 2001).

This species usually grows on steep, windswept cliff faces or slopes in *Metrosideros polymorpha-Dicranopteris linearis* lowland wet shrubland from 545 to 953 m (1,788 to 3,126 ft) elevation. Associated native plant species include *Broussaisia arguta, Cibotium* sp., *Dubautia laxa, Eugenia* sp. (nioi), *Melicope* sp., *Sadleria* sp., or *Wikstroemia* sp. (HINHP Database 2001; Service 1998b; 61 FR 53089).

The major threats to *Trematolobelia singularis* are habitat degradation by feral pigs, potential predation by rats and slugs, competition with the aggressive nonnative plant species *Clidemia hirta,* and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of extant occurrences (HINHP Database 2001; Service 1998b; 61 FR 53089).

Urera kaalae (Opuhe)

Urera kaalae, a long-lived perennial member of the nettle family (Urticaceae), is a small tree or shrub 3 to 7 m (10 to 23 ft) tall. This species can be distinguished from the other Hawaiian species of the genus by its heart-shaped leaves (Wagner *et al.* 1999).

Urera kaalae has been observed flowering in the spring. It is difficult to predict when seeds will be produced and they are often sterile. This may be an indication of pollinator limitation. The plants are fast-growing. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Urera kaalae* was known from the central to southern windward Waianae Mountains, from Waianae Uka to Kupehau Gulch. This species now occurs only in North and South Ekahanui, Pualii Gulch, Halona Gulch, Kaluaa Gulch, North and South Palawai, Puu Hapapa, Napepeiauolelo Gulch, and Waianae Kai on Federal, State, and private lands. The 12 known occurrences contain approximately 41 individuals (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Urera kaalae typically grows on slopes and in gulches in diverse mesic forest at elevations of 439 to 1,074 m (1,440 to 3,523 ft). Associated native species include *Alyxia oliviformis, Antidesma platyphyllum, Asplenium kaulfusii, Athyrium* sp., *Canavalia* sp., *Charpentiera* sp., *Chamaesyce* sp., *Claoxylon sandwicense, Diospyros hillebrandii, Doryopteris* sp., *Freycinetia arborea, Hedyotis acuminata, Hibiscus* sp., *Nestegis sandwicensis, Pipturus albidus, Pleomele* sp., *Pouteria sandwicensis, Psychotria* sp., *Senna gaudichaudii* (kolomona), *Streblus pendulinus, Urera glabra,* or *Xylosma hawaiiense* (HINHP Database 2001; Service 1998b; Wagner *et al.* 1999; 61 FR 53089).

The major threats to *Urera kaalae* are habitat degradation by feral pigs; competition from the nonnative plant species *Buddleia asiatica, Christella parasitica, Clidemia hirta, Heliocarpus popayaensis, Melinis minutiflora, Morella faya, Passiflora suberosa, Pimenta dioica, Psidium cattleianum, Psidium guajava, Rubus rosifolius,* and *Schinus terebinthifolius;* fire; rockslides; and a risk of extinction from naturally-occurring events and/or reduced reproductive vigor due to the small number of remaining individuals (HINHP Database 2001; Service 1998b; 61 FR 53089).

Viola chamissoniana ssp. chamissoniana (Pamakani)

Viola chamissoniana ssp. *chamissoniana,* a short-lived perennial member of the violet family (Violaceae), is a branched shrub up to 90 cm (3 ft) tall. This subspecies can be distinguished from the other members of the genus in the Waianae Mountains by the small size of its leaves (Wagner *et al.* 1999).

Viola chamissoniana ssp. *chamissoniana* has been observed in fruit and flower in April, August, and October. No further information is available on flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, or limiting factors (Service 1998b).

Historically, *Viola chamissoniana* ssp. *chamissoniana* was known from the central and southern Waianae Mountains and Makaleha Valley. This taxon now occurs on Kamaileunu Ridge,

Palikea Ridge (between Nanakuli and Lualualei), Puu Hapapa, Makua-Keaau Ridge, Halona, and Puu Kumakalii on Federal, State, city, and county lands. The 15 known occurrences contain 59 individuals (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Viola chamissoniana ssp. *chamissoniana* typically grows on dry cliffs, rocky ledges, and steep slopes in mesic shrubland and cliff vegetation at elevations of 414 to 1,149 m (1,358 to 3,769 ft). Associated native species include *Artemisia australis, Bidens torta, Carex meyenii, Chamaesyce* sp., *Dodonaea viscosa, Dubautia* sp., *Eragrostis* sp., *Leptecophylla tameiameiae, Lipochaeta tenuis, Metrosideros polymorpha, Peperomia* sp., *Rumex* sp., *Schiedea* sp., or *Sida fallax* (HINHP Database 2001; Service 1998b; 56 FR 55770).

The major threats to *Viola chamissoniana* ssp. *chamissoniana* are habitat degradation by feral goats and pigs; competition from the nonnative plant species *Ageratina adenophora, Ageratina riparia, Erigeron karvinskianus, Melinis minutiflora, Morella faya, and Schinus terebinthifolius;* fire; landslides; and a risk of extinction from naturally-occurring events and/or reduced reproductive vigor due to the small number of remaining individuals (HINHP Database 2001; Service 1998b; 56 FR 55770).

Viola oahuensis (NCN)

Viola oahuensis, a short-lived perennial member of the violet family (Violaceae), is usually an erect, unbranched subshrub 6 to 40 cm (2.4 to 16 in) tall. This species is distinguished from other Hawaiian members of the genus by the shape of the stipules (leaf bracts), the length of the leaf stalks, and the length and papery texture of the leaves (Wagner *et al.* 1999).

Viola oahuensis has been observed flowering in August and September. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Viola oahuensis* was known from 17 occurrences in the Koolau Mountains of Oahu, scattered over about a 37 km (23 mi) distance from Puu Kainapuaa to Palolo. The 18 extant occurrences, which total fewer than 200 individuals, are now found from the Kawainui-Koloa summit divide to the Waimalu-Koolaupoko divide on Federal, State, and private lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Viola oahuensis is generally found on exposed, windswept ridges of moderate to steep slope in wet *Metrosideros polymorpha-Dicranopteris linearis* shrublands and *Metrosideros polymorpha* mixed montane bogs in the cloud zone from 415 to 959 m (1,361 to 3,146 ft) elevation. This species typically grows among wind-stunted *Antidesma* sp., *Bidens macrocarpa, Broussaisia arguta, Cibotium* sp., *Dubautia laxa, Hedyotis terminalis, Labordia* sp., *Machaerina* sp., *Melicope* sp., *Sadleria* sp., *Syzygium sandwicensis, Vaccinium* sp., or *Wikstroemia* sp. (HINHP Database 2001; Service 1998b; 61 FR 53089).

The primary threats to *Viola oahuensis* are habitat degradation and/or destruction by feral pigs; potential impacts from military activities; competition with the nonnative plants *Axonopus fissifolius, Clidemia hirta, Paspalum conjugatum, Psidium cattleianum,* and *Pterolepis* sp. (NCN); and risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of occurrences (HINHP Database 2001; Service 1998b; 61 FR 53089).

Multi-Island Species

Adenophorus periens (Pendent kihi fern)

Adenophorus periens, a member of the grammitis family (Grammitidaceae) and a short-lived perennial, is a small, pendent, epiphytic (not rooted on the ground) fern. This species differs from other species in this endemic Hawaiian genus by having hairs along the pinna margins, by the pinnae being at right angles to the midrib axis, by the placement of the sori on the pinnae, and by the degree of dissection of each pinna (Linney 1989).

Little is known about the life history of *Adenophorus periens,* which seems to grow only in closed canopy dense forest with high humidity. Its breeding system is unknown, but outbreeding is very likely to be the predominant mode of reproduction. Spores are dispersed by wind, possibly by water, and perhaps on the feet of birds or insects. Spores lack a thick resistant coat, which may indicate their longevity is brief, probably measured in days at most. Due to the weak differences between the seasons in the habitats where this species is found, there seems to be no evidence of seasonality in growth or reproduction. Additional information on reproductive cycles, longevity, specific environmental requirements, and limiting factors is not available (Linney 1989).

Historically, *Adenophorus periens* was known from Kauai, the Koolau Mountains of Oahu, Lanai, Maui, and the island of Hawaii. Currently, it is known from several locations on Kauai, Molokai, and Hawaii. This species is no longer extant on the island of Oahu. It was collected in 1909 on the west ridge of Palolo Crater and the west ridge of Palolo Valley (HINHP Database 2001).

Adenophorus periens grows epiphytically on trees in Metrosideros *polymorpha* and *Metrosideros rugosa* wet forests between 309 and 867 m (1,014 and 2,844 ft) elevation. Associated native plant species include *Cheirodendron* spp., *Cibotium* sp., *Dicranopteris linearis, Hedyotis terminalis, Machaerina angustifolia,* or *Syzygium sandwicensis* (HINHP Database 2001).

Nothing is known of the threats to *Adenophorus periens* on Oahu because the species was last collected there in 1909 (Service 1999; 59 FR 56333).

Alectryon macrococcus (Mahoe)

Alectryon macrococcus, a member of the soapberry family (Sapindaceae), consists of two varieties, *macrococcus* and *auwahiensis,* both trees with reddish-brown branches and leaves with one to five pairs of sometimes asymmetrical egg-shaped leaflets. On leaves of young *A. macrococcus* var. *macrococcus* plants, the underside of the leaf has dense brown hairs. *Alectryon macrococcus* var. *auwahiensis* is only found on the island of Maui. The only member of its genus found in Hawaii, this species is distinguished from other Hawaiian members of its family by being a tree with a hard fruit 2.5 cm (1 in) or more in diameter (Wagner *et al.* 1999).

Alectryon macrococcus is a relatively slow-growing, long lived tree that grows in xeric to mesic sites and is adapted to periodic drought. Little else is known about the life history of this species. Flowering cycles, pollination vectors, seed dispersal agents, and specific environmental requirements are unknown (Service 1997).

Currently and historically, *Alectryon macrococcus* var. *macrococcus* occurs on Kauai, Oahu, Molokai, and Maui. On Oahu, there are a total of 82 occurrences containing around 300 individuals. These occurrences are found in Kapuna Gulch, Huliwai Gulch, Kaluaa Gulch, Ekahanui Gulch, Manuwai Gulch, Mohiakea Gulch, Makua Valley, Puu Ku Makalii, Nanakuli-Lualualei Ridge, Palikea Gulch, Makaha, Pahole Gulch, Makaleha Valley, Waianae Kai, Waieli Gulch, Kaluakauila Gulch, Kaaua Gulch, Puu Hapapa, Mikilua subdistrict, Kaaawa Gulch, and Napepeiauolelo

Gulch on Federal, State, city, county, and private lands (EDA Database 2001; GDSI 2001; HINHP Database 2001; Wagner *et al.* 1999; EDA, *in litt.* 2001).

Alectryon macrococcus var. *macrococcus* grows on slopes or ridges, or in gulches, within mesic lowland forests between elevations of 367 and 941 m (1,204 and 3,086 ft). Associated native plant species include *Alyxia oliviformis, Antidesma platyphyllum, Canavalia* sp., *Charpentiera* sp., *Claoxylon sandwicense, Diospyros hillebrandii, Diospyros sandwicensis, Diplazium sandwichianum, Elaeocarpus bifidus, Hibiscus arnottianus, Metrosideros polymorpha, Myrsine lanaiensis, Neraudia* sp., *Nestegis sandwicensis, Pipturus albidus, Pisonia sandwicensis, Pisonia umbellifera, Pouteria sandwicensis, Psychotria hathewayi, Psydrax odorata, Streblus pendulinus*, or *Xylosma* sp. (HINHP Database 2001).

The threats to *Alectryon macrococcus* var. *macrococcus* on Oahu are habitat degradation by feral goats and pigs; competition with the nonnative plant species *Aleurites moluccana, Blechnum appendiculatum, Buddleia asiatica, Christella parasitica, Clidemia hirta, Heliocarpos popayanensis, Lanatana camara, Melinus minutiflora, Oplismenus hirtellus, Passiflora suberosa, Pennisetum clandestinum* (kikuyu grass), *Psidium cattleianum, Psidium guajava, Rubus rosifolius, Schinus terebinthifolius, Syzygium cumini*, and *Toona ciliata*; damage from the black twig borer; seed predation by rats, mice (*Mus domesticus*), and insects; fire; depressed reproductive vigor; loss of pollinators; and, due to the very small remaining number of individuals and their limited distribution, a single natural or human-caused environmental disturbance, which could easily be catastrophic (Service 1997; 57 FR 20772).

Bonamia menziesii (NCN)

Bonamia menziesii, a member of the morning-glory family (Convolvulaceae) and a short-lived perennial, is a vine with twining branches that are fuzzy when young. This species is the only member of the genus that is endemic to the Hawaiian Islands and differs from other genera in the family by its two styles, longer stems and petioles, and rounder leaves (Austin 1999).

Little is known about the life history of *Bonamia menziesii.* Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1999).

Historically, *Bonamia menziesii* was known from Kauai, the Waianae Mountains of Oahu, Molokai, Maui, and the island of Hawaii. Currently, this species is extant on Kauai, Oahu, Lanai, Maui, and Hawaii. There are 18 total occurrences on Oahu, containing a total of fewer than 100 plants. These occurrences are found in Niu Valley, Makaleha Valley, Makua-Keaau Ridge, Wailupe, Waialae Nui-Kapakahi Ridge and Kapakahi Gulch, Kaluakauila Gulch, Keawaula, Hawaii Loa Ridge and Kului Gulch, Nanakuli Valley, Kuaokala, Halona, Waialae Iki, Kapuna Gulch, Mikilua, Waianae Kai, and Alaiheihe Gulch on Federal, State, and private lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Bonamia menziesii is found on Oahu on steep slopes or level ground in dry or mesic forest in open or closed canopy at elevations between 31 and 809 m (102 and 2,654 ft). Associated native species include *Acacia koa, Alyxia oliviformis, Dianella sandwicensis, Diospyros sandwicensis, Dodonaea viscosa, Erythrina sandwicensis, ,Hedyotis terminalis, Leptecophylla tameiameiae, Melicope* sp., *Metrosideros polymorpha, Myoporum sandwicense, Nestegis sandwicensis, Pisonia* sp., *Pittosporum* sp., *Pleomele* sp., *Pouteria sandwicensis, Psydrax odorata, Rauvolfia sandwicensis, Sapindus oahuensis, Sicyos* sp., *Sida fallax*, or *Waltheria indica* (HINHP Database 2001; Service 1999).

The primary threats to *Bonamia menziesii* on Oahu are habitat degradation and possible predation by wild and feral pigs, goats, and cattle; competition with the nonnative plant species *Aleurites moluccana, Grevillea robusta, Hyptis pectinata, Kalanchoe pinnata, Lantana camara, Leucaena leucocephala, Melia azedarach, Montanoa hibiscifolia, Panicum maximum, Passiflora suberosa, Pennisetum setaceum* (fountain grass), *Pimenta dioica, Psidium cattleianum, Rivina humilis, Schinus terebinthifolius, Syzygium cumini*, and *Toona ciliata*; fire; and nonnative insect (*Physomerus grossipes*); and potential impacts from military activities (HINHP Database 2001; Service 1999; 59 FR 56333).

Cenchrus agrimonioides (Kamanomano)

Cenchrus agrimonioides, a member of the grass family (Poaceae) and a short-lived perennial, has leaf blades that are flat or folded and that have a prominent midrib. There are two varieties, *C. agrimonioides* var. *laysanensis* and *C. agrimonioides* var. *agrimonioides.* They differ from each other in that var. *agrimonioides* has smaller burs, shorter stems, and narrower leaves. This species is distinguished from others in the genus by the cylindrical to lance-shaped bur and the arrangement and position of the bristles (O'Conner 1999).

Little is known about the life history of *Cenchrus agrimonioides.* Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors, except that this species has been observed to produce fruit year-round (Service 1999; 65 FR 53108).

Historically, *Cenchrus agrimonioides* var. *agrimonioides* was known from the Waianae Mountains of Oahu, Lanai, Maui, and an undocumented account from the island of Hawaii. *Cenchrus agrimonioides* var. *laysanensis* was historically and currently only known from the Northwest Hawaiian Islands. Currently, *Cenchrus agrimonioides* var. *agrimonioides* is known from Oahu and Maui; on Oahu from a total of 7 occurrences containing between 113 and 118 individuals. These occurrences are found in Pahole Gulch, on Makaha-Waianae Kai Ridge, in or near Kahanahaiki Gulch, in east Makaleha, Puu Kaua, Huliwai Gulch, and in Pualii drainage, on Federal, State, city, county, and private lands (EDA Database 2001; GDSI 2001; HINHP Database 2001; Service 1999; 61 FR 53108).

Cenchrus agrimonioides var. *agrimonioides* on Oahu is usually found on dry upper slopes or ridges in lowland mixed mesic forest at elevations between 357 and 890 m (1,171 and 2,919 ft). Associated native plant species include *Acacia koa, Alyxia oliviformis, Bobea* sp., *Carex wahuensis, Chamaesyce multiformis, Coprosma foliosa, Diospyros sandwicensis, Eragrostis variabilis, Gahnia beecheyi* (NCN), *Leptecophylla tameiameiae, Metrosideros polymorpha, Nestegis sandwicensis, Psydrax odorata*, or *Psychotria* sp. (HINHP Database 2001; EDA, *in litt.* 2001).

The major threats to *Cenchrus agrimonioides* var. *agrimonioides* on Oahu are habitat degradation and/or destruction by feral pigs; competition with the nonnative plant species *Ageratina riparia, Blechnum appendiculatum, Casuarina* sp., *Clidemia hirta, Grevillea robusta, Paspalum conjugatum, Passiflora suberosa, Psidium cattleianum, Rubus argutus*, and *Schinus terebinthifolius*; trampling and fire from military activities; and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of existing individuals (HINHP Database 2001; Service 1999; 61 FR 53108).

Centaurium sebaeoides (Awiwi)

Centaurium sebaeoides, a member of the gentian family (Gentianaceae), is an annual herb with fleshy leaves and stalkless flowers. This species is distinguished from *C. erythraea* (bitter herb), which is naturalized in Hawaii, by its fleshy leaves and the unbranched arrangement of the flower cluster (Wagner *et al.* 1999).

Centaurium sebaeoides has been observed flowering in April. Flowering may be induced by heavy rainfall. Occurrences are found in dry areas, and plants are more likely to be found following heavy rains. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (56 FR 55770).

Historically and currently, *Centaurium sebaeoides* is known from Kauai, Oahu, Molokai, Lanai, and Maui. Currently on Oahu, 2 occurrences of this species remain with a total of between 60 and 80 individuals at Kaena Point and Koko Head on State, city, and county lands (HINHP Database 2001; Service 1999; Wagner *et al.* 1999).

Centaurium sebaeoides typically grows in volcanic or clay soils or on cliffs in arid coastal areas or on coral plains below 368 m (1,207 ft) elevation. Associated native species include *Artemisia* sp., *Bidens* sp., *Jacquemontia ovalifolia, Lipochaeta succulenta* (nehe), or *Lysimachia* sp. (kolokolo kuahiwi) (HINHP Database 2001; Wagner *et al.* 1999; 56 FR 55770).

The major threats to *Centaurium sebaeoides* on Oahu are habitat degradation by feral goats and cattle, competition from the nonnative plant species *Leucaena leucocephala*, trampling by humans on or near trails, fire, and a risk of extinction from naturally occurring events due to the small number of existing occurrences and individuals (56 FR 55770; Service 1999).

Colubrina oppositifolia (Kauila)

Colubrina oppositifolia, a member of the buckthorn family (Rhamnaceae) and a long-lived perennial, is a tree with extremely hard red wood. This species is readily distinguished from the other species in Hawaii by its opposite leaf position, dull leaf surface, and entire leaf margins (Wagner *et al.* 1999).

Colubrina oppositifolia has been observed in flower during January, June, September, and December and in fruit during January, June, and September. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (HINHP Database 2001).

Historically and currently, *Colubrina oppositifolia* was known from Oahu, Maui, and the island of Hawaii. Currently, there is a total of 5 occurrences containing 61 individuals on Oahu. These occurrences are found in Kaumokunui Gulch, Makaleha Valley, and Manuwai Gulch on State and private lands (GDSI 2001; HINHP Database 2001).

Colubrina oppositifolia is found in lowland dry and mesic forests dominated by *Diospyros sandwicensis* at elevations between 277 and 761 m (909 and 2,496 ft). Associated native species include *Alyxia oliviformis, Nestegis sandwicensis, Psydrax odorata, Reynoldsia sandwicensis*, or *Sapindus oahuensis* (HINHP Database 2001).

The threats to this species on Oahu are habitat destruction by feral pigs and goats; competition with the nonnative plant species *Aleurites moluccana, Lantana camara, Pennisetum setaceum, Psidium cattleianum, Schinus terebinthifolius*, and *Syzygium cumini*; damage from the black twig borer and Chinese rose beetle; fire; potential impacts from military activities; and a risk of extinction from naturally occurring events due to the small number of existing occurrences and individuals (HINHP Database 2001; Service 1996c; 59 FR 10305).

Ctenitis squamigera (Pauoa)

Ctenitis squamigera, a short-lived member of the woodfern family (Aspleniaceae), has a rhizome creeping above the ground that is densely covered with scales similar to those on the lower part of the leaf stalk. It can be readily distinguished from other Hawaiian species of *Ctenitis* by the dense covering of tan-colored scales on its frond (Degener and Degener 1957; Wagner and Wagner 1992).

Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors for *Ctenitis squamigera* (Service 1998a).

Historically, *Ctenitis squamigera* was recorded from Kauai, the Koolau and Waianae Mountains of Oahu, Molokai, Maui, and the island of Hawaii. This species is currently extant on Oahu, Molokai, Lanai, and Maui. Currently on Oahu, 8 occurrences with more than 80 individuals are found in Makaleha Valley, Kaaawa Gulch, Makua Valley, and Waianae Kai Forest Reserve on Federal, State, and private lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Ctenitis squamigera is found on gentle to steep slopes in *Metrosideros polymorpha-Diospyros sandwicensis* mesic forest and diverse mesic forest at elevations of 387 to 923 m (1,269 to 3,027 ft). Associated native plant taxa include *Alyxia oliviformis, Carex meyenii, Diospyros hillebrandii, Dodonaea viscosa, Doodia kunthiana, Dryopteris unidentata, Freycinetia arborea, Hibiscus* sp., *Myrsine sp., Nestegis sandwicensis, Pisonia* sp., *Pouteria sandwicensis, Psychotria* sp., *Psydrax odorata*, or *Xylosma* sp. (HINHP Database 2001).

The primary threats to *Ctenitis squamigera* on Oahu are habitat degradation by feral pigs and goats; competition with the nonnative plant species *Ageratina riparia, Aleurites moluccana, Blechnum appendiculatum, Clidemia hirta, Psidium cattleianum, Psidium guajava, Schinus terebinthifolius, Syzygium cumini*, and *Toona ciliata*; fire; and decreased reproductive vigor and a risk of extinction caused by naturally occurring events due to the small number of existing occurrences (HINHP Database 2001; Service 1998; 59 FR 49025).

Cyanea grimesiana ssp. *grimesiana* (Haha)

Cyanea grimesiana ssp. *grimesiana*, a member of the bellflower family (Campanulaceae) and a short-lived perennial, is a shrub with pinnately divided leaves. This species is distinguished from others in this endemic Hawaiian genus by the pinnately lobed leaf margins and the width of the leaf blades. This subspecies is distinguished from the other two subspecies by the shape and size of the calyx lobes, which overlap at the base (Lammers 1999).

On Molokai, flowering plants have been reported in July and August. Little else is known about the life history of *Cyanea grimesiana* ssp. *grimesiana.* Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1999).

Currently and historically, *Cyanea grimesiana* ssp. *grimesiana* is known from the Waianae and Koolau Mountains on Oahu, Molokai, Lanai, and Maui. On Oahu, there are seven occurrences known from Palikea Gulch, North Haleauau Gulch, Pahole Natural Area Reserve (NAR), Pia Gulch, Kului Gulch, and in Waialae Iki-Kapakahi on Federal, State, city, county, and private lands containing a total of nine individuals (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Cyanea grimesiana ssp. *grimesiana* is typically found in mesic forest often dominated by *Metrosideros polymorpha* or *M. polymorpha* and *Acacia koa*, or on rocky or steep slopes of stream banks, at elevations between 114 and 746 m (374 and 2,447 ft). Associated native plant species include *Alyxia oliviformis, Antidesma* sp., *Bobea* sp., *Clermontia persicaefolia* (oha wai), *Coprosma* sp., *Cyanea angustifolia* (haha), *Dicranopteris linearis, Diplazium sandwichianum, Joinvillea* sp. (ohe), *Melicope* sp., *Myrsine* sp., *Nestegis sandwicensis, Psychotria* sp., *Syzygium sandwicensis*, or *Xylosma* sp. (Service 1999; 61 FR 53108).

The threats to *Cyanea grimesiana* ssp. *grimesiana* on Oahu are habitat degradation and/or destruction caused by wild and feral goats and pigs; competition with the nonnative plant species *Clidemia hirta, Psidium cattleianum,* and *Toona ciliata;* random naturally occurring events creating a risk of extinction due to the small number of existing individuals; fire; trampling by hikers and/or military activities; landslides; and predation by rats and various species of slugs (Service 1999; 61 FR 53108).

Cyperus trachysanthos (Puukaa)

Cyperus trachysanthos, a member of the sedge family (Cyperaceae), is a short-lived, perennial, grass-like plant with a short rhizome. The stems are densely tufted, obtusely triangular in cross-section, tall, sticky, and leafy at the base. This species is distinguished from others in the genus by the short rhizome, the leaf sheath with partitions at the nodes, the shape of the glumes, and the length of the stems (Koyama 1999).

Little is known about the life history of *Cyperus trachysanthos.* Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1999).

Historically, *Cyperus trachysanthos* was known from Niihau, Kauai, scattered locations on Oahu, Molokai, and Lanai. This species is now extant on Niihau, Kauai, and Oahu. On Oahu, it is known from Kaena Point NAR, nearby Manini Gulch, Diamond Head, Makapuu, Queens Beach, and the Kawainui Marsh area, on Federal, State, and private lands. There are 6 occurrences with a total of 40 individuals on Oahu (HINHP Database 2001; Service 1999).

Cyperus trachysanthos is usually found in seasonally wet sites (mud flats, wet clay soil, seasonal ponds, or wet cliff seeps) on seepy flats, coastal cliffs, or talus slopes at elevations between 6 and 194 m (609 ft). *Hibiscus tiliaceus* (hau) is often found in association with this species (HINHP Database 2001; Koyama 1999; Service 1999; 61 FR 53108).

The threats to *Cyperus trachysanthos* on Oahu are a risk of extinction from naturally-occurring events due to the small number of occurrences; competition with nonnative plant species; habitat degradation by feral goats; fire; habitat disturbance by off-road vehicles; pumping of wetlands for flood and mosquito control; modifications to the wetland topography; mowing; herbicide application; and run-off from nearby Hawaii Army National Guard (HIARNG) activities such as the cleaning of vehicles, dumping of paints or thinners, or the use of pesticides (Service 1999; 61 FR 53108).

Diellia erecta (Aspenium-leaved diellia)

Diellia erecta, a member of the spleenwort family (Aspleniaceae) and a short-lived perennial, is a fern that grows in tufts of three to nine lance shaped fronds that emerge from a rhizome covered with brown to dark gray scales. This species differs from other members of the genus in having larger brown or dark gray scales, fused or separate sori along both margins of the pinna, shiny black midribs that have a hardened surface, and veins that do not usually encircle the sori (Degener and Greenwell 1950; Wagner 1952).

Little is known about the life history of *Diellia erecta.* Reproductive cycles, dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1999).

Historically, *Diellia erecta* was known from Kauai, the Koolau Mountains on Oahu, Molokai, Lanai, Maui, and the island of Hawaii. Currently, it is known from Kauai, Molokai, Maui, Oahu, and Hawaii. On Oahu, it is known from a single occurrence containing at least 20 plants on Hawaii Loa Ridge on State and private lands (GDSI 2001; HINHP Database 2001).

Diellia erecta is found on moderate to steep gulch slopes or sparsely vegetated rock faces in mesic forest at elevations between 118 and 550 m (387 and 1,804 ft). Associated native plant species include *Coprosma* sp., *Dodonaea viscosa, Dryopteris unidentata, Myrsine* sp., *Psychotria* sp., *Psydrax odorata, Sapindus oahuensis, Syzygium sandwicensis,* or *Wikstroemia* sp. (HINHP Database 2001; Service 1999).

The major threats to *Diellia erecta* on Oahu are habitat degradation by pigs; competition with nonnative plant species, including *Blechnum appendiculatum, Clidemia hirta, Cordyline fruticosa* (ti), *Oplismenus hirtellus, Phymatosorus grossus* (lauae), *Psidium cattleianum, Schefflera actinophylla,* and *Schinus terebinthifolius;* and random naturally-occurring events causing extinction and/or reduced reproductive vigor due to the small number of occurrences and existing individuals (HINHP Database 2001; Service 1999; 59 FR 56333).

Diplazium molokaiense (NCN)

Diplazium molokaiense, a short-lived perennial member of the woodfern family (Dryopteridaceae), has a short prostrate rhizome and green or straw colored leaf stalks with thin-textured fronds. This species can be distinguished from other species of *Diplazium* in the Hawaiian Islands by a combination of characteristics, including venation pattern, the length and arrangement of the sori, frond shape, and the degree of dissection of the frond (Wagner and Wagner 1992).

Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors for *Diplazium molokaiense* are unknown (Service 1998a).

Historically, *Diplazium molokaiense* was found at Makaleha and Schofield Barracks on Oahu, Kauai, Molokai, Lanai, and Maui. However, within the last 20 years, only one occurrence of one individual has been recorded from East Maui. This species was last collected on Oahu in 1945 from Kolekole Pass to Kaala (HINHP Database 2001).

Diplazium molokaiense on Oahu was found on steep, rocky, wooded gulch walls in wet forests from 618 to 1,202 m (2,027 to 3,943 ft) elevation (HINHP Database 2001).

Nothing is known of the threats to *Diplazium molokaiense* because this species was last collected there in 1945.

Eugenia koolauensis (Nioi)

Eugenia koolauensis, a long-lived perennial member of the myrtle family (Myrtaceae), is a small tree or shrub between 2 and 7 m (7 and 23 ft) tall with branch tips covered with dense brown hairs. *Eugenia koolauensis* is one of two species in the genus that are native to Hawaii. It differs from the other species in having leaves that are densely hairy on the lower surface and leaf margins that curve under the leaves (Wagner *et al.* 1999).

This species has been observed in flower from February to December. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific

environmental requirements, and limiting factors (Service 1998b).

Eugenia koolauensis was historically known from Molokai and from Kaipapau Valley, Hanaimoa and Kahawainui Gulches, and a gully southeast of Kahuku on Oahu. Currently, this species is only found on Oahu in 12 occurrences on Federal, State, and private lands in Hanaimoa, Papali, Kaleleiki, Aimuu, Kaunala, Pahipahialua, Oio, and Palikea Gulches. A total of fewer than 70 individuals occur on Oahu (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Eugenia koolauensis is found on gentle to steep slopes or ridges in mesic or dry forests dominated by *Metrosideros polymorpha* or *Diospyros* sp. from 57 to 437 m (187 to 1,433 ft) in elevation. Other associated native plant species include *Alyxia oliviformis, Bobea elatior, Carex meyenii, Dicranopteris linearis, Leptecophylla tameiameiae, Myrsine lessertiana, Nestegis sandwicensis, Pleomele halapepe, Pouteria sandwicensis, Psydrax odorata,* or *Rauvolfia sandwicensis* (HINHP Database 2001; Service 1998b).

The major threats to *Eugenia koolauensis* on Oahu are habitat degradation by feral pigs; competition with nonnative plant species such as *Acacia confusa, Aleurites moluccana, Araucaria columnaris, Ardisia elliptica, Casuarina equisetifolia, Clidemia hirta, Cordyline fruticosa, Eucalyptus* sp., *Grevillea robusta, Hyptis pectinata, Lantana camara, Melia azedarach, Oplismenus hirtellus, Panicum maximum, Passiflora laurifolia* (yellow granadilla), *Passiflora suberosa, Psidium cattleianum, Schinus terebinthifolius, Syzygium cumini,* and *Toona ciliata;* and the limited numbers of this species, which make it vulnerable to extinction due to naturally caused events and reduced reproductive vigor (HINHP Database 2001; 59 FR 14482).

Euphorbia haeleeleana (Akoko)

Euphorbia haeleeleana, a member of the spurge family (Euphorbiaceae) and a short-lived perennial, is a dioecious (female and male flowers on separate plants) tree 3 to 14 m (10 to 46 ft) tall. This species is distinguished from others in the genus in that it is a tree and by the large leaves with prominent veins (Wagner *et al.* 1999).

Individual trees of *Euphorbia haeleeleana* bear only male or female flowers and must be cross-pollinated from a different tree to produce viable seed. This species sets fruit between August and October. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1999; Wagner *et al.* 1999).

Euphorbia haeleeleana is known historically and currently from northwestern Kauai and the Waianae Mountains of Oahu. On Oahu, 8 occurrences of approximately 134 individuals are known from Keawaula Gulch, Kahanahaiki Valley, Kaumokunui-Kaumokuiki Ridge, and Alaieihe Gulch on Federal, State, and private lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Euphorbia haeleeleana on Oahu is usually found in dry forest that is often dominated by *Diospyros* sp. at elevations between 156 and 586 m (512 and 1,922 ft). Associated native plant species include *Dodonaea viscosa, Erythrina sandwicensis, Pleomele* sp., *Psydrax odorata, Reynoldsia sandwicensis,* or *Sapindus oahuensis* (HINHP Database 2001).

The main threats to *Euphorbia haeleeleana* on Oahu are habitat degradation and/or destruction by wild and feral goats and pigs; predation by rats; fire; potential impacts from military activities; and competition with the nonnative plant species *Aleurites moluccana, Caesalpinia decapetala* (wait-a-bit), *Coffea arabica, Digitaria insularis* (sourgrass), *Ficus microcarpa, Grevillea robusta, Hyptis pectinata, Kalanchoe pinnata, Lantana camara, Leucaena leucocephala, Melia azedarach, Melinus minutiflora, Panicum maximum, Passiflora suberosa, Psidium cattleianum, Rivina humilis, Schinus terenbinthifolius, Syzygium cumini,* and *Toona ciliata* (HINHP Database 2001).

Flueggea neowawraea (Mehamehame)

Flueggea neowawraea, a member of the spurge family (Euphorbiaceae) and a long-lived perennial, is a large dioecious tree up to 30 m (100 ft) tall with white oblong pores covering its scaly, pale brown bark. This species is the only member of the genus found in Hawaii and can be distinguished from similar Hawaiian species in the family by its hairless, whitish lower leaf surfaces and round fruits (Hayden 1999; Service 1999).

Individual trees of *Flueggea neowawraea* bear only male or female flowers and must be cross-pollinated from a different tree to produce viable seed. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Hayden 1999; Service 1999).

Historically, *Flueggea neowawraea* was known from Oahu, Kauai, Maui, Molokai, and the island of Hawaii. Currently, it is known from Kauai, Oahu, Maui, and Hawaii. On Oahu, *Flueggea neowawraea* is known from 23 occurrences with a total of approximately 31 individuals on Federal, State, city, county, and private lands at Makua Valley, Makaha, Alaiheihe Gulch, Kaluaa Gulch, Makaleha Valley, Ekahanui Gulch, Pahole Gulch, Keaau Valley, Kahanahaiki Valley, Kaaawa Gulch, Waianae Kai, Palikea Gulch, Manuwai Gulch, Mohiakea Gulch, Kauhiuhi, Mikilua, and Lualualei (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Flueggea neowawraea occurs on gulch slopes or ridge crests, or near streams, in dry or mesic forest at elevations of 323 to 1,006 m (1,059 to 3,300 ft). Associated native plant species include *Alyxia oliviformis, Antidesma platyphyllum, Antidesma pulvinatum, Bobea* sp., *Chamaesyce herbstii, Chamaesyce multiformis, Charpentiera* sp., *Claoxylon sandwicensis, Diospyros hillebrandii, Diospyros sandwicense, Erythrina sandwicensis, Hedyotis terminalis, Hibiscus arnottianus, Metrosideros polymorpha, Morinda trimera (noni), Myoporum sandwicense, Myrsine* sp., *Nestegis sandwicensis, Pipturus albidus, Pisonia sandwicensis, Pisonia umbellifera, Pittosporum* sp., *Pleomele* sp., *Psydrax odorata, Pteralyxia* sp., *Rauvolfia sandwicensis, Sapindus oahuensis,* and *Streblus pendulina* (Hayden 1999; HINHP Database 2001).

The primary threat to the continued existence of *Flueggea neowawraea* on Oahu is the black twig borer, which has affected all known *Flueggea neowawraea* plants. Other major threats include habitat degradation by feral pigs and goats; competition with the nonnative plant species *Ageratina riparia, Aleurites moluccana, Blechnum appendiculatum, Clidemia hirta, Ficus macrophylla, Ficus microcarpa, Grevillea robusta, Kalanchoe pinnata, Lantana camara, Melinis minutiflora, Paspalum conjugatum, Passiflora suberosa, Psidium* spp., *Rivina* sp., *Schinus terebinthifolius, Syzygium cumini,* and *Toona ciliata;* fire; predation by the Chinese rose beetle; the small occurrence size with its limited gene pool and depressed reproductive vigor, compounded by a requirement for cross-pollination because the species is dioecious; potential impacts from military activities; and predation of the fruit by rats (HINHP Database 2001; Service 1999).

Gouania meyenii (NCN)

Gouania meyenii, a member of the buckthorn family (Rhamnaceae) and a short-lived perennial, is an erect to spreading shrub. It is distinguished from the two other Hawaiian members of its genus by its lack of tendrils on flowering branches, the lack of teeth on the leaves, and the hairiness of the fruits (Wagner *et al.* 1999).

Gouania meyenii flowers from March to May. Seed capsules develop in about six to eight weeks. Plants appear to live about 10 to 18 years in the wild. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Gouania meyenii* was known from central and southern areas of Oahu's Waianae Mountains, from Kamaileunu Ridge to Honouliuli and from Diamond Head. Currently, this species is found on Oahu and Kauai. On Oahu, it is found on Makaha-Waianae Kai Ridge on State, private, city, and county lands. The 4 known occurrences on Oahu contain an estimated 63 individuals (GDSI 2001; HINHP Database 2001; Wagner *et al.* 1999).

Gouania meyenii typically grows on moderate to steep slopes in dry shrubland or mesic lowland forest at elevations of 17 to 930 m (56 to 3,050 ft). Associated native plant species include *Alyxia oliviformis, Bidens* sp., *Canavalia* sp., *Carex meyenii, Chamaesyce* sp., *Charpentiera* sp., *Diospyros sandwicensis, Diospyros* sp., *Dodonaea viscosa, Dryopteris unidentata, Dubautia sherffiana, Eragrostis* sp., *Hedyotis* sp., *Hibiscus* sp., *Lysimachia* sp., *Melicope* sp., *Myrsine* sp. (kolea), *Nestegis sandwicensis, Pisonia* sp., *Psychotria* sp., *Psydrax odorata, Sapindus oahuensis, Schiedea* sp., *Senna gaudichaudii, Sida fallax,* or *Sophora chrysophylla* (HINHP Database 2001).

The major threats to *Gouania meyenii* on Oahu are competition from the nonnative plant species *Grevillea robusta, Kalanchoe pinnata, Lantana camara, Leucaena leucocephala, Melinis minutiflora, Oplismenus hirtellus, Pimenta dioica, Psidium cattleianum, Psidium guajava,* and *Schinus terebinthifolius;* fire; habitat degradation by feral pigs and goats; and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining occurrences and individuals (HINHP Database 2001).

Gouania vitifolia (NCN)

Gouania vitifolia, a short-lived member of the buckthorn family (Rhamnaceae), is a climbing shrub or woody vine with tendrils. The species is the only Hawaiian member of the genus with tendrils and toothed leaf margins (Wagner *et al.* 1999).

Gouania vitifolia flowers from March to May. Seed capsules develop in about six to eight weeks. Plants appear to live about 10 to 18 years in the wild. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Gouania vitifolia* was known from Maui, the island of Hawaii, and the northwestern portion of the Waianae Mountains in Makaleha, Keaau, and Waianae Kai Valleys on Oahu. Currently, this species is extant on Oahu and Hawaii. It is known from 2 occurrences on Oahu on State and private lands, located at Waianae Kai and Keaau Valley, totaling 44 individuals (GDSI 2001; HINHP Database 2001; Wagner *et al.* 1999).

Gouania vitifolia typically grows on the sides of ridges and gulches in dry to mesic forests at elevations of 39 to 978 m (128 to 3,208 ft). Associated native plant species include *Bidens* sp., *Carex meyenii, Chamaesyce* sp., *Diospyros sandwicensis, Dodonaea viscosa, Erythrina sandwicensis, Hedyotis* sp., *Hibiscus arnottianus, Melicope* sp., *Nestegis sandwicensis, Pipturus albidus, Psychotria* sp., or *Urera glabra* (Service 1998b).

The major threats to *Gouania vitifolia* are competition from the nonnative plant species *Aleurites moluccana, Buddleia asiatica, Cordyline fruticosa, Hyptis pectinata, Lantana camara, Leucaena leucocephala, Melinis minutiflora, Oplismenus hirtellus, Panicum* sp. (panic grass), *Passiflora edulis, Passiflora ligularis, Passiflora suberosa, Psidium cattleianum, Rubus argutus, Schinus terebinthifolius* and *Toona ciliata;* habitat destruction by feral pigs; and a threat of random extinction and reduced reproductive vigor due to the small number of extant individuals (HINHP Database 2001; 59 FR 32932).

Hedyotis coriacea (Kioele)

Hedyotis coriacea, a short-lived member of the coffee family (Rubiaceae), is a small shrub with leathery leaves that are generally elliptic to oblong in shape. This species is distinguished from others of the genus by its small, triangular calyx lobes that do not enlarge in fruit, by capsules that are longer than wide, and by flower buds that are square in cross-section (Wagner *et al.* 1999).

Little is known about the life history of *Hedyotis coriacea.* Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1997).

Historically, *Hedyotis coriacea* was known from the Waianae and Koolau Mountains on Oahu and the island of Hawaii. Currently, this species is extant on Maui and Hawaii. This species was last collected on Oahu in the 1800s (HINHP Database 2001).

Hedyotis coriacea is found on steep, rocky slopes in dry to mesic Dodonaea viscosa dominated shrublands or forests at elevations of 57 to 836 m (187 to 2,742 ft). Associated native species include *Alyxia oliviformis, Leptecophylla tameiameiae,* or *Metrosideros polymorpha* (HINHP Database 2001; 57 FR 20772).

Nothing is known of the threats to *Hedyotis coriacea* on Oahu because the species was last collected there in the 1800s (Service 1997; 57 FR 20772).

Hesperomannia arborescens (NCN)

Hesperomannia arborescens, a long-lived member of the aster family (Asteraceae), is a small shrubby tree that usually stands 1.5 to 5 m (5 to 16 ft) tall. This member of an endemic Hawaiian genus differs from other *Hesperomannia* species in having the following combination of characteristics: Erect to ascending flower heads, thick flower head stalks, and usually hairless and relatively narrow leaves (Wagner *et al.* 1999).

This species has been observed in flower from April through June and fruit during March and June. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b; 59 FR 14482).

Hesperomannia arborescens was formerly known from Molokai, Lanai, and scattered occurrences throughout the Koolau Mountains, Oahu, from Koolauloa and Pupukea at its northern extreme to Konahuanui at the southern end. This species is now known from Oahu, Molokai, and Maui. On Oahu, there are 36 occurrences containing between 86 and 93 individuals on private, city, county, State, and Federal lands at a few disjunct locations upslope of Kahuku, Laie, and Malaekahana; along Poamoho Trail above Poamoho Stream; along Waikane-Schofield Trail near the ridge summit; and at Kipapa Gulch, on Halawa Ridge, Waimanalo-Niu divide, Kainawaanui, Kaukonahua Gulch, Maakua-Kaipapau

Ridge, Kapakahi Gulch, Halemano-Opaeula Ridge, Kawailoa Trail, Kaimananui Gulch, and upper Palolo Valley to Niu Valley (EDA Database 2001; GDSI 2001; HINHP Database 2001; Service 1998b).

Hesperomannia arborescens on Oahu is found in association with *Acacia koa, Antidesma platyphyllum, Bobea elatior, Broussaisia arguta, Cheirodendron* sp., *Cibotium* sp., *Coprosma* sp., *Dicranopteris linearis, Dubautia* sp., *Hedyotis terminalis, Hibiscus arnottianus, Labordia sessilis (kamakahala), Machaerina angustifolia, Melicope* sp., *Metrosideros polymorpha, Myrsine* sp., *Nestegis sandwicensis, Perottetia sandwicensis, Pipturus* sp., *Psychotria mariniana, Scaevola gaudichaudiana, Scaevola glabra (ohe naupaka), Syzygium sandwicensis, Tetraplasandra oahuensis, and Wikstroemia* sp. It typically grows on steep slopes, ridge tops, and gulches in lowland wet forests and occasionally in shrublands between 110 and 1,147 m (361 and 3,762 ft) in elevation (HINHP Database 2001; Service 1998b; Wagner *et al.* 1999).

The major threats to *Hesperomannia arborescens* are habitat degradation by feral pigs and goats; competition with the nonnative plant species *Axonopus fissifolius, Clidemia hirta, Leptospermum scoparium,* and *Psidium cattleianum;* fire; impact by humans; and a risk of extinction due to random environmental events or reduced reproductive vigor due to this species' limited numbers (HINHP Database 2001; 59 FR 14482)

Hesperomannia arbuscula (NCN)

Hesperomannia arbuscula, a long-lived perennial member of the aster family (Asteraceae), is a small shrubby tree, 2 to 3.3 m (7 to 11 ft) tall. This species can be distinguished from other members of the genus by the erect flower heads and the leaves, usually hairy beneath, which are one to two times as long as wide (Wagner *et al.* 1999).

Hesperomannia arbuscula usually flowers in the spring depending on precipitation. Seeds mature in about six weeks and trees live for about 10 to 15 years. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Hesperomannia arbuscula* was known from the central and southern Waianae Mountains, from Makaleha to Puu Kanehoa on Oahu, and from West Maui. This species is currently known to be extant on the Makaha-Waianae Kai Ridge and in Kaluaa and Kapuna Gulches on Oahu and on West Maui. The 6 known occurrences on Oahu contain between 90 and 92 individuals on State, private, city, and county lands (GDSI 2001; HINHP Database 2001).

Hesperomannia arbuscula on Oahu typically grows on slopes and ridges in dry to wet forest dominated by *Acacia koa* and *Metrosideros polymorpha* at elevations of 370 to 1,053 m (1,214 to 3,454 ft). Associated native species include *Alyxia oliviformis, Antidesma* sp., *Bidens* sp., *Bobea elatior,* the endangered *Cyanea longiflora, Diospyros hillebrandii, Freycinetia arborea, Hedyotis terminalis, Hibiscus* sp., *Psychotria* sp., and *Syzygium sandwicensis* (HINHP Database 2001; Service 1998b; Wagner *et al.* 1999).

The major threats to *Hesperomannia arbuscula* on Oahu are habitat degradation by feral pigs; competition from the nonnative plant species *Clidemia hirta, Lantana camara, Psidium cattleianum, Rubus argutus,* and *Schinus terebinthifolius;* trampling by humans; and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining occurrences and individuals (HINHP Database 2001; 56 FR 55770).

Hibiscus brackenridgei (Mao hau hele)

Hibiscus brackenridgei, a short-lived perennial member of the mallow family (Malvaceae), is a sprawling to erect shrub or small tree. This species differs from other members of the genus in having the following combination of characteristics: Yellow petals, a calyx consisting of triangular lobes with raised veins and a single midrib, bracts attached below the calyx, and thin stipules that fall off, leaving an elliptical scar.

Three subspecies of *Hibiscus brackenridgei* are now recognized: *brackenridgei, molokaiana,* and *mokuleianus.* When we listed this species in 1994, only two subspecies, *brackenridgei* and *mokuleianus,* were recognized. Subsequently we became aware of Wilson's (1993) taxonomic treatment of this group, in which *H. brackenridgei* ssp. *molokaiana* was recognized as distinct from *H. brackenridgei* ssp. *brackenridgei.* Wilson's (1993) treatment is cited in the supplement in the revised edition of the *Manual of the Flowering Plants of Hawaii* as the basis for recognizing *H. brackenridgei* ssp. *molokaiana.* We will address this name change in a future **Federal Register** notice (Bates 1999; HINHP Database 2000; Wagner *et al.* 1999; Wilson 1993).

Hibiscus brackenridgei is known to flower continuously from early February through late May, and intermittently at other times of year. Intermittent flowering may possibly be related to day length. Little else is known about the life history of this plant. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1999).

This species was historically known from Kauai, Oahu, Molokai, Lanai, Maui, and the island of Hawaii. *Hibiscus brackenridgei* ssp. *mokuleianus* is currently known from Oahu, Lanai, Maui, and Hawaii; it may possibly occur on Kauai. On Oahu, there are a total of fewer than 206 individual plants in 5 occurrences at Kaumokunui, Kawaiu, Palikea, Kihakapu, and Kaimuhole Gulches on State and private lands. *Hibiscus brackenridgei* ssp. *molokaiana* is currently known from Oahu. There are a total of five individual plants in one occurrence in Makua Valley on land under Federal jurisdiction (GDSI 2001; HINHP Database 2001; Joel Lau, pers. comm., 2001).

Hibiscus brackenridgei ssp. *mokuleianus* on Oahu occurs on slopes, cliffs, and arid ledges in lowland dry forest and shrubland from 24 to 490 m (79 to 1,607 ft) in elevation. Associated native plant species include *Bidens amplectans* (kookoolau), *Chamaesyce* sp., *Diospyros hillebrandii, Dodonaea viscosa, Doryopteris* sp., *Erythrina sandwicensis, Heteropogon contortus, Hibiscus brackenridgei* ssp. *molokaiana, Lepidium bidentatum, Melanthera remyi, Pleomele halapepe, Psydrax odorata, Reynoldsia sandwicensis, Sida fallax,* or *Waltheria indica. Hibiscus brackenridgei* ssp. *molokaiana* occurs in dry shrublands between 23 and 580 m (75 to 1,902 ft) elevation. Associated native plant species include *Dodonaea viscosa, Doryopteris* sp., *Heteropogon contortus, Sida fallax,* and *Waltheria indica* (GDSI Database 2001; HINHP Database 2001; EDA, *in litt.* 2001).

The primary threats to *Hibiscus brackenridgei* ssp. *mokuleianus* on Oahu are habitat degradation and possible predation by pigs, goats, cattle, and rats; competition with the nonnative plant species *Ageratum conyzoides* (maile honohono), *Aleurites moluccana, Caesalpinia decapetala, Coffea arabica, Grevillea robusta, Hyptis pectinata, Leucaena leucocephala, Melia azedarach, Neonotonia wightii* (NCN), *Panicum maximum, Passiflora edulis, Passiflora suberosa, Schinus terebinthifolius, Spathodea campanulata* (African tulip tree),

Syzygium cumini, and *Toona ciliata;* road construction; fire; and susceptibility to extinction caused by random environmental events or reduced reproductive vigor due to a limited number of occurrences and individuals. The primary threats to *Hibiscus brackenridgei* ssp. *molokaiana* are habitat degradation and possible predation by pigs and goats; competition with the nonnative plant species *Ageratum conyzoides, Leucaena leucocephala,* and *Panicum maximum;* fire; predation by the Chinese rose beetle; and susceptibility to extinction caused by random environmental events or reduced reproductive vigor due to the single occurrence and limited number of individuals (HINHP Database 2001; 59 FR 56333).

Isodendrion laurifolium (Aupaka)

Isodendrion laurifolium, a short-lived perennial member of the violet family (Violaceae), is a slender, erect shrub with few branches. The species is distinguished from others in the genus by its leathery, oblong-elliptic, narrowly elliptic, lance-shaped leaves (Wagner *et al.* 1999).

Little is known about the flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors of this species (Service 1999).

Historically, *Isodendrion laurifolium* was known from Kauai and the Waianae and Koolau mountains of Oahu. Currently, this species is found on Kauai and Oahu. On Oahu, there are a total of between 22 and 23 individuals found in 5 occurrences on State, private, city, and county lands in Makaha in the Waianae Mountains, East Makaleha Valley, Waianae Kai, Kaawa Gulch, and Kaumokunui Gulch (GDSI 2001; HINHP Database 2001).

Isodendrion laurifolium on Oahu is usually found between 90 and 959 m (295 and 3,146 ft) elevation on gulch slopes, in ravines, and on ridges in diverse mesic or dry forest dominated by *Metrosideros polymorpha, Eugenia reinwardtiana,* or *Diospyros sandwicensis* with one or more of the following associated native plant species: *Acacia koa, Alyxia oliviformis, Antidesma platyphyllum, Antidesma pulvinatum, Carex wahuensis, Charpentiera tomentosa* (papala), *Doodia* sp., *Dryopteris unidentata, Hedyotis terminalis, Hibiscus arnottianus, Nestegis sandwicensis, Pisonia* sp., *Pouteria sandwicensis, Psydrax odorata, Rauvolfia sandwicensis, Sapindus* sp. (soapberry), *Smilax melastomifolia* (hoi kuahiwi), or *Xylosma hawaiiense* (HINHP Database 2001; Service 1999).

The primary threats to *Isodendrion laurifolium* on Oahu are habitat degradation by feral goats and pigs; competition with the nonnative plant species *Aleurites moluccana, Cordyline fruticosa, Grevillea robusta, Psidium cattleianum, Schinus terebinthifolius,* and *Toona ciliata;* and a potential threat from military activities (HINHP Database 2001; 61 FR 53108).

Isodendrion longifolium (Aupaka)

Isodendrion longifolium, a member of the violet family (Violaceae), is a slender, erect shrub. The hairless, leathery, lance-shaped leaves distinguish this species from others in the genus (Wagner *et al.* 1999).

Little is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors of this species (Service 1999).

Historically and currently, *Isodendrion longifolium* is known from scattered locations on Kauai and the Waianae Mountains on Oahu. There is a total of 30 individual plants on Oahu in 7 occurrences on Federal, State, and private lands in Palikea Gulch, Kaawa Gulch, Makaua Gulch, and Kaukonahua Stream (EDA Database 2001; HINHP Database 2001).

Isodendrion longifolium on Oahu is found on steep slopes and stream banks in mixed mesic or lowland wet *Metrosideros polymorpha-Dicranopteris linearis* forest, usually between 363 and 964 m (1,191 and 3,162 ft) elevation. Associated native plant species include *Acacia koa, Alyxia oliviformis, Antidesma* sp., *Bobea brevipes* (ahakea lau lii), *Carex* sp., *Cyanea* sp. (haha), *Cyrtandra* sp., *Hedyotis terminalis, Isachne pallens* (NCN), *Melicope* sp., *Peperomia* sp., *Perrottetia sandwicensis, Pittosporum* sp., *Pouteria sandwicensis, Psychotria* sp., *Psydrax odorata, Selaginella arbuscula,* or *Syzygium sandwicensis* (HINHP Database 2001; Service 1999).

The major threats to *Isodendrion longifolium* on Oahu are habitat degradation or destruction by feral goats and pigs; competition with the nonnative plants *Ageratina riparia, Clidemia hirta, Oplismenus hirtellus, Paspalum conjugatum, Psidium cattleianum,* and *Thelypteris parasitica;* and a risk of extinction from naturally occurring events due to the small number of occurrences and individuals. The Palikea Gulch occurrence is also potentially threatened by fire (HINHP Database 2001; 61 FR 53108).

Isodendrion pyrifolium (wahine noho kula)

Isodendrion pyrifolium, a short-lived perennial member of the violet family (Violaceae), is a small, branched shrub. The species is distinguished from others in the genus by its smaller, green-yellow flowers and by its hairy stipules and leaf veins (Wagner *et al.* 1999).

During periods of drought, this species will drop all but the newest leaves. After sufficient rains, the plants produce flowers with seeds ripening one to two months later. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1996c).

Isodendrion pyrifolium was known historically from Oahu's central Waianae mountains, Maui, Hawaii, Niihau, Molokai, and Lanai. Currently, this species is found only on the island of Hawaii. This species was last collected on Oahu in the late 1800s (HINHP Database 2001).

Isodendrion pyrifolium was found on Oahu on bare rocky hills and in wooded ravines in dry shrublands at low elevations from 363 to 964 m (1,191 to 3,162 ft) (HINHP Database 2001; Wagner *et al.* 1999).

Nothing is known of the threats to *Isodendrion pyrifolium* on Oahu because it was last collected there in the 1800s.

Lobelia niihauensis (NCN)

Lobelia niihauensis, a short-lived perennial member of the bellflower family (Campanulaceae), is a small, branched shrub. This species is distinguished from others in the genus by its leaves lacking or nearly lacking leaf stalks, the width of the leaf, and length of the magenta-colored flowers (56 FR 55770).

Lobelia niihauensis flowers in late summer and early fall. Fruits mature four to six weeks later. Plants are known to live as long as 20 years. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Lobelia niihauensis* was known from the Waianae Mountains of Oahu (Uluhulu Gulch to Nanakuli Valley), Kauai, and Niihau. It is now known to be extant only on Kauai and Oahu. On Oahu, this species remains on Ohikilolo Ridge, Kaimokuiki-Manuwai Ridge, Kamaileunu Ridge, Mt. Kaala, Makaha-Waianae Kai, Makua Military Reservation, Nanakuli, South Mohiakea Gulch, east of Puu Kalena, Kahanahaiki

Valley, between Puu Hapapa and Puu Kanehoa, Puu Kailio, between Kolekole Pass and Puu Hapapa, North of Palikea, Puu Kaua-Kauhiuhi-Pahoa-Halona subdistricts, and Lualualei Naval Magazine in 40 occurrences containing between 362 and 397 individual plants on Federal, State, city, and county lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Lobelia niihauensis on Oahu typically grows on exposed mesic or dry cliffs and ledges, at elevations from 339 to 926 m (1,112 to 3,037 ft). Associated native plant species include *Artemisia* sp., *Bidens* sp., *Carex meyenii, Dodonaea viscosa, Doryopteris* sp., *Eragrostis* sp., *Leptecophylla tameiameiae, Lipochaeta tenuis, Osteomeles anthyllidifolia, Plectranthus parviflorus, Schiedea mannii,* or *Sida fallax* (HINHP Database 2001; 56 FR 55770).

On Oahu, the major threats to *Lobelia niihauensis* are habitat degradation and predation by feral goats, rats, and slugs; fire; potential impacts from military activities; and competition from the nonnative plant species *Acacia confusa, Ageratina riparia, Erigeron karvinskianus, Ficus microcarpa, Grevillea robusta, Kalanchoe pinnata, Lantana camara, Leucaena leucocephala, Melinis minutiflora, Melinis repens,* and *Schinus terebinthifolius* (HINHP Database 2001; 56 FR 55770).

Lysimachia filifolia (NCN)

Lysimachia filifolia, a short-lived perennial member of the primrose family (Primulaceae), is a small shrub 15 to 50 cm (0.5 to 1.6 ft) tall. This species is distinguished from other members of the genus by its leaf shape and width, calyx lobe shape, and corolla length (Service 1995b; Wagner *et al.* 1999).

Little is known about the life history of *Lysimachia filifolia.* Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1995b).

Historically, *Lysimachia filifolia* was known only from Kauai. This species is now known from Oahu and Kauai. On Oahu, there is one occurrence containing a total of 50 individuals, on the slopes of Waiahole Valley in the Koolau Mountains on State land (GDSI 2001; HINHP Database 2001).

On Oahu, *Lysimachia filifolia* typically grows on mossy banks at the base of cliff faces within the spray zone of waterfalls or along streams in lowland wet forests at elevations of 65 to 798 m (213 to 2,617 ft). Associated plants include mosses, ferns, liverworts, and *Pilea peploides* (NCN) (HINHP Database 2001; Service 1995b; Wagner *et al.* 1999).

The major threat to *Lysimachia filifolia* on Oahu is competition with the nonnative plant species *Ageratina riparia, Blechnum appendiculatum, Cordyline fruticosa, Pluchea* sp. (sourbush), and *Schefflera actinophylla.* Additionally, individuals of the species are vulnerable to rock slides. Because only one occurrence of *Lysimachia filifolia* exists on each of only two islands, the species is threatened by extinction due to naturally caused events (HINHP Database 2001; 59 FR 09304).

Mariscus pennatiformis (NCN)

Mariscus pennatiformis, a member of the sedge family (Cyperaceae), is a short-lived perennial plant with a woody root system covered with brown scales. This species differs from other members of the genus by its three-sided, slightly concave, smooth stems; the length and number of spikelets; the leaf width; and the length and diameter of stems. The two subspecies (*Mariscus pennatiformis* ssp. *pennatiformis* and *Mariscus pennatiformis* ssp. *bryanii*) are distinguished by the length and width of spikelets, shape and length of fruits, and color, length, and width of glumes.

Subsequent to the final rule listing this species in 1994, we became aware of Tucker's (1994) treatment of this genus reclassifying it to *Cyperus.* Tucker's (1994) treatment is cited in the supplement in the revised edition of the *Manual of the Flowering Plants of Hawaii* as the basis for recognizing *Mariscus* as *Cyperus.* We will address this name change in a future **Federal Register** notice (Service 1999; Wagner *et al.* 1999).

Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown for *Mariscus pennatiformis* ssp. *pennatiformis* (Service 1999).

Historically, *Mariscus pennatiformis* was known from Kauai, Oahu (Waianae Mountains on a ridge above Makaha Valley), East Maui, the island of Hawaii, and Laysan Island in the Northwestern Hawaiian Islands. *Mariscus pennatiformis* ssp. *bryanii* is known from Laysan. Only one occurrence of *Mariscus pennatiformis* ssp. *pennatiformis* has been seen in the last 70 years on the main Hawaiian islands, in Keanae Valley on Maui in the 1970s (HINHP Database 2001).

Mariscus pennatiformis typically grows in mesic and wet *Metrosideros polymorpha* forest and *Metrosideros polymorpha-Acacia koa* forest at elevations between 424 and 1,032 m (1,391 and 3,385 ft). The associated native plant species on Oahu are unknown (J. Lau, *in litt.* 2001).

No threat information is available for *Mariscus pennatiformis* on Oahu.

Marsilea villosa (Ihiihi)

Marsilea villosa, a short-lived perennial member of the marsilea family (Marsileaceae), is an aquatic to semiaquatic fern similar in appearance to a four-leaved clover that requires periodic flooding to complete its life cycle. The species is the only member of the genus native to Hawaii and is closely related to *Marsilea vestita* of the western coast of the United States (Service 1996a).

Sexual reproduction of *Marsilea villosa* is initiated through the production of a hard sporocarp (a structure in or on which spores are produced) borne on the rhizome of a leaf pair node. The young sporocarp is covered with rust-colored hairs that are lost as the sporocarp matures. The sporocarp will mature only if the soil dries below threshold levels for leaf growth. The sporocarp remains in the soil for an extended period of time and must be scarified before it will open. It is not known how the sporocarp is scarified in *Marsilea villosa,* but bacterial action is thought to erode the wall of the sporocarp to the point that water can be absorbed and force the sporocarp to open, as in other *Marsilea* species (Service 1996a).

Marsilea villosa was historically known from Oahu, Molokai, and Niihau. Currently, it is found on Oahu and Molokai. There are five occurrences on Oahu with an unknown number of individuals at Koko Head, on Lualualei Naval Reservation, and at Kealakipapa on Federal, city, county, and private lands (GDSI 2001; HINHP Database 2001; Service 1996a).

Marsilea villosa typically grows in cinder craters, vernal pools surrounded by lowland dry forest vegetation, mud flats, or lowland grasslands at elevations between 424 and 1,032 m (1,391 and 3,385 ft). Associated native plant species include *Sida fallax* (HINHP Database 2001).

The main reason for the decline of *Marsilea villosa* on Oahu is habitat destruction and the destruction of natural hydrology; many of the areas where it formerly occurred are now sugar cane fields, industrial parks, housing developments, and pastures. The greatest immediate threats to the survival of this species are encroachment and competition from naturalized, nonnative plants such as

Bidens pilosa, Cynodon dactylon (Bermuda grass), *Panicum maximum*, and *Prosopis pallida* (kiawe); habitat disturbance by off-road vehicles or by grazing cattle; continued development and habitat degradation; fire; small occurrence size; and fragmentation, trampling, and other impacts from humans and introduced mammals (HINHP Database 2001; 57 FR 27863).

Melicope pallida (Alani)

Melicope pallida, a long-lived perennial member of the citrus family (Rutaceae), is a tree with grayish white hairs and black, resinous new growth. The species differs from other members of the genus by the resinous new growth, leaves folded and in clusters of three, and fruits with separate carpels (Stone *et al.* 1999).

Little is known about the life history of *Melicope pallida.* Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1995b).

Melicope pallida is currently and historically known from Kauai and Oahu. On Oahu, it is currently known from the Waianae Mountains within TNCH's privately owned Honouliuli Preserve on State and private lands. There is a single occurrence with a single individual (GDSI 2001; HINHP Database 2001).

Melicope pallida usually grows on steep rock faces in lowland dry or mesic forests at elevations of 234 to 841 m (768 to 2,758 ft). Associated native plant species include the endangered *Abutilon sandwicense, Acacia koa, Alyxia oliviformis, Bobea elatior, Cibotium* sp., *Dryopteris sp.* (NCN), *Metrosideros polymorpha, Pipturus albidus, Psychotria mariniana, Sapindus oahuensis, Syzygium sandwicensis, Tetraplasandra* sp., *Wikstroemia oahuensis,* or *Xylosma hawaiiense* (HINHP Database 2001; 59 FR 09304).

The major threat to *Melicope pallida* on Oahu is competition from nonnative plants, especially *Andropogon virginicus, Clidemia hirta, Psidium cattleianum, Pterolepis glomerata,* and *Toona ciliata.* A potential threat to *M. pallida* is the black twig borer, which is known to occur in areas where this species grows and to feed on members of the genus *Melicope.* Additional threats to *M. pallida* are fire, habitat degradation by feral pigs, and a high risk of extinction due to naturally caused events and/or reduced reproductive vigor due to the solitary existing individual on Oahu (HINHP Database 2001; 59 FR 09304).

Nototrichium humile (Kului)

Nototrichium humile, a short-lived perennial member of the amaranth family (Amaranthaceae), is an upright to trailing shrub with branched stems to 1.5 m (5 ft) long. This species is distinguished from the only other species in the genus by the size and hairiness of its inflorescence (Wagner *et al.* 1999).

Nototrichium humile is found on and at the base of rock cliffs and talus slopes in areas in partial shade. Plants have been observed flowering after heavy rain, but flowering is generally heaviest in the spring and summer. Fruits mature a few weeks after flowering. In cultivation, this species is known to live for more than a decade (Service 1998b). Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors.

Historically and currently, *Nototrichium humile* is known from Oahu and Maui. Currently, on Oahu, it is found in Kapuhi Gulch, Pahole Gulch, Kealia, Kahanahaiki, Kaluakauila Gulch, along Makua-Keaau Ridge to Makaha-Waianae Kai Ridge, and Nanakuli, where it occurs on Federal, State, city, county, and private lands. There are a total of 25 occurrences containing between 775 and 995 individuals on Oahu (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Nototrichium humile typically grows at elevations of 185 to 806 m (607 to 2,644 ft) on cliff faces, gulches, stream banks, or steep slopes in dry or mesic forests often dominated by *Sapindus oahuensis* or *Diospyros sandwicensis.* Associated native species include the endangered species *Abutilon sandwicense, Alyxia oliviformis, Antidesma pulvinatum, Artemisia australis, Bidens cervicata* (kookoolau), *Canavalia* sp., *Carex wahuensis, Charpentiera* sp., *Dodonaea viscosa, Elaeocarpus bifidus, Erythrina sandwicensis, Eugenia reinwartiana, Hibiscus* sp., *Melanthera tenuis, Metrosideros polymorpha, Myoporum sandwicense, Myrsine lanaiensis, Nestegis sandwicensis, Peperomia* sp., *Pisonia umbellifera, Pleomele* sp., *Pouteria sandwicensis, Psydrax odorata, Rauvolfia sandwicensis, Reynoldsia sandwicensis, Sicyos* sp., *Stenogyne* sp., *Streblus pendulinus,* or *Syzygium sandwicensis,* (HINHP Database 2001; Service 1998b; 56 FR 55770).

On Oahu, the major threats to *Nototrichium humile* are habitat degradation by feral goats and pigs; potential impacts of military activities; competition from the nonnative plant species *Adiantum hispidulum, Ageratina adenophora, Aleurites moluccana, Blechnum appendiculatum, Buddleia asiatica, Caesalpinia decapetala, Coffea arabica, Cordyline fruticosa, Ficus microphylla, Grevillea robusta, Hyptis pectinata, Kalanchoe pinnata, Lantana camara, Leucaena leucocephala, Melia azedarach, Melinis minutiflora, Montanoa hibiscifolia, Oplismenus hirtellus, Panicum maximum, Passiflora suberosa, Pimenta dioica, Psidium cattleianum, Psidium guajava, Rivina humilis, Schefflera actinophylla, Schinus terebinthifolius, Spathodea campanulata, Syzygium cumini, Triumfetta semitriloba* (Sacramento bur), and *Toona ciliata;* road building and maintenance; and fire (HINHP Database 2001; Service 1998b; 56 FR 55770).

Peucedanum sandwicense (Makou)

Peucedanum sandwicense, a short-lived perennial and a member of the parsley family (Apiaceae), is a parsley-scented, sprawling herb. Hollow stems arise from a short, vertical, perennial stem with several fleshy roots. This species is the only member of the genus on the Hawaiian Islands (Constance and Affolter 1999).

Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown for this species (Service 1995b).

Historically and currently, *Peucedanum sandwicense* is known from Molokai, Maui, and Kauai. Discoveries in 1990 extended the known distribution of this species to Oahu. On Oahu, there are a total of 4 occurrences containing 51 individual plants on State, city, and county lands in Keaau Valley, Puu Kawiwi, Waianae Kai, and Kamaileunu Ridge (GDSI 2001; HINHP Database 2001).

Peucedanum sandwicense grows on cliffs, slopes, and ridges in *Metrosideros polymorpha* lowland mesic forest between 395 and 977 m (1,296 and 3,205 ft) elevation and is associated with native species such as *Artemisia australis, Carex meyenii, Dianella sandwicensis, Dodonaea viscosa, Eragrostis* sp., *Lepidium bidentatum* var. *o-waihiense, Melanthera integrifolia* (nehe), *Osteomeles anthyllidifolia, Peperomia remyi* (alaala wai nui), *Pittosporum halophilum* (hoawa), *Plechranthus parviflorus, Plumbago zeylanica, Portulaca lutea* (ihi), *Reynoldsia sandwicensis, Santalum ellipticum* (iliahialoe), *Scaevola sericea* (naupaka kahakai), *Schiedea globosa* (NCN), *Senna gaudichaudii,* and *Sida*

fallax (Constance and Affolter 1999; HINHP Database 2001; Service 1995b).

Threats to *Peucedanum sandwicense* on Oahu are habitat degradation by feral goats and pigs and competition with the nonnative plant species *Kalanchoe pinnata, Lantana camara, Melinis minutiflora,* and *Schinus terebinthifolius* (HINHP Database 2001).

Phlegmariurus nutans (Wawaeiole)

Phlegmariurus nutans is an erect or pendulous herbaceous epiphyte in the clubmoss family (Lycopodiaceae). This species can be distinguished from others of the genus in Hawaii by its epiphytic habit, simple or forking fruiting spikes, and larger and stiffer leaves (59 FR 14482).

This species has been observed fertile, with spores, in May and December. No other information is available on reproductive cycles, dispersal agents, longevity, specific environmental requirements, or limiting factors (Service 1998b).

Historically, *Phlegmariurus nutans* was known from the island of Kauai and from scattered locations in the Koolau Mountains of Oahu, bounded by Kaluanui Valley to the north, Paalaa to the west, and Mount Tantalus to the south. This species is now known only from Oahu in 3 occurrences containing seven individual plants on Federal and State lands in Kaukonahua Gulch, Kahana, and Kaipapau Gulch (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Phlegmariurus nutans on Oahu grows on tree trunks, usually on open ridges, forested slopes, and cliffs in *Metrosideros polymorpha*-dominated wet forests and shrublands and occasionally mesic forests between 227 and 846 m (745 and 2,775 ft) in elevation. Associated native plant species include *Antidesma platyphyllum, Broussaisia arguta, Cyrtandra laxiflora, Dicranopteris linearis, Elaphoglossum* sp. (ekaha), *Hedyotis terminalis, Hibiscus* sp., *Machaerina angustifolia, Psychotria mariniana, Syzygium sandwicensis,* or *Wikstroemia oahuensis* (HINHP Database 2001; Service 1998b; EDA, *in litt.* 2001).

The primary threat to *Phlegmariurus nutans* on Oahu is susceptibility to extinction from naturally caused events and decreased reproductive vigor because of the small number of remaining individuals and limited distribution of the species. Additional threats to *Phlegmariurus nutans* are habitat degradation by feral pigs; floods; and the nonnative plants *Clidemia hirta, Paspalum conjugatum, Psidium cattleianum,* and *Sacciolepis indica* (HINHP Database 2001).

Phyllostegia mollis (NCN)

Phyllostegia mollis, a short-lived member of the mint family (Lamiaceae), grows as a nearly erect, densely hairy, nonaromatic, perennial herb. A suite of technical characteristics concerning the kind and amount of hair, the number of flowers in a cluster, and details of the various plant parts separate this species from other members of the genus (Wagner *et al.* 1999).

Individual *Phyllostegia mollis* plants live for approximately five years. The species is known to flower in late winter and spring. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1998b).

Historically, *Phyllostegia mollis* was known from Molokai, Maui, and Oahu from the central and southern Waianae Mountains, Mt. Kaala to Honouliuli, and Makiki in the Koolau Mountains. Currently, this species is only known from Oahu and Maui. On Oahu, this species remains only in Kaluaa Gulch, Palawai Gulch, Puu Kumakalii, Mohiakea Gulch, Huliwai Gulch, Waieli Gulch, and Pualii Gulch on Federal and private lands. The 5 occurrences contain between 85 and 105 individuals (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Phyllostegia mollis typically grows on steep slopes and in gulches in diverse mesic to wet forests at elevations of 519 to 928 m (1,702 to 3,044 ft). Associated native plant species include *Acacia koa, Alyxia oliviformis, Antidesma platyphyllum, Carex meyenii, Chamaesyce multiformis, Claoxylon sandwicense, Diospyros hillebrandii, Dryopteris unidentata, Metrosideros polymorpha, Myrsine* sp., *Pipturus alba, Pisonia umbellifera, Pouteria sandwicensis, Psychotria hathewayi,* or *Urera glabra* (HINHP Database 2001; EDA, *in litt.* 2001).

The major threats to *Phyllostegia mollis* are competition from the nonnative plant species *Ageratina adenophora, Blechnum appendiculatum, Christella parasitica, Clidemia hirta, Heliocarpus popayanensis, Kalanchoe pinnata, Passiflora suberosa, Psidium cattleianum, Rubus rosifolius,* and *Schinus terebinthifolius;* rockslides; habitat degradation and predation by feral pigs and goats; and the small number of extant occurrences, which makes the species vulnerable to extinction and/or reduced reproductive vigor (HINHP Database 2001).

Phyllostegia parviflora (NCN)

Phyllostegia parviflora, a member of the mint family (Lamiaceae), is a perennial herb. The species is distinguished from others of the genus by the shape of the leaves and the length of the leaf stalks and lower corolla. The varieties of this species are differentiated by hairs on the inflorescence and leaves and by the branching of the inflorescence.

At the time of listing of this species in 1996, only two varieties were recognized, *Phyllostegia parviflora* var. *glabriuscula* and *P. parviflora* var. *parviflora.* Subsequently we became aware of Wagner *et al.*'s (1999) taxonomic treatment of this group in which *P. parviflora* var. *lydgatei* was recognized. This treatment is cited in the supplement in the revised edition of the *Manual of the Flowering Plants of Hawaii* (Wagner *et al.* 1999) as the basis for recognizing *P. parviflora* var. *lydgatei.* This name change will be addressed in a future **Federal Register** notice.

Historically, *Phyllostegia parviflora* was known from the islands of Oahu, Hawaii, and Maui. This species is now known only from six occurrences on Oahu. *Phyllostegia parviflora* var. *glabriuscula* was only known from the island of Hawaii on private land and has not been observed since the 1800s. *Phyllostegia parviflora* var. *parviflora* is now known from only 30 plants on the east side of Puu Pauao, on State and Federal lands. *Phyllostegia parviflora* var. *lydgatei* is known from only four plants in North Pualii Gulch on private land (GDSI 2001; HINHP Database 2001).

Phyllostegia parviflora var. *lydgatei* is typically found on moderate to steep slopes in mesic forest from 555 to 881 m (1,820 to 2,890 ft) elevation. Native vegetation associated with *Phyllostegia parviflora* var. *lydgatei* includes *Antidesma platyphyllum, Chamaesyce multiformis, Claoxylon sandwicense, Coprosma foliosa, Dryopteris unidentata, Myrsine lessertiana, Pipturus albidus, Pouteria sandwicensis, Selaginella arbuscula,* or *Xylosma hawaiiense. Phyllostegia parviflora* var. *parviflora* is typically found in *Metrosideros polymorpha* mixed lowland wet forest from 232 to 867 m (761 to 2,844 ft) elevation. Native vegetation associated with *Phyllostegia parviflora* var. *parviflora* includes *Antidesma* sp., *Broussaisia arguta, Cheirodendron* sp., *Cibotium* sp., *Cyrtandra* sp., *Dicranopteris linearis, Melicope* sp., *Phyllostegia glabra* (NCN), *Pipturus* sp., *Pritchardia* sp., *Syzygium sandwicensis, Tetraplasandra* sp., or

Touchardia latifolia (HINHP Database 2001).

The major threats to *Phyllostegia parviflora* var. *lydgatei* are habitat degradation and/or destruction by feral pigs; landslides or rockslides; competition with the nonnative plant species *Ageratina adenophora, Christella parasitica, Passiflora suberosa, Psidium cattleianum, Rivina humilis, Rubus rosifolius,* and *Schinus terebinthifolius;* and a risk of extinction and/or reduced reproductive vigor due to the small number of remaining individuals and occurrences. The major threats to *Phyllostegia parviflora* var. *parviflora* on Oahu are competition with the nonnative plant species *Ageratina* sp. and *Clidemia hirta;* and extinction and/or reduced reproductive vigor due to the small number of remaining individuals in each respective occurrence (HINHP Database 2001; Service 1999; 61 FR 53108).

Plantago princeps (laukahi kuahiwi)

Plantago princeps, a short-lived member of the plantain family (Plantaginaceae), is a small shrub or robust perennial herb. This species differs from other native members of the genus in Hawaii by its large branched stems, flowers at nearly right angles to the axis of the flower cluster, and fruits that break open at a point two-thirds from the base. The four varieties, vars. *anomala, laxiflora, longibracteata,* and *princeps,* are distinguished by the branching and pubescence of the stems; the size, pubescence, and venation of the leaves; the density of the inflorescence; and the orientation of the flowers (Wagner *et al.* 1999).

Individuals have been observed in fruit from April through September. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1999).

Plantago princeps was historically found on Kauai, Oahu, Molokai, Hawaii, and Maui. It is no longer extant on the island of Hawaii. *Plantago princeps* var. *longibracteata* was known from Kauai and Oahu, but there are currently no remaining Oahu populations. The 11 extant occurrences of var. *princeps* on Oahu consist of between 130 and 180 individuals on Federal, State, city, county, and private lands at Palawai Gulch, Ekahanui Gulch, Nanakuli-Lualualei Ridge, Makua-Makaha Ridge, Mohiakea Gulch, and Pahole Gulch (EDA Database 2001; GDSI 2001; HINHP Database 2001).

On Oahu, *Plantago princeps* var. *longibracteata* was typically found on the sides of waterfalls and wet rock faces between 64 and 835 m (210 and 2,739 ft) elevation. Associated native plant species included *Bidens* sp., *Coprosma granadensis* (makole), *Eugenia* sp., *Lobelia gaudichaudii* (NCN), *Metrosideros rugosa,* or *Scaevola glabra. Plantago princeps* var. *princeps* is typically found on slopes and ledges in *Metrosideros polymorpha* lowland mesic forests and shrublands between 110 and 1,064 m (361 to 3,490 ft) elevation. Associated native plant species include *Artemisia australis, Bidens* sp., *Chamaesyce* sp., *Dubautia plantaginea, Eragrostis* sp., *Lysimachia* sp., *Pilea peploides,* and *Viola* sp. (pamakani) (HINHP Database 2001; EDA, *in litt.* 2001).

The primary threats to *Plantago princeps* var. *longibracteata* on Oahu were predation and habitat degradation by feral pigs and goats and competition with various nonnative plant species. The primary threats to *Plantago princeps* var. *princeps* are rockslides and competition with the nonnative plant species *Erigeron karvinskianus, Melinis minutiflora,* and *Schinus terebinthifolius* (HINHP Database 2001; Service 1999; 59 FR 56333).

Platanthera holochila (NCN)

Platanthera holochila, a short-lived perennial member of the orchid family (Orchidaceae), is an erect, deciduous herb. The stems arise from underground tubers, the pale green leaves are lance- to egg-shaped, and the greenish-yellow flowers occur in open spikes. This is the only species of this genus that occurs on the Hawaiian Islands (Wagner *et al.* 1999). It is distinguished from other Hawaiian orchids by its underground tubers that lack roots at the nodes or pseudobulbs and by the shape and length of its dorsal sepal.

Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown for this species (Service 1999).

Historically, *Platanthera holochila* was known from Maui, Oahu, Molokai, and Kauai. Currently, it is extant on Kauai, Molokai, and Maui. This species was last collected on Oahu in 1938 in the area from Puu Kainapuaa to Kawainui-Kaipapau summit ridge and Kipapa Gulch (HINHP Database 2001).

On Oahu, *Platanthera holochila* was found in *Metrosideros polymorpha-Dicranopteris linearis* wet forest or *M. polymorpha* mixed shrubland between 447 and 867 m (1,466 and 2,844 ft) elevation. Associated native plant species included *Broussaisia arguta, Cibotium* sp., *Clermontia* sp. (oha wai), *Coprosma* sp., *Dubautia* sp., *Gahnia* sp., *Leptecophylla tameiameiae, Luzula hawaiiensis* (wood rush), *Lycopodiella cernua, Lythrum maritimum* (pukamole), *Polypodium pellucidum* (ae), *Sadleria* sp., *Scaevola* sp., *Vaccinium reticulatum,* and *Wikstroemia* sp. (akia) (Service 1999; 61 FR 53108).

The major threats to *Platanthera holochila* are habitat degradation and destruction by ungulates such as cattle and feral pigs, predation by slugs, competition with alien plants, over collection, and the small number of occurrences and individuals, which make the species highly vulnerable to extinction from random environmental events and reduced reproductive vigor (Service 1999).

Pteris lidgatei (NCN)

Pteris lidgatei, a short-lived member of the maidenhair fern family (Adiantaceae), is a coarse perennial herb, 0.5 to 1 m (1.6 to 3.3 ft) tall. It can be distinguished from other species of *Pteris* on the Hawaiian Islands by the texture of its fronds and the tendency of the sori along the leaf margins to be broken into short segments instead of being fused into continuous marginal sori (Wagner 1949; Wagner and Wagner 1992).

Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown for this species (Service 1998a).

Historically, *Pteris lidgatei* was found on Oahu, Molokai, and Maui. Currently, this species is known from Oahu and Maui. Nine occurrences with approximately 13 individuals occur on Oahu on Federal, State, and private lands Kaluanui, Kawainui drainage, Kaukonahua Gulch, Kawai Iki Stream, Waimano Stream, and Waimano Gulch (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Pteris lidgatei on Oahu grows on steep stream banks and cliffs around 75 m (246 ft) elevation in wet *Metrosideros polymorpha-Dicranopteris linearis* forest with Asplenium sp. (NCN), *Broussaisia arguta, Cibotium chamissoi, Cyrtandra* sp., *Dicranopteris linearis, Diplopterygium pinnatum, Doodia lyonii* (NCN), *Dryopteris sandwicensis, Elaphoglossum crassifolium* (ekaha), *Isachne pallens, Machaerina angustifolia, Sadleria squarrosa, Selaginella arbuscula,* or *Sphenomeris chinensis* (palaa) (HINHP Database 2001; EDA, *in litt.* 2001).

The primary threats to *Pteris lidgatei* on Oahu are competition with the nonnative plant species *Ageratina riparia, Christella parasitica, Clidemia hirta, Paspalum conjugatum, Psidium cattleianum, Pterolepis glomerata,* and

Sacciolepis indica; habitat destruction by feral pigs; and a risk of extinction from naturally occurring events and/or reduced reproductive vigor due to the small number of remaining individuals (HINHP Database 2001).

Sanicula purpurea (NCN)

Sanicula purpurea, a short-lived member of the parsley family (Apiaceae), is a stout herb, 8 to 36 cm (3 to 14 in) tall, arising from a massive perennial stem. This species is distinguished from others in the genus by the number of flowers per cluster and by the color of the petals (Constance and Affolter 1999).

Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors of *Sanicula purpurea* are unknown (Service 1999).

Historically and currently, *Sanicula purpurea* is known from Oahu and Maui. On Oahu, 5 occurrences totaling approximately 21 individuals are currently known from Kaukonahua-Kahana divide, Helemano-Punaluu divide, the summit between Aiea and Waimano, and North Kaukonahue-Punaluu on Federal, State, and private lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Sanicula purpurea on Oahu typically grows in open *Metrosideros polymorpha* mixed montane bogs and windswept shrublands within the cloud zone between 415 and 959 m (1,361 and 3,146 ft) elevation. Associated native plant species include *Bidens* sp., *Cheirodendron* sp., *Dicanthelium koolauense, Gahnia beechyi, Leptecophylla tameiameiae, Lycopodium* sp., *Machaerina angustifolia, Plantago pachyphylla* (laukahi kuahiwi), *Sadleria pallida,* or *Vaccinium* sp. (HINHP Database 2001; EDA, *in litt.* 2001).

The major threats to *Sanicula purpurea* on Oahu are habitat degradation by feral pigs, a risk of extinction due to random environmental events and/or reduced reproductive vigor due to the small number of existing occurrences, and competition with the nonnative plant species *Axonopus fissifolius* and *Clidemia hirta* (HINHP Database 2001; Service 1999; 61 FR 53108).

Schiedea hookeri (NCN)

Schiedea hookeri, a member of the pink family (Caryophyllaceae), is a sprawling or clumped, long-lived, perennial herb. This species is distinguished from others in this endemic Hawaiian genus by its open, hairy, and sometimes sticky inflorescence and by the size of the capsules (Wagner *et al.* 1999).

Based on field and greenhouse observations, *Schiedea hookeri* has bisexual flowers. Mature fruits have been observed in June and August. A series of experimental self-pollinations, within-population crosses, and crosses among populations has demonstrated that *S. hookeri* experiences moderately strong inbreeding depression. These results indicate that reductions in population size could result in expression of inbreeding depression among progeny, with potentially deleterious consequences for the long-term persistence of this species. *Schiedea hookeri* appears to be an out-crossing species. Under greenhouse conditions, flowers do not set seed unless hand-pollinated. In the field, the species is presumed to be pollinated by insects, although none have been observed (a related species, *S. lydgatei* on Molokai, is apparently pollinated by native, night-flying moths). Individuals of *S. hookeri* appear to be long-lived, but there is no evidence of reproduction from seed under field conditions. Seedlings of *Schiedea* species occurring in mesic or wet sites are apparently consumed by introduced slugs and snails. In contrast, *Schiedea* occurring in dry areas produce abundant seedlings following winter rains, presumably because the drier sites have fewer nonnative predators. *Schiedea hookeri* differs considerably through its range in potential for clonal growth. Plants from Kaluakauila Gulch are upright and show little potential for clonal spread. In contrast, clonal growth has been detected for individuals at Kaluaa Gulch, where the growth form is decumbent and plants apparently root at the nodes (HINHP Database 2001; Service 1999; Weller and Sakai, unpublished data). No further information is available on flowering cycles, seed dispersal agents, longevity, specific environmental requirements, or limiting factors.

Historically, *Schiedea hookeri* was known from the Waianae Mountains of Oahu and a single fragmentary collection from Maui that may represent a different species. Currently, this species is known from 17 occurrences on Oahu containing between 328 and 378 individuals in East Makaleha, Makaha-Waianae Kai Ridge, Kaluakauila Gulch, between Kalaulula and Kanewai Streams, Kaluaa Gulch, north of Puu Ku Makalii, Waianae Kai, Makua-Makaha Ridge, between Kolekole Pass and Puu Hapapa, southwest of Puu Kaua, Palikea Gulch, Makaha, Kamaileunu Ridge, and Kahanahaiki on Federal, State, city, county, and private lands (EDA Database 2001; GDSI 2001; HINHP Database 2001; Service 1999).

Schiedea hookeri is usually found on slopes, cliffs and cliff bases, rock walls, and ledges in diverse mesic or dry lowland forest, often dominated by *Metrosideros polymorpha, Diospyros sandwicensis,* or *Diospyros hillebrandii,* and at elevations between 208 and 978 m (682 and 3,208 ft). Associated plant species include *Acacia koa, Alyxia oliviformis, Antidesma pulvinatum, Artemisia australis, Bidens torta, Carex meyenii, Carex wahuensis, Charpentiera tomentosa, Dodonaea viscosa, Elaeocarpus bifidus, Eragrostis grandis, Hibiscus* sp., *Leptecophylla tameiameiae, Melanthera tenuis, Pisonia sandwicensis, Pouteria sandwicensis, Psydrax odorata, Sida fallax,* or *Stenogyne* sp. (Service 1999).

The primary threats to *Schiedea hookeri* are habitat degradation and/or destruction by feral goats and pigs; competition with the nonnative plant species *Adiantum hispidulum, Ageratina adenophora, Ageratina riparia, Aleurites moluccana, Blechnum appendiculatum, Christella parasitica, Clidemia hirta, Cordyline fruticosa, Grevillea robusta, Heliocarpus popayanensis, Hyptis pectinata, Kalanchoe pinnata, Lantana camara, Melia azedarach, Melinis minutiflora, Panicum maximum, Passiflora suberosa, Pimenta dioica, Psidium cattleianum, Psidium guajava, Schinus terebinthifolius, Syzygium cumini,* and *Toona ciliata;* and predation by introduced slugs and snails. The Kaluakauila Gulch occurrence is also potentially threatened by fire and military activities (Service 1999).

Schiedea nuttallii (NCN)

Schiedea nuttallii, a long-lived perennial member of the pink family (Caryophyllaceae), is a generally hairless, erect subshrub. This species is distinguished from others in this endemic Hawaiian genus by its habit, length of the stem internodes, length of the inflorescence, number of flowers per inflorescence, and smaller leaves, flowers, and seeds (Wagner *et al.* 1999).

Flowers and fruits of *Schiedea nuttallii* are abundant in the wet season but can be found throughout the year. Plants located close to the Makua rim on Oahu have been under observation for 10 years, and they appear to be long-lived. Based on field and greenhouse observations, the species has bisexual flowers. *Schiedea nuttallii* appears to be an out-crossing species. Under greenhouse conditions, plants fail to set seed unless hand-pollinated, suggesting that this species requires insects for pollination. Seedlings of *Schiedea*

occurring in mesic or wet sites are apparently consumed by introduced slugs and snails. In contrast, *Schiedea* occurring in dry areas produce abundant seedlings following winter rains, presumably because there are fewer nonnative predators in drier sites. Other information about reproductive cycles, longevity, specific environmental requirements, and limiting factors is unknown (Service 1999).

Historically *Schiedea nuttallii* was known from scattered locations on Kauai, Oahu, Molokai, and Maui. Currently, it occurs on Kauai, Oahu, and Molokai. On Oahu, 7 occurrences with 49 individuals are found on Pahole-Makua Ridge, Pahole-Kahanahaiki Ridge, Ekahanui Gulch, Kahanahaiki Valley, and Pahole Gulch, on Federal, State, and private lands (EDA Database 2001; GDSI 2001; HINHP Database 2001; Service 1999).

Schiedea nuttallii on Oahu typically grows on steep rock walls and forested slopes in *Acacia koa-Metrosideros polymorpha* lowland mesic forest and *Metrosideros polymorpha-Dodonaea viscosa* forest at elevations between 436 and 1,185 m (1,430 and 3,887 ft). Associated native plant species include *Alyxia oliviformis, Antidesma platyphyllum, Bidens torta, Cibotium chamissoi, Coprosma* sp., the endangered *Cyanea longiflora, Hedyotis terminalis, Ilex anomala, Machaerina* sp., *Peperomia* sp., *Perrottetia sandwicensis, Pipturus* sp., or *Psydrax odorata* (HINHP Database 2001; EDA, *in litt.,* 2001).

Schiedea nuttalii on Oahu is seriously threatened by competition with the nonnative plant species *Andropogon virginicus, Clidemia hirta, Grevillea robusta, Melinis minutiflora, Paspalum conjugatum,* and *Psidium cattleianum;* predation by the black twig borer, slugs, and snails; habitat degradation by feral pigs; and a risk of extinction from naturally occurring events (*e.g.*, landslides) and/or reduced reproductive vigor due to the small number of individuals (HINHP Database 2001; Service 1999; 61 FR 53108).

Sesbania tomentosa (Ohai)

Sesbania tomentosa, a short-lived perennial member of the pea family (Fabaceae), is typically a sprawling shrub but may also be a small tree. Each compound leaf consists of 18 to 38 oblong to elliptic leaflets that are usually sparsely to densely covered with silky hairs. The flowers are a salmon color tinged with yellow, orange-red, scarlet, or, rarely, pure yellow. *Sesbania tomentosa* is the only endemic Hawaiian species in the genus, differing from the naturalized *S. sesban* by the color of the flowers, the longer petals and calyx, and the number of seeds per pod (Geesink *et al.* 1999).

The pollination biology of *Sesbania tomentosa* has been studied by David Hopper, University of Hawaii. His findings suggest that although many insects visit *Sesbania* flowers, the majority of successful pollination is accomplished by native bees of the genus *Hylaeus* and that occurrences at Kaena Point on Oahu are probably pollinator-limited. Flowering at Kaena Point is highest during the winter-spring rains and gradually declines throughout the rest of the year. Other aspects of this plant's life history are unknown (Service 1999).

Currently, *Sesbania tomentosa* occurs on six of the eight main Hawaiian Islands (Kauai, Oahu, Molokai, Kahoolawe, Maui, and Hawaii) and in the Northwestern Hawaiian Islands (Nihoa and Necker). It is no longer extant on Niihau and Lanai. On Oahu, *Sesbania tomentosa* is known from 3 occurrences of 54 to 55 wild and approximately 200 outplanted individuals on State-owned land within the Kaena Point NAR and from Keawaula on State and private lands (GDSI 2001; HINHP Database 2001; Service 1999; 59 FR 56333).

On Oahu, *Sesbania tomentosa* is found on cliff faces, broken basalt, and sand dunes with rock outcrops in *Scaevola sericea* coastal dry shrubland and *Sporobolus virginicus* (aki aki) mixed grasslands between sea level and 152 m (0 and 499 ft) elevation. Associated native plant species include *Heliotropium anomalum* (ahinahina), *Jacquemontia ovalifolia* ssp. *sandwicensis, Melanthera* sp., *Myoporum sandwicense,* or *Sida fallax* (HINHP Database 2001; Service 1999).

The primary threats to *Sesbania tomentosa* on Oahu are competition with the nonnative plant species *Lantana camara* and *Leucaena leucocephala;* lack of adequate pollination; seed predation by rats, mice, and, potentially, nonnative insects; fire; trampling by hikers, motorcycles, and all-terrain vehicles; and a risk of extinction from naturally occurring events (*e.g.* tsunami) and/or reduced reproductive vigor due to the small number of occurrences and individuals (HINHP Database 2001; Service 1999; 59 FR 56333).

Silene lanceolata (NCN)

Silene lanceolata, a member of the pink family, is an upright, short-lived perennial with stems 15 to 50 cm (6 to 20 in) long, which are woody at the base. The flowers are white with deeply-lobed, clawed petals. This species is distinguished from other Hawaiian members of the genus by its erect stem, terminal inflorescence, and length of the calyx, clawed petals, and carpophore (ovary structure) (Wagner *et al.* 1999).

Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors for *Silene lanceolata* are unknown (Service1996d).

The historical range of *Silene lanceolata* includes five Hawaiian Islands: Kauai, Oahu, Molokai, Lanai, and Hawaii. *Silene lanceolata* is presently extant on Molokai, Oahu, and Hawaii. On Oahu, there are 4 occurrences with 62 individuals located in Koiahi Gulch and Waianae Kai on Federal and State lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

On Oahu, *Silene lanceolata* grows on cliff faces and ledges of gullies in dry to mesic shrubland and cliff communities at elevations of about 351 to 978 m (1,151 to 3,208 ft). Associated native plant species include *Artemisia australis, Bidens* sp., *Carex* sp., *Chamaesyce* sp., *Dodonaea viscosa, Lysimachia* sp., *Osteomeles anthyllidifolia, Schiedea mannii,* or the endangered *Tetramolopium filiforme* (HINHP Database 2001).

The threats to *Silene lanceolata* on Oahu are habitat destruction by feral goats and pigs; wildfires; and competition with the nonnative plant species *Ageratina riparia, Erigeron karvinskianus, Lantana camara, Melinis minutiflora, Melinis repens,* and *Schinus terebinthifolius* (HINHP Database 2001; Service 1996d; 57 FR 46325).

Solanum sandwicense (Popolo aiakeakua)

Solanum sandwicense, a member of the nightshade family (Solanaceae), is a large sprawling shrub. The younger branches are more densely hairy than older branches, and the oval leaves usually have up to four lobes along the margins. This short-lived perennial species differs from other members of the genus by having dense hairs on young plant parts, a greater height, and lacking prickles (Symon 1999).

Little is known about the life history of Solanum sandwicense. Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors are unknown (Service 1995b).

Historically, *Solanum sandwicense* was known from both Oahu and Kauai. This species was last seen on Oahu in 2000. Currently, this species is only

known from Kauai (GDSI Database 2001; HINHP Database 2001; Service 1995b; 59 FR 09304; 65 FR 66808; J. Yoshioka, TNCH, pers. comm., 2000).

Solanum sandwicense was found on Oahu on talus slopes and in streambeds in open, sunny areas at elevations between 131 and 1,006 m (430 and 3,300 ft). Associated native plant species included *Pisonia* sp. or *Psychotria* sp. (HINHP Database 2001; Service 1995b; 59 FR 09304).

The major threats to occurrences of *Solanum sandwicense* on Oahu were habitat degradation by feral pigs; competition with the nonnative plant species *Passiflora suberosa, Psidium* sp., and *Schinus terebinthifolius;* fire; landslides; and a risk of extinction from naturally occurring events and reduced reproductive vigor due to the small number of existing individuals (HINHP Database 2001; Service 1995b; 59 FR 09304).

Spermolepis hawaiiensis (NCN)

Spermolepis hawaiiensis, a member of the parsley family (Apiaceae), is a slender annual herb with few branches. Its leaves are dissected into narrow, lance-shaped divisions. *Spermolepis hawaiiensis* is the only member of the genus native to Hawaii. It is distinguished from other native members of the family by being a nonsucculent annual with an umbrella-shaped inflorescence (Constance and Affolter 1999).

Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors of this species are unknown (Service 1999).

Historically, *Spermolepis hawaiiensis* was known from Kauai, Oahu, Lanai, and the island of Hawaii. It is currently known from Molokai and Maui as well as the above four islands. On Oahu, there are 6 known occurrences totaling between 110 and 910 individuals, on Makua-Keaau Ridge and near the entrance of Diamond Head on State, Federal, city, and county lands (EDA Database 2001; GDSI 2001; HINHP Database 2001).

Spermolepis hawaiiensis on Oahu typically grows on steep to vertical cliffs or at the base of cliffs and ridges in coastal dry cliff vegetation at elevations of 25 to 839 m (82 to 2,752 ft). Associated native plant species include *Artemisia australis, Bidens* sp., *Dodonaea viscosa, Doryopteris* sp., *Heteropogon contortus, Santalum ellipticum,* or *Waltheria indica* (HINHP Database 2001; EDA, *in litt.,* 2001).

The primary threats to *Spermolepis hawaiiensis* on Oahu are habitat degradation by feral goats; competition with nonnative plant species such as *Lantana camara, Melinis minutiflora,* and various grasses; and habitat destruction and death of plants due to erosion, landslides, and rock slides resulting from natural weathering (HINHP Database 2001; Service 1999; 59 FR 56333).

Tetramolopium lepidotum ssp. *lepidotum* (NCN)

Tetramolopium lepidotum ssp. *lepidotum,* a short-lived perennial member of the aster family (Asteraceae), is an erect shrub 12 to 36 cm (4.7 to 14 in) tall, branching near the ends of the stems. Leaves are lance-shaped and wider at the leaf tip. This taxon can be distinguished from the other extant species on Oahu by its bisexual disk flowers and its inflorescence of 6 to 12 heads (Lowrey 1999).

Tetramolopium lepidotum ssp. *lepidotum* produces flowers and fruit from April through July. Little else is known about its flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors (Service 1995b; 59 FR 09304).

Historically, *Tetramolopium lepidotum* ssp. *lepidotum* was known from Lanai and nearly the entire length of the Waianae Mountains, from Makua Valley to Cachexia Ridge, on Oahu. It is now known only from Oahu. A total of 5 occurrences of approximately 15 individual plants are currently known from Federal, State, and private lands on Mauna Kapu, Ekahanui-Lualualei summit, Waianae Kai, and Puu Hapapa. TNCH has outplanted three individuals in a fenced exclosure within Honouliuli Preserve. These plants have since died, yet two healthy individuals have sprouted near the exclosure (EDA Database 2001; GDSI 2001; HINHP 2001; Lowrey 1999; Service 1998b; 56 FR 55770).

Tetramolopium lepidotum ssp. *lepidotum* typically grows on grassy ridge tops, slopes, or cliffs in windblown dry forests at elevations of 330 to 1,157 m (1,082 to 3,795 ft). Associated native species include *Bidens* sp., *Carex wahuensis, Eragrostis* sp., or *Metrosideros polymorpha* (HINHP Database 2001).

The major threats to *Tetramolopium lepidotum* ssp. *lepidotum* on Oahu are competition from the nonnative plant species *Andropogon virginicus, Melinis minutiflora,* and *Schinus terebinthifolius;* habitat degradation and predation by feral goats and pigs; fire; and a risk of extinction and/or reduced reproductive vigor due to the small number of occurrences and individuals (HINHP Database 2001; Service 1998b; 56 FR 55770).

Vigna o-wahuensis (NCN)

Vigna o-wahuensis, a member of the pea family (Fabaceae), is a slender, twining, short-lived perennial herb with fuzzy stems. Each leaf is made up of three leaflets that vary in shape from round to linear. This species differs from others in the genus by its thin yellowish petals, sparsely hairy calyx, and thin pods that may or may not be slightly inflated (Geesink *et al.* 1999).

Flowering cycles, pollination vectors, seed dispersal agents, longevity, specific environmental requirements, and limiting factors of this species are unknown (Service 1999).

Historically, *Vigna o-wahuensis* was known from Niihau, Oahu, Molokai, Lanai, Kahoolawe, Maui, and the island of Hawaii. Currently, *V. o-wahuensis* is known from the islands of Molokai, Lanai, Kahoolawe, Maui, and Hawaii. There are no currently known occurrences on Oahu. The last collection on Oahu was made in 1938 on the Mokulua Islets and North Islet (HINHP Database 2001).

Vigna o-wahuensis on Oahu occurred on open dry fossil reef, climbing over shrubs and grasses on limestone deposit, and on fairly steep slopes from sea level to 609 m (0 to 1,998 ft) in elevation. The associated native plant species on Oahu are unknown (HINHP Database 2001).

Nothing is known of the threats for *Vigna o-wahuensis* on Oahu (Service 1999).

A summary of occurrences and landownership for the 101 plant species reported from the island of Oahu is given in Table 1.

TABLE 1.—SUMMARY OF EXISTING OCCURRENCES ON OAHU, AND LANDOWNERSHIP FOR 101 SPECIES REPORTED FROM OAHU

Species	Number of current occurrences	Landownership/Jurisdiction		
		Federal	State	Private
Abutilon sandwicense	30	X [2, 6]	X	X
Adenophorus periens	0			
Alectryon macrococcus	82	X [1, 2, 6]	X	X
Alsinidendron obovatum	6	X [1]	X	
Alsinidendron trinerve	13	X [2]	X	
Bonamia menziesii	18	X [1, 6]	X	X
Cenchrus agrimonioides	7	X [1, 2]	X	X
Centaurium sebaeoides	2	.....	X	X
Chamaesyce celastroides var. *kaenana*	15	X [1]	X	
Chamaesye deppeana	1	.....	X	.....
Chamaesyce herbstii	4	.....	X	X
Chamaesyce kuwaleana	5	X [6]	X	
Chamaesyce rockii	20	X [2, 3, 8]	X	X
Colubrina oppositifolia	5	.....	X	X
Ctenitis squamigera	8	X [1, 2]	X	X
Cyanea acuminata	20	X [2, 3, 8]	X	X
Cyanea crispa	11	X [3]	X	X
Cyanea grimesiana ssp. *grimesiana*	7	X [2]	X	X
Cyanea grimesiana ssp.*obatae*	8	.....	X	X
Cyanea humboltiana	9	X [3, 8]	X	X
Cyanea koolauensis	42	X [2, 3, 4, 8]	X	X
Cyanea longiflora	4	.....	X	X
Cyanea pinnatifida	0	.....	.....	.....
Cyanea st.-johnii	7	X[3]	X	X
Cyanea superba	0	.....	.....	.....
Cyanea truncata	2	.....	X	X
Cyperus trachysanthos	6	X [7]	X	.....
Cyrtandra crenata	0	.....	.....	.....
Cyrtandra dentata	11	X [1, 3]	X	.....
Cyrtandra polyantha	1	.....	X	X
Cyrtandra subumbellata	5	X [2, 8]	X	X
Cyrtandra viridiflora	23	X [3, 8]	X	X
Delissea subcorata	21	X [1, 2]	X	X
Diellia erecta	1	.....	X	X
Diellia falcata	30	X [1, 2, 6]	X	X
Diellia unisora	4	.....	X	X
Diplazium molokaiense	0	.....	.....	.....
Dubautia herbstobatae	12	X [1]	X	.....
Eragrostis fosbergii	4	X [2]	X	.....
Eugenia koolauensis	12	X [3, 4]	X	X
Euphorbia haeleeleana	8	X [1]	X	X
Flueggea neowawraea	23	X [1, 2, 6]	X	X
Gardenia mannii	49	X [2, 3, 4, 8]	X	X
Gouania meyenii	4	.....	X	X
Gouania vitifolia	2	.....	X	X
Hedyotis coriacea	0	.....	.....	.....
Hedyotis degeneri	4	X [1]	X	.....
Hedyotis parvula	7	X [1, 6]	X	.....
Hesperomannia arborescens	36	X [3, 4, 8]	X	X
Hesperomannia arbuscula	6	.....	X	X
Hibiscus brackenridgei	6	X [1, 6]	X	X
Isodendrion laurifolium	5	.....	X	X
Isodendrion longifolium	7	X [2]	X	X
Isodendrion pyrifolium	0	.....	.....	.....
Labordia cyrtandrae	9	.....	X	X
Lepidium arbuscula	12	X [1, 2, 6]	X	.....
Lipochaeta lobata var. *leptophylla*	4	X [2, 6]	X	.....
Lipochaeta tenuifolia	41	X [1, 2, 6]	X	.....
Lobelia gaudichaudii ssp. *koolauensis*	5	X [2, 3, 8]	X	X
Lobelia monostachya	1	.....	X	X
Lobelia niihauensis	40	X [1, 2, 6]	X	.....
Lobelia oahuensis	12	X [1, 2, 3, 8]	X	X
Lysimachia filifolia	1	.....	X	.....
Mariscus pennatiformis	0	.....	.....	.....
Marsilea villosa	5	X [6]	X	X
Melicope lydgatei	18	X [3]	X	X
Melicope pallida	1	.....	X	X
Melicope saint-johnii	6	X [6]	.....	X
Myrsine juddii	3	X [3]	X	.....

TABLE 1.—SUMMARY OF EXISTING OCCURRENCES ON OAHU, AND LANDOWNERSHIP FOR 101 SPECIES REPORTED FROM OAHU—Continued

Species	Number of current occurrences	Landownership/Jurisdiction		
		Federal	State	Private
Neraudia angulata	27	X [1, 2, 6]	X	
Nototrichium humile	25	X [1, 2, 6]	X	X
Peucedanum sandwicense	4		X	
Phlegmariurus nutans	3	X [2, 3, 8]	X	
Phyllostegia hirsuta	26	X [2, 3, 6, 8]	X	X
Phyllostegia kaalaensis	7		X	X
Phyllostegia mollis	5	X [2]	X	
Phyllostegia parviflora	6	X [3]	X	X
Plantago princeps	11	X [1, 2, 3, 6, 8]	X	X
Platanthera holochila	0			
Pritchardia kaalae	6	X [1, 2]	X	
Pteris lidgatei	9	X [2, 3, 8]	X	X
Sanicula mariversa	4	X [1, 6]	X	
Sanicula purpurea	5	X [2, 3, 8]	X	X
Schiedea hookeri	17	X [1, 2, 6]	X	X
Schiedea kaalae	7		X	X
Schiedea kealiae	4	X [5]	X	X
Schiedea nuttallii	7	X [1, 2]	X	X
Sesbania tomentosa	3		X	X
Silene lanceolata	4	X [1]	X	
Silene perlmanii	0			
Solanum sandwicense	0			
Spermolepis hawaiiensis	6	X [1]	X	
Stenogyne kanehoana	1			X
Tetramolopium filiforme	21	X [1,6]	X	
Tetramolopium lepidotum ssp. *lepidotum*	5	X [2, 6]	X	X
Tetraplasandra gymnocarpa	30	X [2, 3, 4, 8]	X	X
Trematolobelia singularis	3		X	X
Urera kaalae	12	X [2, 6]	X	X
Vigna o-wahuensis	0			
Viola chamissoniana ssp. *chamissoniana*	15	X [1, 2, 6]	X	
Viola oahuensis	18	X [2, 3, 8]	X	X

[1] Makua Military Reservation
[2] Schofield Barracks Military Reservation/Schofield Barracks East Range
[3] Kawailoa Training Area
[4] Kahuku Training Area
[5] Dillingham Military Reservation
[6] Naval Magazine Pearl Harbor Lualualei Branch and Naval Computer and Telecommunication Area Master Station Pacific Transmitting Facility at Lualualei
[7] Hawaii Army National Guard
[8] Oahu Forest National Wildlife Refuge

Previous Federal Action

On May 28, 2002, we published the court-ordered proposed critical habitat designations for the 101 plant species from Oahu (67 FR 37108). In that proposed rule (beginning on page 37147), we included a detailed summary of the previous Federal actions completed prior to publication of the proposal. We now provide updated information on the actions that we have completed since the proposed critical habitat designation. In Table 2, we list the final critical habitat designations or nondesignations previously completed for 41 of the 101 plant species from Oahu, which also occur on other islands.

TABLE 2.—SUMMARY OF PREVIOUS FINAL CRITICAL HABITAT ACTIONS FOR THE 101 PLANT SPECIES FROM OAHU

Species	Final critical habitat designation or nondesignation	
	Date(s)	Federal Register
Adenophorus periens	02/27/03	68 FR 9116
	05/18/03	68 FR 12982
Alectryon macrococcus	02/27/03	68 FR 9116
	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Bonamia menziesii	02/27/03	68 FR 9116
	05/14/03	68 FR 25934
Cenchrus agrimonioides	05/14/03	68 FR 25934
Centaurium sebaeoides	02/27/03	68 FR 9116
	03/18/03	68 FR 12982

TABLE 2.—SUMMARY OF PREVIOUS FINAL CRITICAL HABITAT ACTIONS FOR THE 101 PLANT SPECIES FROM OAHU—Continued

Species	Final critical habitat designation or nondesignation	
	Date(s)	Federal Register
	05/14/03	68 FR 25934
Colubrina oppositifolia	05/14/03	68 FR 25934
Ctenitis squamigera	02/27/03	68 FR 9116
	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Cyanea grimesiana ssp. *grimesiana*	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Cyperus trachysanthos	02/27/03	68 FR 9116
Diellia erecta	02/27/03	68 FR 9116
	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Diplazium molokaiense	02/27/03	68 FR 9116
	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Eugenia koolauensis	03/18/03	68 FR 12982
Euphorbia haeleeleana	02/27/03	68 FR 9116
Flueggea neowawraea	02/27/03	68 FR 9116
	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Gouania meyenii	02/27/03	68 FR 9116
Gouania vitifolia	05/14/03	68 FR 25934
Hedyotis coriacea	05/14/03	68 FR 25934
Hesperomannia arborescens	03/18/03	68 FR 12982
Hesperomannia arbuscula	05/14/03	68 FR 25934
Hibiscus brackenridgei	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Isodendrion laurifolium	02/27/03	68 FR 9116
Isodendrion longifolium	02/27/03	68 FR 9116
Isodendrion pyrifolium	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Lobelia niihauensis	02/27/03	68 FR 9116
Lysimachia filifolia	02/27/03	68 FR 9116
Mariscus pennatiformis	02/27/03	68 FR 9116
	05/14/03	68 FR 25934
	05/22/03	68 FR 25934
Melicope pallida	02/27/03	68 FR 9116
Nototrichium humile	05/14/03	68 FR 25934
Peucedanum sandwicense	02/27/03	68 FR 9116
	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Phlegmariurus nutans	02/27/03	68 FR 9116
Phyllostegia mollis	05/14/03	68 FR 25934
Plantago princeps	02/27/03	68 FR 9116
	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Platanthera holochila	02/27/03	68 FR 9116
	05/14/03	68 FR 25934
Pteris lidgatei	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Sanicula purpurea	05/14/03	68 FR 25934
Schiedea nuttallii	02/27/03	68 FR 9116
	03/18/03	68 FR 12982
Sesbania tomentosa	02/27/03	68 FR 9116
	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
	05/22/03	68 FR 28054
Silene lanceolata	03/18/03	68 FR 12982
Solanum sandwicense	02/27/03	68 FR 9116
Spermolepis hawaiiensis	02/27/03	68 FR 9116
	03/18/03	68 FR 12982
	05/14/03	68 FR 25934
Vigna o-wahuensis	05/14/03	68 FR 25934

For many of 101 plant species from Oahu, the issue of whether critical habitat would be prudent was discussed in previous proposals and incorporated into the May 28 proposal (see 65 FR 79192; 65 FR 83158; 67 FR 3939; 67 FR 15856; 67 FR 9806; 67 FR 16492; 67 FR 36968; 67 FR 37108). In the May 28, 2002 proposed rule, we proposed that critical habitat designation was not prudent for *Cyrtandra crenata* because it had not been seen recently in the wild, and no genetic material of the species was known to exist. We also proposed that critical habitat designation was not prudent for *Pritchardia kaalae,* because it would likely increase the threat from vandalism or collection of the species. Critical habitat for the remaining 99 (*Abutilon sandwicense, Adenophorus periens, Alectryon macrococcus, Alsinidendron obovatum, Alsinidendron trinerve, Bonamia menziesii, Cenchrus agrimonioides, Chamaesyce celastroides* var. *kaenana, Chamaesyce deppeana, Chamaesyce herbstii, Chamaesyce kuwaleana, Chamaesyce rockii, Colubrina oppositifolia, Ctenitis squamigera, Cyanea acuminata, Cyanea crispa, Cyanea grimesiana* ssp. *grimesiana, Cyanea grimesiana* ssp. *obatae, Cyanea humboltiana, Cyanea koolauensis, Cyanea longiflora, Cyanea pinnatifida, Cyanea st.-johnii, Cyanea superba, Cyanea truncata, Cyperus trachysanthos, Cyrtandra dentata, Cyrtandra polyantha, Cyrtandra subumbellata, Cyrtandra viridiflora, Delissea subcordata, Diellia erecta, Diellia falcata, Diellia unisora, Diplazium molokaiense, Dubautia herbstobatae, Eragrostis fosbergii, Eugenia koolauensis, Euphorbia haeleeleana, Flueggea neowawraea, Gardenia mannii, Gouania meyenii, Gouania vitifolia, Hedyotis coriacea, Hedyotis degeneri, Hedyotis parvula, Hesperomannia arborescens, Hesperomannia arbuscula, Hibiscus brackenridgei, Isodendrion laurifolium, Isodendrion longifolium, Isodendrion pyrifolium, Labordia cyrtandrae, Lepidium arbuscula, Lipochaeta lobata* var. *leptophylla, Lipochaeta tenuifolia, Lobelia gaudichaudii* ssp. *koolauensis, Lobelia monostachya, Lobelia niihauensis, Lobelia oahuensis, Lysimachia filifolia, Mariscus pennatiformis, Marsilea villosa, Melicope lydgatei, Melicope pallida, Melicope saint-johnii, Myrsine juddii, Neraudia angulata, Nototrichium humile, Pelea lydgatei, Peucedanum sandwicense, Phlegmariurus nutans, Phyllostegia hirsuta, Phyllostegia kaalaensis, Phyllostegia mollis, Phyllostegia parviflora, Plantago princeps, Platanthera holochila, Pteris lidgatei, Sanicula mariversa, Sanicula purpurea, Schiedea hookeri, Schiedea kaalae, Schiedea kealiae, Schiedea nuttallii, Sesbania tomentosa, Silene lanceolata, Silene perlmanii, Solanum sandwicense, Spermolepis hawaiiensis, Stenogyne kanehoana, Tetramolopium filiforme, Tetramolopium lepidotum* ssp. *lepidotum, Tetraplasandra gymnocarpa, Trematolobelia singularis, Urera kaalae, Vigna o-wahuensis, Viola chamissoniana* ssp. *chamissoniana,* and *Viola oahuensis*) of the 101 plant species was proposed on approximately 45,067 ha (111,364 ac) of land on the island of Oahu (67 FR 37108).

The publication of the proposed rule opened a 60-day public comment period, which closed on July 29, 2002. On July 11, 2002, we submitted joint stipulations to the U.S. District Court with Earthjustice requesting extension of the court orders for the final rules to designate critical habitat for plants from Lanai (December 30, 2002), Kauai and Niihau (January 31, 2003), Molokai (February 28, 2003), Maui and Kahoolawe (April 18, 2003), Oahu (April 30, 2003), the Northwestern Hawaiian Islands (April 30, 2003), and the island of Hawaii (May 30, 2003), citing the need to conduct additional review of the proposals, address comments received during the public comment periods, and conduct a series of public workshops on the proposals. The joint stipulations were approved and ordered by the court on July 12, 2002. On August 26, 2002, we published a notice (67 FR 54766) reopening the public comment period until September 30, 2002, on the proposal to designate critical habitat for plants from Oahu. On October 10, 2002, we published a notice (67 FR 63066) announcing the reopening of the comment period until November 30, 2002 and announcing a public hearing. On October 15, 2002, we held a public information meeting at the McCoy Pavilion, Honolulu, Oahu. On October 17, 2002, we held a public information meeting at Nanakuli High School, Nanakuli, Oahu. On November 19, 2002, we held a public hearing at the Ala Moana Hotel, Honolulu, Oahu. On December 26, 2002, we published a notice (67 FR 78763) announcing the availability of the draft economic analysis and reopening the comment period until January 27, 2003.

In the final rule designating critical habitat for plants on Lanai, published in the **Federal Register** on January 9, 2003 (68 FR 1220), we indicated that critical habitat was prudent for the following 17 multi-island species that also occur on Oahu: *Adenophorus periens, Bonamia menziesii, Cenchrus agrimonioides, Centaurium sebaeoides, Ctenitis squamigera, Cyanea grimesiana ssp. grimesiana, Cyperus trachysanthos, Diellia erecta, Diplazium molokaiense, Hesperomannia arborescens, Hibiscus brackenridgei, Isodendrion pyrifolium, Sesbania tomentosa, Silene lanceolata, Spermolepis hawaiiensis, Tetramolopium lepidotum* ssp. *lepidotum,* and *Vigna o-wahuensis.* In the final rule designating critical habitat for plants on Kauai and Niihau, published on February 27, 2003 (68 FR 9116), we indicated that critical habitat was prudent for the following 16 multi-island species that are also found on Oahu: *Alectryon macrococcus, Euphorbia haeleeleana, Flueggea neowawraea, Gouania meyenii, Isodendrion laurifolium, Isodendrion longifolium, Lobelia niihauensis, Lysimachia filifolia, Mariscus pennatiformis, Melicope pallida, Peucedanum sandwicense, Phlegmariurus nutans, Plantago princeps, Platanthera holochila, Schiedea nuttallii,* and *Solanum sandwicense.* In the final rule designating critical habitat for plants on Molokai (68 FR 12982), we indicated that critical habitat was prudent for the following four multi-island species that are also found on Oahu: *Eugenia koolauensis, Isodendrion pyrifolium, Marsilea villosa, Phyllostegia mollis,* and *Pteris lidgatei.* In the final rule designating critical habitat for plants on Maui and Kahoolawe, published on May 14, 2003 (68 FR 25934) we indicated that critical habitat was prudent for the following eight multi-island species that are also found on Oahu: *Colubrina oppositifolia, Gouania vitifolia, Hedyotis coriacea, Hesperomannia arbuscula, Isodendrion pyrifolium, Nototrichium humile, Phyllostegia parviflora, Sanicula purpurea,* and *Schiedea hookeri.* In the final rule designating critical habitat for plants in the Northwestern Hawaiian Island, published on May 22, 2003 (68 FR 28054) we indicated that critical habitat was prudent for the following two multi-island species that are also found on Oahu: *Mariscus pennatiformis* and *Sesbania tomentosa.*

Summary of Comments and Recommendations

We received a total of seven oral and 694 written comments during the four comment periods. These included responses from 7 State offices, 13 local agencies, and 36 private organizations or individuals. Of the written comments, we received approximately 638 letters by electronic mail or coupon/postcard that stated general support for the proposed critical habitat

designations but that did not provide substantive comments. Of the other 56 comments, 12 supported the proposed designation, 31 were opposed to it, and 13 provided information or declined to oppose or support the designation. We reviewed all comments received for substantive issues and new information regarding critical habitat and the Oahu plants. Similar comments were grouped into six general issues relating specifically to the proposed critical habitat designations and the draft economic analysis on the proposed determinations. These are addressed in the following summary.

Peer Review

In accordance with our policy published on July 1, 1994 (59 FR 34270), we solicited independent opinions from 17 knowledgeable individuals with expertise in one or several fields, including familiarity with the species, the geographic region, or the principles of conservation biology. We received comments from eight. All eight generally supported our methodology and conclusion, but none expressed a position for or against the designation of critical habitat. Comments received from the peer reviewers are summarized in the following section and were considered in developing the final rule.

Issue 1: Biological Justification and Methodology

(1) *Comment:* One commenter stated that the proposal designates areas that are not essential to the species.

Our Response: In accordance with our policy on peer review published on July 1, 1994 (59 FR 34270), we solicited the expert opinions of appropriate and independent specialists regarding the proposed rule. The purpose of this peer review was to ensure that our method of designating critical habitat for Oahu plants was based on scientifically sound data, assumptions, and analysis. The comments of the peer reviewers were taken into consideration in the development of this final designation. The majority of our peer reviewers support our methodology. Changes in this final rule that decrease the boundaries of some units are based on additional information received during the public comment periods. The changes in boundaries reflected in this final rule are based on additional information regarding the lack of primary constituent elements or additional information regarding the degradation of some of the proposed critical habitat areas and low probability of restoration that affect the areas' essentiality to the species. Areas that were inadvertently included in the proposed unit and found to be nonessential have also been removed from the final designation.

(2) *Comment:* One commenter stated that the broad brush of primary constituent elements has resulted in the proposed designation of large amounts of State land with little companion scientific effort to identify limiting factors or management actions needed. Another commenter stated that the critical habitat designations are based on guesswork.

Our Response: The Act requires us to use the best scientific and commercial information available in undertaking species listing and recovery actions, including the designation of critical habitat as set forth in this rule. In this final rule, we concluded that some areas were not essential for the conservation of the Oahu plant species, based on newly available information concerning status of the species in specific areas and level of habitat degradation. Several of the units proposed as critical habitat have been excluded because they are not essential for the conservation of the species. These excluded units are nonessential because either they lack the species' primary constituent elements or other habitat exists for these species that has more primary constituent elements and/or is less degraded. See the ''Summary of Changes from the Revised Proposed Rule'' section.

The magnitude of additional research and investigations required to determine limiting factors and specific management actions needed for each species at each location is beyond the scope of critical habitat designation. The Act requires us to designate critical habitat on the basis of the best scientific and commercial data available. Based on the information available at the time the proposal was prepared and taking into consideration additional information received during the public comment periods on the proposal and draft economic analysis, we believe we have designated scientifically appropriate areas for the conservation of these species.

(3) *Comment:* The Army requested exclusion of grass-dominated portions of Makua Military Reservation and exclusion of grass-dominated habitat and forested areas dominated by nonnative plants (*e.g. Eucalyptus* sp. and *Schinus terebinthifolius*) at Schofield Barracks.

Our Response: These areas were excluded from the final critical habitat designation because they do not contain the primary constituent elements necessary for the conservation of the Oahu plant species.

(4) *Comment:* One commenter did not believe that the Service has demonstrated that designating this large an area, absent any active management by the Federal government, can lead to the recovery of the identified species.

Our Response: We agree that active management is a necessary part of achieving recovery for these species and that the ultimate purpose of critical habitat is to contribute to the conservation of listed species. This can be best be achieved by cooperation between the Service and other partners. A critical habitat designation alone will not lead to the recovery of these species. Recovery of the species will require the cooperation of Federal and non-Federal land managers to manage lands in a manner that is compatible with species' recovery. We have numerous programs for assisting landowners with management for the conservation of these species.

(5) *Comment:* One peer reviewer indicated that the general goal of establishing at least 8 to 10 viable populations for each species may not apply to some rare, localized island endemics that likely never had 8 to 10 populations throughout their evolutionary history.

Our Response: Fewer than eight populations are being designated for some very restricted species for which adequate habitat does not exist, and which were likely always rare, since they are very narrow endemics (*Alsinidendron trinerve, Chamescyce celastroides* var. *kaenana, Chamaesyce deppeana, Chamaesyce herbstii, Chamaesyce kuwaleana, Cyanea pinnatifida, Cyrtandra polyantha, Cyrtandra subumbellata, Diellia unisora, Dubautia herbstobatae, Eragrostis fosbergii, Lipochaeta tenuifolia, Lobelia monostachya, Melicope saint-johnii, Sanicula mariversa, Schiedea kealiae, Silene perlmanii, Stenogyne kanehoana,Tetramolopium filiforme,* and *Trematalobelia singularis*). The recovery plan for some more well understood species may also have different recovery objectives (*Marsilea villosa*), and the designation reflects these differences. However, in general, the recovery objectives found in recovery plans for these species state that 8 to 10 viable populations are required for recovery of each species. Establishing and conserving 8 to 10 viable populations on one or more islands within the historic range of the species will provide each species with a reasonable expectation of persistence and eventual recovery, even with the

high potential that one or more of these populations will be eliminated by normal or random adverse events, such as fires and nonnative plant invasions (Hawaii and Pacific Plant Recovery Committee (HPPRCC) 1994; Luijten *et al.* 2000; Mangel and Tier 1994; Pimm *et al.* 1998; Stacey and Taper 1992). We conclude that designation of adequate suitable habitat for 8 to 10 populations as critical habitat is essential to give most species a reasonable likelihood of long-term survival and recovery, based on currently available information. Each recovery plan states that these recovery goals will be revised as more specific information becomes available for each species.

(6) *Comment:* One peer reviewer commented that we should be wary of making propagation or reintroduction decisions based on the preservation of interpopulational genetic diversity. Observed or measurable genetic diversity is always at neutral loci, which gives absolutely no indication of differences in relative fitness. Another peer reviewer asked if the consequences of small, isolated populations on genetic drift or inbreeding have been addressed, *e.g.*, through occasional gene flow.

Our Response: Many of the species have been reduced to such low numbers that the recovery plans identify propagation and reintroduction as a key step. While we do not have direct evidence for most species to indicate that reduced reproductive vigor or inbreeding are problems, we believe they should be considered, based on current conservation biology theory and practice. This is particularly important to consider when developing a propagation and reintroduction program, to ensure that recovery efforts do not cause or exacerbate genetic issues. While measures of genetic diversity do not directly measure relative fitness, it is reasonable to assume that the two are correlated. The issue of gene flow and genetic drift will be addressed through research actions identified as needed in the recovery plans.

(7) *Comment:* The proposal failed to contain the total of historically known listed plants, and therefore failed to propose critical habitat for all listed plants Statewide. About 10 percent of the historically known listed endangered plant species from the Hawaiian Islands are missing from the proposals. The following Oahu plants are listed as endangered, but not included in proposed critical habitat designations: *Abutilon menziesii, Achyranthes splendens* var. *rotundata, Caesalpinia kavaiensis, Chamaesyce skottsbergii* var. *skottsbergii, Panicum fauriei* var. *carteri, Scaevola coriacea,* and *Scheidea adamantis.* It is unclear why critical habitat was not discussed with respect to *Abutilon menziesii, Achyranthes splendens* var. *rotundata, Caesalpinia kavaiensis, Chamaesyce skottsbergii* var. *skottsbergii,* and *Gardenia brighamii.* For example, the recovery plan for *G. brighamii* specifically calls for the establishment of three populations on Oahu. This is a serious concern since the proposed rule states ''the U.S. Fish and Wildlife Service proposes critical habitat for 99 of the 101 plant species known historically from the island of Oahu that are listed under the ESA.'' This statement is incorrect. The above-mentioned species are found on Oahu, they are listed under the ESA, and they are not addressed in the proposed rule.

Our Response: We have corrected the statement cited above in this final rule. The following species were not part of the 1998 court order and subsequent stipulations, and therefore were not included in this rulemaking: *Abutilon menziesii, Achyranthes rotundata* (currently *Achyranthes splendens* var. *rotundata*), *Euphorbia skottsbergii* var. *kalaeloana, Gardenia brighamii, Mezoneuron kavaiense* (currently *Caesalpinia kavaiensis*), *Scaevola coriacea,* and *Scheidea adamantis.* Critical habitat for these species will be considered if funding and resources become available. In addition, critical habitat has already been designated for *Panicum carteri* (currently *Panicum fauriei* var. *carteri*) on the island of Mokolii (48 FR 46328).

(8) *Comment:* One peer reviewer expressed concern that the Service may remove areas from designation if the landowner provides sufficient assurance that the land is adequately managed for a particular species. The Service cannot lawfully exclude areas from critical habitat based on a finding that they are adequately managed or protected. Critical habitat should be determined independent of the management situation. Another peer reviewer stated that none of the lands should be excluded from proposed critical habitat because of their existing land management.

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

(9) *Comment:* One peer reviewer and many commenters stated that focusing conservation efforts on the most pristine, least degraded sites is a logical, efficient, and cost-effective strategy whenever possible. Unfortunately, for many of the listed plant species, there is simply not enough suitable habitat remaining. Another peer reviewer stated that, in general, as much habitat should be protected as possible. Many peer reviewers were optimistic about the potential for degraded areas to be restored. One peer reviewer commented that populations could be established in the most degraded habitat if sufficient funds and person hours are dedicated toward follow-up maintenance after restoration. Another commenter stated that there is only a nominal possibility that the endangered native plants would survive in highly degraded areas and areas dominated by nonnative plants that are proposed as critical habitat. Yet another commenter stated that designations in degraded habitats are unrealistic and could waste resources on impractical restoration efforts. The commenter went on to suggest that low elevation areas may not be adequately represented; therefore it is important that the proposal not be trimmed back in any lower elevation areas. Another peer reviewer stated that the Service should designate lowland areas for potential future restoration and population recovery efforts.

Our Response: We agree that recovery of a species is more likely in designated critical habitat in the least degraded areas containing the primary constituent elements. To this end, several units have been excluded for some species, as sufficient numbers of alternative critical habitat units are available in less degraded areas. However, for some species, especially those only known from low elevation areas, only degraded

habitat remains. Therefore, some units still contain degraded habitat, but we believe that these areas can be restored if the landowner is supportive and resources are made available.

(10) *Comment:* One peer reviewer questioned why some areas designated as essential habitat by the HPPRCC are not included in the proposed critical habitat.

Our Response: In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to propose as critical habitat, we are required to use the best scientific and commercial data available and to consider those physical and biological features (primary constituent elements) that are essential to the conservation of the species and that may require special management considerations or protection. The HPPRCC used a different set of criteria to select the areas they deemed to be essential plant habitat. They selected habitat for all endangered, threatened, proposed, and candidate species. Some of these species were not included in the selection of critical habitat. Therefore, the essential plant habitat and critical habitat areas will not completely overlap.

(11) *Comment:* One peer reviewer recommended additional consultations with academic and professional experts. Some reviewers stated that no assessment of the quality of any of the data sources is provided, and no information is given as to how data sources of varying qualities were weighted in making delineations of critical habitat or how decisions were made as to what to rely on in the absence of rigorous assessments of relative quality. These commenters agreed with the Service's statement that ''lack of detailed scientific data makes it impossible for us to develop a quantitative model.'' Lack of knowledge means that the proposed critical habitat designation is based only on the general habitat features of the areas in which the plants currently occur. While this approach may be expedient, it has resulted in designations based on best-guess estimations, rather than on science or the realities of plant recovery. The Service needs to give greater weight to scientific or commercial data that is empirical and has been field tested or verified, and the Service needs to allow peer review by a panel of unbiased scientists. One reviewer stated that the scientific basis for critical habitat designation is weak. Other commenters felt that the data on which the proposed critical habitat is based are 30 years old and may need updating.

Our Response: In an expansion of our policy on peer review published on July 1, 1994 (59 FR 34270), we solicited the expert opinions of 19 appropriate and independent specialists regarding the proposed rule. The purpose of this peer review was to ensure that our methodology for designation of critical habitat for Oahu plants was based on scientifically sound data, assumptions, and analysis. The comments of the peer reviewers were taken into consideration in the development of this final designation. The majority of peer reviewers support our methodology. We also met with field botanists from the Hawaii Natural Heritage Program, the Department of Land and Natural Resources, the Hawaii Army National Guard, and the Department of the Army. All data and information on species status received in preparation of this rule were weighted equally and considered to come from reliable sources. Where discrepancies existed between different data sources, the most current data were used.

New information indicated that some of the areas identified as essential habitat in the ''Recovery Plan for Multi Island Plants'' (USFWS 1999) do not contain the primary constituent elements necessary for the conservation of any of the 99 plant species included in this final designation. The essential plant habitat maps take into consideration all listed endangered plants on Oahu, as well as species of concern. We agree that additional time would be beneficial for the preparation of these final rules and the collection of more scientific information, but we are required under the court-approved stipulation to finalize this designation by April 30, 2003, using the best information currently available. If provided with new information, we may propose revisions in the critical habitat designation in the future.

(12) *Comment:* Some reviewers commented that deletion of significant portions of any of the proposed critical habitat units is likely to prevent the recovery of, and lead to the extinction of, listed species. Smaller units present real management challenges and may be so small that their ecological integrity and the viability of listed plants cannot be maintained.

Our Response: In this final rule, we concluded that many areas were not essential for the conservation of the Oahu plant species, based on information received during the public comment periods concerning the status of the species in specific areas and degree of habitat degradation. Several units or portions of units proposed as critical habitat have been excluded because they are not essential for the conservation of the species. These excluded units or portions of units are not essential because they either lack the species' primary constituent elements or other areas exist that provide for the conservation of the species. See the ''Summary of Changes from the Proposed Rule'' section.

We realize that smaller areas will most likely require more management to maintain the plant populations and their habitat, but in many cases they are the only areas with the primary constituent elements needed by each species. We concur with the importance of protecting the ecosystems on which these species depend, as stated in purpose of the Act (section 2(b)), and of managing areas large enough to maintain and expand populations. We considered the importance of this, as well as the location of primary constituent elements, when delineating the boundaries of critical habitat for these final designations of critical habitat. We included areas that provide the biological and other processes essential for the conservation of the species. We acknowledge the potential negative impacts of edge effects on small habitat fragments. However, these species' primary constituent elements are found only within the areas that were designated critical habitat, and expanding the designated critical habitats would add areas that lack the primary constituent elements. All of the changes from the proposed critical habitat are based on the best available information and information received during comment periods and are based on biological issues, not political or social issues. If new information becomes available indicating that the existing critical habitat designations are not essential for the conservation of the species and/or that other areas are, we may propose new designations for those species at that time.

(13) *Comment:* A peer reviewer stated that the absence of native pollinators may demographically doom populations of facultative and obligate out-crossing species. The same peer reviewer commented that relationships among breeding systems (out-crossing or selfing), effective population size, levels of genetic exchange, and spatial distribution need to be considered.

Our Response: We agree; however, this information is unknown for the majority of the 99 plant species on Oahu for which we are designating critical habitat. If new information becomes available, we will reevaluate critical habitat based on the new information for that species at that time.

Issue 2: Effects of Designation

(14) *Comment:* A strongly preferred approach is to encourage the establishment of voluntary partnerships with landowners to bring about the desired species conservation.

Our Response: We realize that designation of critical habitat alone will not achieve recovery. Many threatened and endangered species occur on private lands and we recognize the importance of conservation actions by private landowners. Cooperation from private landowners is an important element of our conservation efforts, and we have had considerable success in developing partnerships with large and small landowners, government agencies, and non-governmental organizations for conservation activities on Oahu, elsewhere in the State of Hawaii, and throughout the Nation. We also recognize the importance of partnerships with other Federal and State agencies and land managers.

We administer several programs aimed at providing incentives for landowners to conserve endangered and threatened species on their lands; one of these incentives is the Endangered Species Landowner Incentive Program, which was first funded by Congress in fiscal year 1999. Under this program, we provide technical assistance and funding to landowners for carrying out conservation actions on their lands. In the first year alone, 145 proposals totaling $21.1 million competed for $5 million in grant money. Additional information on our landowner incentive programs may be found on our Web site *(http://endangered.fws.gov/landowner/index.html).* In addition, we have excluded areas under 4(b)(2) of the Act from the final designation of critical habitat on several islands because landowners have developed voluntary partnerships to manage the resources on their lands. We believe that the benefits of excluding these areas outweigh the benefits of including these areas in a final critical habitat designation.

(15) *Comment:* One peer reviewer stated that it is both prudent and necessary to designate critical habitat for these rare species. This provides the needed long-term management stability that allows government agencies and private organizations to cooperate and concentrate on recovery efforts. It may provide additional incentives for securing funding to research and recover populations. Designation of critical habitat also provides for additional protection of habitat that is unoccupied by a particular species, therefore allowing for future reintroduction of the species. In the absence of critical habitat protection, much of the currently unoccupied habitat will continue to be destroyed by nonnative plants and animals, urban sprawl, and other development. On the other hand, one commenter stated that if site-specific locality information will have to be published in the final rule for every species, then the potential harm (from trespassing and theft of the species) far outweighs any potential benefit from designating critical habitat. Another commenter failed to see how imposing the proposed designation of critical habitat on privately owned, privately managed lands with no Federal nexus can lead to the recovery of the identified species.

Our Response: See **SUPPLEMENTARY INFORMATION** above.

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

Our Response: The designation of critical habitat does not give the Federal government and its partners the authority to utilize any methodology they wish in dealing with feral animals. Any potential animal control program would be subject to all applicable State, Federal, and local laws. Also, critical habitat does not allow or enable the Federal government to control feral animals on non-Federal land. Such decisions will still be made by the landowner and are not regulated by critical habitat.

(17) *Comment:* The designation of critical habitat in areas actively used by the 25th Infantry Division (Light Infantry) for national defense purposes will adversely affect the Army's ability to carry out its essential mission. Training is essential to maintain specific proficiencies that are critical to wartime performance. Designating the proposed areas as critical habitat would have a negative effect on the Army's ability to carry out its national defense mission as well as to undergo the proposed transformation of its forces in the State of Hawaii. Designations of critical habitat will negatively impact the missions of the United States Marine Corps units who rely on the Army lands for their training. The skills learned at Makua and Schofield Barracks are critical to our Marines' ability to perform all manner of combat operations, because the natural and physical attributes of the training areas mirror battlefield conditions found in other nations in the Pacific region and are found nowhere else in the United States. The Army has a comprehensive conservation program that provides better accountability and management of endangered plant species than the speculative benefit of critical habitat. The Army's natural resource programs provide sufficient management of rare plants, negating the need for critical habitat designation. For example, the Makua Implementation Plan details the actions required to stabilize 28 plant taxa and the Oahu tree snail. Further, the Army has worked with the Service to develop Integrated Natural Resource Management Plans (INRMPs) for its installations on Oahu.

Our Response: We have removed Makua Military Reservation, Schofield Barracks, Schofield Barracks East Range, Kahuku Training Area, Kawailoa Training Area, and Dillingham Military Reservation from final critical habitat designation because the benefits of excluding these lands under 3(5)(A) and 4(b)(2) outweigh the benefits of including these lands in a final designation (see ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*)''. We agree that the Army has implemented a comprehensive program of endangered species management on its lands under the INRMP process and appreciate the amount of financial and manpower resources they have provided for this effort. Army cooperation and support will be required to prevent the extinction and promote the recovery of all of the listed species on this island due to the need to implement proactive conservation actions such as ungulate management, weed control, fire suppression, and plant propagation.

(18) *Comment:* One landowner was concerned that their past cooperative efforts were not considered in this designation. In particular, this landowner had conveyed to the Service the southern portion of the Oahu Forest National Wildlife Refuge. In conveying the southern portion of the refuge to the Service, the landowner understood that a primary motivation for and purpose of the conveyance was to protect the native forest and certain native plant species therein, and therefore, the parties worked together to include certain lands in the conveyance. By its proposed rules, the Service appears to ignore or fails to consider this process, with the result being that the conveyance is treated as if it occurred in a vacuum.

Our Response: As summarized in the ''Summary of Changes to the Proposed

Rule'' section, the lands referred to in this comment were excluded from critical habitat designation because the primary constituent elements for the plant species proposed in this area are not present (former Oahu L unit).

(19) *Comment:* The draft economic analysis states that if a landowner needs a Federal permit or receives Federal funding for a specific activity, the Federal agency issuing the permit or dispersing the funds would consult with the Service to determine how the action may affect the designated critical habitat. The commenter questioned what is meant by the term ''consult.'' The nature of the consultation could result in control over whether the Federal government conducts its proposed action on those lands or not, thereby controlling the land to the extent that the private landowner could or could not do business with the Federal government. What would the consultation result in when a proposed Federal action is benign compared to the activities not affected by critical habitat designation, such as, grazing, farming, hunting, or recreational use?

Our Response: Under section 7 of the Act, all Federal agencies must consult with the Service to insure that any action that they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat. If the Service finds that the proposed actions are likely to jeopardize the continued existence of an endangered or threatened species or result in destruction or adverse modification of critical habitat, we suggest reasonable and prudent alternatives that would allow the Federal agency to implement their proposed action without such adverse consequences.

Every consultation is unique, and it is impossible to comment on what the results of a future consultation will be without details of the proposed activity and the status of the species and its critical habitat at the time of the consultation. However, the consultation is focused on the direct and indirect effects of the proposed Federal action on the species or critical habitat and on effects of activities that be interrelated or interdependent. If the effects of the action, when added to the environmental baseline in the project area, would not destroy or adversely modify critical habitat or jeopardize the species, the project could proceed without modification.

Issue 3: Site-Specific Biological Comments

(20) *Comment:* One landowner stated that, based on the methodology used and the fact that many areas are not occupied by any listed species in the 7,500 acres in units I and M that they own, and which are either within the agricultural district and in agricultural use or which are in the conservation district and developed for and in active use for telecommunications, these lands should be excluded.

Our Response: Based on comments received from field experts, these areas were removed from the final critical habitat designation because either they do not contain the primary constituent elements necessary for the conservation of these species or there are less degraded areas on Oahu that provide habitat essential for the conservation of these species.

(21) *Comment:* One landowner indicated that the boundary of a particular proposed critical habitat area runs through a small eucalyptus grove that is used quite extensively for educational purposes. By moving the boundary line in this location as requested in a map supplied by the landowner, there would be no impact upon existing operations (cattle ranching or otherwise).

Our Response: This area was removed from the final critical habitat designation because it does not contain the primary constituent elements necessary for the conservation of the species in this area.

(22) *Comment:* Two commenters were unclear how water source and distribution facilities in Unit L and other units in which the Waiahole Ditch is included will be affected if additional irrigation water is allocated for delivery to the central Oahu isthmus. They also expressed concern that routine ditch operations and maintenance may become problematic, especially if a section 7 consultation becomes necessary. Another commenter stated that the proposed rule identifies the alteration of watersheds and water diversion as activities that could trigger section 7 consultation if there is Federal involvement. If the ability to divert or take water from these sources or systems is restricted or limited, the impact would affect all lands served by such water sources or systems. In some cases, these water systems are very extensive and therefore the impacts could be quite substantial and far-reaching.

Our Response: Water infrastructure, including ditch irrigation systems, are considered manmade features and therefore are not critical habitat. As such, their operation and maintenance are not likely to be subject to the critical habitat provisions of section 7 because these features and structures normally do not affect critical habitat.

(23) *Comment:* One peer reviewer commented that Unit L could be potentially expanded to include valley corridors linking the unit at its northern end to lowland/coastal habitats, thus allowing for an elevational gradient to be protected. These areas include the Hauula Beach Park area and the Kawailoa area. Similarly, a corridor linking Unit L with Unit O would also provide additional protected potential habitat. Extending Unit L at its extreme southeastern tip to include remaining ridge top habitat and possibly providing an elevational corridor with Unit X may also prove beneficial.

Our Response: We believe that the area we have designated meets the recovery goals of 8 to 10 populations for these 99 plant species. Areas outside of the designated critical habitat may be important for the conservation of the species; however, at this time, we do not believe that they are essential to the conservation of these species.

(24) *Comment:* The Navy believes that the designation of critical habitat is redundant and subjects their Federal installations to unnecessary burdens when applied to species whose protection is addressed and managed under an installation's INRMP. Naval Magazine Pearl Harbor is the largest ammunition storage and ordnance operation in Hawaii. Consistent with this mission, large areas of land and water are constrained by the need for safety buffers. Naval Computer and Telecommunication Area Master Station Pacific (NCTAMS PAC) is the largest communications station in the world, and its mission is to provide communications for command and control to all naval commands ashore and afloat in the Pacific and to a wide variety of Army, Marine Corps, Coast Guard, and Air Force commands. The existing and future national defense operations to be conducted in these areas may present incompatibilities with species preservation.

Our Response: We have reviewed the 2001 INRMP for Navy lands on Oahu. It is currently not adequate to outweigh the benefit of including these areas in a final designation (See ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*''). It does not include specific information on the conservation of the listed species found on Navy lands or information about conservation of unoccupied habitat for species historically known from the area. As far as we are aware, this INRMP has not yet

been updated to address management needs of these species. We look forward to working with the Navy in developing management for these areas that is compatible with species recovery.

We have removed some portions of the units on Navy lands, based on additional information received during the comment periods and visits to the base. We determined these areas to be nonessential because of the lack of primary constituent elements or because there are other places for these species that have more primary constituent elements and/or are less degraded. See the ''Summary of Changes from the Proposed Rule'' section for the justification for each unit's changes.

Issue 4: Species-Specific Biological Comments

(25) *Comment:* There are only three occurrences of the identified species on Damon Estate's land, all three located in the very back of Moanalua Valley, nearly 1.5 miles from the makai (directional term in the Hawaiian language that means towards the ocean) boundary of the proposed critical habitat designation. The landowner does not believe that the Service has established that these reported occurrences, some of them decades old, justify the designation of nearly 1,500 acres, much of which is highly altered from its original native vegetation.

Our Response: This area is currently occupied by eight species (*Chamaesyce rockii, Cyanea acuminata, Cyanea humboltiana, Gardenia mannii, Lobelia oahuensis, Tetraplasandra gymnocarpa, Trematolobelia singularis,* and *Viola oahuensis*) and contains habitat essential to the conservation of seven species (*Cyanea crispa, Cyanea humboltiana, Lobelia oahuensis, Sanicula purpurea, Tetraplasandra gymnocarpa, Trematolobelia singularis,* and *Viola oahuensis*). Therefore, we could not remove this area from final critical habitat designation. Although this area is highly altered, information provided by botanists both in compiling the proposed rule and during the public periods indicates that the area contains the habitat elements essential for the conservation of the above mentioned plant species. This area is located within the following critical habitat units: Oahu 20—*Cyanea crispa*—b, Oahu 20—*Cyanea humboltiana*—d, Oahu 20—*Lobelia oahuensis*—a, Oahu 20—*Sanicula purpurea*—a, Oahu 20—*Tetraplasandra gymnocarpa*—b, Oahu 20—*Trematolobelia singularis*—b, and Oahu 20—*Viola oahuensis*—a.

(26) *Comment:* Two commenters stated that failure to designate critical habitat for *Cyrtandra crenata,* as long as this species remains on the endangered species list, denies it the habitat protection that Congress intended. The Service's conclusion in 67 FR 37155 that *Cyrtandra crenata* would not benefit from critical habitat designation is based on a faulty interpretation of the Endangered Species Act to designate critical habitat ''to the maximum extent prudent.'' Another commenter added that given the vast areas on Oahu yet to be surveyed or inventoried, there is no valid basis for the Service to assume that *Cyrtandra crenata* is extinct. The mere fact that this plant has not been seen on Oahu recently does not justify the Service's refusal to protect its critical habitat, as it is common for field biologists to rediscover plant species that have not been seen for decades. The recent discovery of *Asplenium fragile* var. *insulare* (on Maui) and *Phyllostegia waimeae* (on Kauai) are cases in point. Several other commenters stated that the final rule should extend critical habitat protection to *Cyrtandra crenata.*

Our Response: At the present time, we do not believe it would be beneficial to designate critical habitat for this species. It was last observed in the wild in 1947, and we do not know of any genetic material in cultivation. In addition, we are unable to identify the physical and biological features essential for the conservation of this species or any exact location in the wild essential to the conservation of this species. Until the species is rediscovered, we are unable to identify habitat that is essential to its conservation due to lack of information in the historical record. Therefore, no change is made to our not prudent determination here. If this species is rediscovered, we may propose critical habitat for the species at that time.

(27) *Comment:* Several commenters stated that the final rule should extend critical habitat protection to the loulu palm, *Pritchardia kaalae.* As recently as 1999, the Service found that proposed live-fire training at Makua Military Reservation threatened *Pritchardia kaalae* with extinction. This species needs critical habitat protection from military and other threats if it is to have any chance of increasing its numbers and range from the six populations remaining in the wild. In contrast, the Service's claim that designation, which would identify primarily unoccupied habitat and increase threats to the species, is pure speculation.

Our Response: Since the listings of the three *Pritchardia* species on Kauai and Niihau as endangered, and prior to our proposed rules for the designation of critical habitat, we received information verifying vandalism and collection threats to *Pritchardia* throughout the Hawaiian Islands. This information is included in the proposed rules. No additional information was provided during the comment periods demonstrating that the threats to the *Pritchardia* species on any Hawaiian Island from vandalism or collection would not be increased if critical habitat was designated. We still believe that the benefits of designating critical habitat do not outweigh the potential threats from vandalism and collection of any species of *Pritchardia.* Makua Military Reservation has been removed from critical habitat designation under 4(b)(2) of the Act because the benefits of excluding the area outweigh the benefits of including the area in the final designation (See ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*'').

(28) *Comment:* In the **Federal Register** notice of May 28, 2002 (FR 37108), Table 1 indicates that it includes 101 plants. In fact, the table appears to include 102 plants. Should *Colubrina squamigera* be included? It is neither a listed species nor a candidate species.

Our Response: Table 1 should contain 101 plant species from the island of Oahu listed under the Act for which critical habitat designations are being proposed. The inclusion of *Colubrina squamigera* was the result of a typographical error. No such plant species is historically or currently known.

(29) *Comment:* Coastal habitats may not be well represented in proposed critical habitat. For example, there are few sand dune areas with seasonal pools included in the critical habitat proposal, which will limit the ability to establish multiple populations of several species.

Our Response: The final critical habitat designations published for all Hawaiian Islands except the island of Hawaii, the critical habitat proposed for the island of Hawaii, and habitat located within adequately managed lands provide the habitat necessary for the conservation of 8 to 10 populations of each of the coastal plant species in this rule. Although habitat outside of these areas may be important for the recovery of one or more of these species, it is not essential to their conservation. The best existing habitat for 8 to 10 populations of each of the coastal plant species has been captured in the final critical habitat designation.

(30) *Comment:* One peer reviewer proposes expanding the critical habitat designation to include more (or all) of the conservation district lands in the southeastern Koolau Mountains for the benefit of the southern Koolau endemic species, *Cyanea grimesiana, Lipochaeta lobata,* and *Trematolobelia singularis.*

Our Response: Although we agree that this habitat may be important to the recovery of these species, it has not been identified as essential to the conservation of these species. The Service has identified habitat for 8 populations of *Cyanea grimesiana* elsewhere on Oahu and habitat for 10 populations of *Lipochaeta lobata.* In addition, the Service identified enough habitat for six populations of *Trematolobelia singularis.* Although this does not reach the goal of 8 to 10 populations listed in the recovery plan for this species, the Service did not have sufficient information on the habitat suggested by the commenter to determine that it is essential to the conservation of the species.

(31) *Comment:* One peer reviewer commented that any and all suitable habitat in the geographic ranges of the following species should be protected because of potential seed banks and impending climatic changes that could render existing sites unsuitable: *Alsinidendron trinerve, Dubautia herbstobatae, Hedyotis degeneri* var. *degeneri,* and *Scheidea kealiae.*

Our Response: We have designated all habitat considered to be essential for the conservation of *Alsinidendron trinerve* (habitat for seven populations), *Dubautia herbstobatae* (habitat for six populations), *Hedyotis degeneri* var. *degeneri* (habitat for nine populations), and *Schiedea kealiae* (habitat for four populations). The only areas not included in the final designation of critical habitat for these species were those areas that do not contain the primary constituent elements necessary for the conservation of these species.

Issue 5: Mapping and Primary Constituent Elements

(32) *Comment:* The State Department of Transportation (DOT) stated that the proposed designations near State routes would restrict the design, maintenance, and construction of highways. In particular, Units A and I may impact Route 93 (Farrington Highway), Unit L may impact Interstate Highway H–3, and Unit W may impact Route 72 (Kalanianaole Highway). The DOT recommends that buffer zones on each side of the State highway right-of-way should be excluded from critical habitat. The buffer zones should be based on topography and be a minimum of 100 feet in width. The map of proposed critical habitat units that shows Interstate Highway H–3 ending in the middle of Unit L should be corrected.

Our Response: The DOT's comments did not identify any planned widening or other significant improvement project within these units. Rather, their concerns focused on the impact to routine repair and maintenance. Operation and maintenance of existing manmade features and structures adjacent to critical habitat are not likely to affect critical habitat and therefore are not likely to be subject to section 7 consultation. Because the areas identified in the proposed rule are essential to the conservation of several of the plant species on Oahu, they are included within the final designation. The land area located over the Interstate Highway H–3 tunnel is essential for the conservation of 7 of the 99 Oahu plant species (*Cyanea crispa, Cyanea st.-johnii, Lobelia oahuensis, Lysimachia filifolia, Sanicula purpurea, Tetraplasandra gymnocarpa,* and *Viola oahuensis*) and is included in the final designated critical habitat.

(33) *Comment:* Several commenters suggested that roads and trails be excluded from critical habitat.

Our Response: Existing manmade features and structures within the boundaries of the mapped units, 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 equipment towers and associated structures and 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, and are not likely to develop, primary constituent elements and are specifically excluded from designation under this rule. Therefore, unless a Federal action related to such features or structures indirectly affects nearby habitat containing the primary constituent elements, operation and maintenance of such features or structures generally would not be impacted by the designation of critical habitat.

(34) *Comment:* One commenter expressed concern over proposed critical habitat designation of approximately 800 acres of land in Unit I, which has been in cultivation for over 50 years.

Our Response: This area was removed from the final designation because it does not contain the primary constituent elements necessary for the recovery of any of the 99 plant species on Oahu.

(35) *Comment:* The configuration of units will be difficult to identify on the ground and will have irregular boundaries. These boundaries will complicate management and increase the risk of fragmentation and edge effects on populations within units.

Our Response: We realize that these areas have irregular boundaries, but in many cases they are the only areas with the primary constituent elements needed for each species. We included areas that provide the biological and other processes that are essential for the conservation of the species. We acknowledge the potential negative impacts of edge effects on small habitat fragments. However, these species' primary constituent elements are found only within the areas that were designated as critical habitat, and making them larger would add areas that lack the primary constituent elements and that are not essential to conservation of the species. All of the changes in critical habitat from the proposal are based on the best available information received during comment periods. If new information becomes available indicating the existing critical habitat designations are not essential for the conservation of the species or that other areas are, we may propose new designations for those species at that time.

(36) *Comment:* One commenter believed that the Service considered most of the key elements required for assigning areas crucial for the persistence of plant species; however, one element that appears to have been overlooked and that requires serious consideration in designating critical habitat is the presence of appropriate pollinators for species that do not self-pollinate, or feasible and sustainable alternatives to key pollinators that may be absent.

Our Response: We agree; however, this information is unknown for the majority of these plant species. As new information becomes available, we may reevaluate the critical habitat designations as necessary.

(37) *Comment:* One commenter stated that it appears that a portion of unit M is in the Urban District.

Our Response: This area was removed from the final designation because it does not contain the primary constituent elements necessary for the conservation of Sesbania tomentosa or Centaurium sebaeoides.

(38) *Comment:* The large scale maps of the designated critical habitat make it impossible to determine the exact boundaries of the critical habitat. This, in turn, makes it impossible to be precise in commenting on economic impacts.

Our Response: The maps in the **Federal Register** provide the general location and shape of critical habitat and are provided for reference purposes to guide Federal agencies and other interested parties in locating the general boundaries of the critical habitat; the maps do not constitute the definition of the boundaries of a critical habitat (50 CFR 17.94). The legal descriptions are the definition of the boundaries of critical habitat, are readily plotted, are transferable to a variety of mapping formats, and were made available electronically upon request for use with GIS programs. Unit boundaries were defined by giving the coordinates in UTM Zone 5 with units in meters using North American Datum of 1983 (NAD83). These coordinates can be used to determine boundaries with some accuracy. At the public hearing, the maps were expanded to wall-size to assist the public in better understanding the proposed critical habitat. These larger scale maps were also provided to individuals upon request. Furthermore, we provided direct assistance in response to written or telephone questions with regard to mapping and landownership within the proposed critical habitat.

Issue 6: Policy and Regulations

(39) *Comment:* Two commenters stated that the Service's suggestion that current management efforts can render otherwise ''critical'' habitat no longer ''critical'' illegally reads into section 3(5) of the Act an additional, unstated requirement that habitat cannot be ''critical'' unless the Service finds it needs more management or protection than it currently receives.

Our Response: Please refer to the response to comment 8.

(40) *Comment:* The proposal violated the commerce clause and exceeds the constitutional limits of the Service's delegated authority. The listed species are not interstate; they exist only in Hawaii and do not cross State lines.

Our Response: The Federal government has the authority under the Commerce Clause of the U.S. Constitution to apply the protections of the Act to species that occur within a single State. A number of court cases have specifically addressed this issue. The *National Association of Homebuilders* v. *Babbitt,* 130 F. 3d 1041 (D.C. Cir. 1997), *cert. denied*, 1185 S.Ct, 2340 (1998), involved a challenge to application of Act's prohibitions to protect the listed Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*). As with the species at issue here, the Delhi Sands flower-loving fly is endemic to only one State. The court held that application of the ESA to this fly was a proper exercise of Commerce Clause power because it prevented loss of biodiversity and destructive interstate competition. Similar conclusions have been reached in other cases, see *Gibbs* v. *Babbitt,* No. 99–1218 (4th Cir. 2000) and *Rancho Viejo* v. *Norton,* No. 01–5373 (D.C. Cir. 2003).

(41) *Comment:* One commenter disagreed with the Service's approach of proposing critical habitat designations in advance of any economic analysis. Another commenter stated that economic analysis must be completed before critical habitat can be prudently designated.

Our Response: We agree that the economic analysis must be completed before critical habitat can be designated, and we do so in all cases, including this regulation. The Service must first decide upon a specific area, or set of areas, to propose as critical habitat before the economic analysis of the proposal can begin. In cases such as this rulemaking, where we are under a court-ordered deadline to make a decision by a fixed date, we frequently issue the critical habitat proposal for public comment while the economic analysis is still being prepared, so as to maximize the time available for the public to review and comment on the proposal. When the economic analysis is prepared, it is also issued for public comment. The critical habitat proposal and the economic analysis are then revised as appropriate based on information received during the public comment period, and the economic and other relevant impacts of the proposal are evaluated, along with the available biological information, in making the final critical habitat determination.

(42) *Comment:* One commenter stated that the Service must exclude an area from critical habitat if that area is not ''essential'' to conservation of the species and if the cost-benefit analysis indicates that it is better to exclude the area. Absent proper completion of the procedure for designation of critical habitat outside the geographic area currently occupied by the species, when such areas are essential for the conservation of the species, ''there is no evidence that Congress intended to allow the USFWS to regulate any parcel of land that is merely capable of supporting a protected species'' (*Arizona Cattle Growers Association* v. *USFWS,* 273 F. 3d 1229 (9th Cir. 2001)).

Our Response: As explained in the Methods section of the proposed rule (67 FR 37108) and this final rule, and in accordance with the Act and regulations (section 4(b)(2) and 50 CFR 424.12), we used the best scientific information available to determine areas that are essential for the conservation of these 99 Oahu plant species, not simply those areas that are capable of supporting the species. This information included the known locations; site-specific species information from the HINHP database and our own rare plant database; species information from the Center for Plant Conservation's (CPC) rare plant monitoring database housed at the University of Hawaii's Lyon Arboretum; island-wide Geographic Information System (GIS) coverages (*e.g.*, vegetation, soils, annual rainfall, elevation contours, land ownership); the final listing rules for these 99 species; discussions with botanical experts; recommendations from the HPPRCC; and public comments (Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997, 1998a, 1998b, 1999; HPPRCC 1998; HINHP Database 2000, CPC *in litt.* 1999; J. Lau *et al.*, pers. comm., 2001). The cost of designating these areas as critical habitat was determined in the draft economic analysis and the addendum to the draft economic analysis. Neither the draft economic analysis nor the addendum found that the financial benefit of excluding these areas was so great that it outweighs the non-financial benefit of including these areas in a final critical habitat designation.

(43) *Comment:* The draft economic analysis concedes that State law protects ''habitats'' of endangered species and therefore protects federally designated critical habitat, including unoccupied habitat. Thus, designation is not necessary because State law already protects the habitat. In addition, Federal environmental impact analyses provide additional protection for federally listed species.

Our Response: As discussed above in ''Previous Federal Action,'' we were ordered by U.S. District Court (Haw.) to publish proposed and final critical habitat designations or nondesignations for 255 Hawaiian plant species (*Conservation Council for Hawaii* v. *Babbitt,* 1998, 1999, 2000). In addition, under section 4(a)(3) of the Act, we are required to designate critical habitat for a species at the time it is federally listed as an endangered or threatened species, and on the basis of the best scientific data available and after taking into consideration the economic impact, and

any other relevant impact, of specifying an area as critical habitat (section 4(b)(2)). Further, see response to comment 42.

Issue 7: Economic Issues

(44) *Comment:* The Army believes that the direct and indirect costs and the anticipated costs of project modification, as they relate to military activities, are not adequately considered.

Our Response: Chapter VI, Section 3.q. of the DEA presented estimates of section 7 costs associated with activities in 10 separate areas on Oahu that are under the control of the U.S. military. During public comment, the U.S. Army stated that the cost-estimates for consultations and for possible project modifications on their installations were too low. The addendum revisits the sections of the analysis addressing Army installations and provides revised cost-estimates based upon further discussions with the Service and additional information gathered since completion of the DEA, including the Oahu Training Areas Integrated Natural Resources Management Plan 2002–2006 (OTA INRMP).

However, based on the considerations given in ''Analysis of Impacts Under Section 4(b)(2)'' and consistent with the direction provided in this section of the Act, we have determined that the benefits of excluding lands under jurisdiction of the U.S. Army on Oahu outweigh the benefits of including them as critical habitat for 76 species of listed plants. Therefore, these lands have been excluded from the critical habitat designations in this final rulemaking.

(45) *Comment:* The DEA does not indicate that the designation of critical habitat will generate any ''new'' money. It does show that increased regulation due to designation of critical habitat will increase economic risks, drive down profits, and drive away potential investors, thereby reducing ''new'' money entering Hawaii.

Our Response: The DEA states that a portion of the expenditures on conservation management by the Service, NRCS, and the military could be ''new'' money. Based on State multipliers, each additional $1 million of new money spent in Hawaii would generate approximately $1.8 million in direct and indirect sales in Hawaii and would support approximately 22 direct and indirect jobs in Hawaii (DEA, Chapter VI, Section 7.f.).

Regarding development projects and ''new'' investment money that could be lost, the DEA noted in Chapter VI, Section 4.h. that: ''Over the next 10 years, the number of affected (development) projects is expected to be small because most of the proposed critical habitat units are: (1) In mountainous areas that are unsuitable for development due to difficult access and terrain, and (2) within the State Conservation District where land-use controls severely limit development.'' The development projects that were addressed in Chapter VI of the DEA included: (1) Communications facilities (Sections 3.e. and 4.d.), (2) residential development (Section 3.o.), and (3) a private landfill (Sections 3.p. and 4.e.). The intended designation does not include the large communications complexes at Palehua and Koko Head, urban land suitable for residential development, or the site for the proposed landfill. Only a few of the smaller communications complexes remain in the intended designation. Because of the small footprints of communications towers and for other reasons, the analysis does not anticipate costly project modifications (Section 3.p.). Thus, the analysis anticipates no significant loss of ''new'' money.

(46) *Comment:* The DEA argues that because critical habitat is mandated by law, it must therefore have economic value. The alleged benefits of species preservation are not economic at all.

Our Response: As noted in Chapter VI, Section 6.a. of the DEA, ''[m]any economic studies have demonstrated benefits associated with the conservation and recovery of endangered and threatened species and their ecosystems.

The DEA continues, ''However, the additional economic benefits of conservation and recovery that would be attributable to the designation of critical habitat are difficult to estimate because of the scarcity of (1) scientific studies on the magnitude of the recovery and ecosystem changes resulting from the critical habitat designation, and (2) economic studies on the per-unit value of many of the changes. * * * And while some economic studies have been done on the per-unit value of some of these changes, studies have not been done for most.''

The DEA concludes, ''As a result, it is not possible, given the information that is currently available, to estimate the value of many of the benefits that could be ascribed to critical habitat designation.''

(47) *Comment:* The DEA dismisses the ''worst-case'' impacts and does not consider the major adverse impacts from secondary effects or indirect costs. Indirect costs are not considered in the bottom line analysis of the cost of designating critical habitat.

Our Response: Chapter VI, Section 4 of the DEA and Section 5 of the Addendum discuss various indirect costs that can result from the critical habitat designation. These indirect costs are not ''worst-case'' estimates. Instead, most of them are conditioned upon actions and decisions by the State, the county, investors, etc. Because critical habitat has a limited history in Hawaii, and other States have environmental laws that differ from Hawaii's laws, uncertainty exists regarding the outcome of these actions and decisions.

Also, these indirect impacts are not dismissed. Rather, they receive the same importance that direct costs receive. The reason the indirect costs are not summed is that many of them should be weighted by the probability of occurrence, but information is not available to determine these probabilities beyond a subjective estimate. As indicated in the DEA, several of the probabilities are ''small.'' In the case of property values, a loss is expected, but uncertainty exists over the magnitude of this loss.

(48) *Comment:* One commenter stated that the DEA lacks a thorough benefits analysis. Multiple commenters stated that the DEA ignored the benefit of keeping other native species off the endangered species list, of maintaining water quality and quantity, of promoting ground water recharge, and of preventing siltation of the marine environment, thus protecting coral reefs. Another commenter noted that additional benefits of critical habitat include combating global warming, providing recreational opportunities, attracting ecotourism, and preserving Hawaii's natural heritage. Although the DEA makes general observations of the benefits associated with designating critical habitat, it makes no attempt to quantify these acknowledged benefits. The Service must use the tools available, such as a University of Hawaii Secretariat for Conservation Biology study that estimated the value of ecosystem services, to determine the benefits of critical habitat. On the other hand, one commenter stated that the DEA overestimates economic benefits, and many of the alleged benefits are entirely speculative, unquantifiable, or lack any commercial value.

Our Response: Chapter VI, Sections 6 and 7 of the DEA discussed potential direct and indirect benefits that can result from the proposed designation, including those addressed in the above comment. However, the DEA also indicated that these benefits are not quantified due to lack of information on the value of the environmental benefits that would be attributable specifically to

the critical habitat designations (*i.e.*, the benefits over and above those that will occur due to other existing protections, and over and above the benefits from other conservation projects). Specifically, there is a lack of (1) scientific studies regarding ecosystem changes due to critical habitat, and (2) economic studies on the per-unit value of many of the changes.

The 1999 analysis by University of Hawaii (UH) economists on the total value of environmental services provided by Oahu's Koolau Mountains was in fact used in the DEA as a resource document for concepts, for identifying documents that report the original research on certain subjects, and for illustrating the economic value of an assumed incremental increase in environmental services.

However, as noted in the DEA, estimating the total value of the ecosystem services provided by the Koolau Mountains is a difficult task, requiring some assumptions that are open to challenge, including estimates of the magnitude of the environmental services provided by the Koolau Mountains and estimates of the per-unit value of each service. Also, the UH study does not address all of the benefits of the Koolau Mountains or any of the benefits of the Waianae Mountains.

More to the point, the UH study has limited applicability for valuing the benefits of the intended designation for the 99 Oahu plant species. Since the purpose of the UH study was to estimate the total value of environmental benefits provided by the entire Koolau Mountains on the island of Oahu, it does not address the value of the more limited benefits provided by the intended critical habitat for the 99 Oahu plant species. Specifically, the UH study provides no estimates of the changes in biological and/or environmental conditions resulting from changes in land management due to critical habitat designation.

In any case, the DEA reported that the value of the ecosystem services provided by the Koolaus is very large. Since the intended designation covers nearly all of the Koolau Mountains, as well as parts of the Waianae Mountains, and since some project modifications can affect large portions of the mountains, even a very small percentage improvement to ecosystem services can translate into large economic benefits.

In summary, the discussion presented in the DEA on the biological and environmental benefits of critical habitat designation provides an overview of potential benefits, but we did not intend for it to provide a complete quantitative analysis of the benefits. Instead, we believe that the benefits of critical habitat designation are best expressed in biological terms that can be weighed against the expected cost impacts of the rulemaking.

(49) *Comment:* Treating ''better siting of projects by developers so as to avoid costly project delays'' as an economic benefit is circular. The costly project delays result from regulations. They could be avoided by not imposing the regulations in the first place.

Our Response: As noted in Chapter VI, Section 6.c. of the DEA, the benefit applies to proposed units or portions of units that the Service regards as occupied. Even without critical habitat, developers must consult with the Service on projects that have Federal involvement and that affect listed species. By knowing the critical habitat boundaries, and if developers have the flexibility, they can site projects outside the boundaries, thereby avoiding certain issues related to threatened and endangered species. But even if there is no flexibility in siting a project, it can still be helpful to developers to know the boundaries of a critical habitat unit. If a project is located outside the unit boundaries, then the developer can proceed with project planning with less risk of facing issues related to critical habitat. On the other hand, if a project is located inside a critical habitat boundary and there is Federal involvement, then the developer and action agency could enter into informal consultations with the Service before proceeding with detailed site plans. Since the discussion applies only to areas that are occupied and would be subject to regulation with or without critical habitat, the logic for the benefit to developers is not circular.

(50) *Comment:* The DEA fails to adequately address the economic value represented by the time, money, and energy that the people of Hawaii invest in the conservation of native Hawaiian plants, including the ethnobotanical value of these plants to the culture of native Hawaiians.

Our Response: Chapter VI, Sections 6 and 7 of the DEA discussed the benefits of critical habitat. While the time, money and energy that the people of Hawaii invest in the conservation of native plants could function as an indicator for residents' ''willingness to pay'' to protect these species, this information has not been gathered or analyzed comprehensively, and, given the scope of the economic analysis, no primary economic research was conducted. Moreover, as noted in the DEA, even if this information were available, the economic value of these benefits attributable to critical habitat designation would still be difficult to estimate because of the scarcity of (1) scientific studies on the magnitude of the recovery and ecosystem changes resulting from the critical habitat designation, and (2) economic studies on the per-unit value of many of the changes.

(51) *Comment:* The analysis used in the DEA for Oahu is not consistent with the analysis used in the DEA for the island of Hawaii. The Service should use a consistent methodology in all of its economic analyses.

Our Response: This specific comment objected to differences in the methodology used to estimate direct economic costs related to Army activities and the fact that the estimated costs were much lower for Oahu. The economic analysis for both Oahu and the Big Island (island of Hawaii) used the same methodology. But the direct costs were lower for Oahu because of: (1) Differences in the extent of the overlap between the proposed designations and the Army installations on Oahu versus the installation on the Big Island; (2) differences in the planned military uses of land in the proposed designations; and (3) differences in information available to the analysts regarding project modifications. The addendum revisits the direct costs associated with Army activities and revises them based on updated information.

(52) *Comment:* One private landowner states that designated critical habitat affects over half of his land holdings and will result in impacts to land value, extraordinary levels of governance, and long-term economic impacts.

Our Response: For grazing land in critical habitat, the DEA addressed the possible direct section 7 costs for ranching activities (DEA, Chapter VI, Section 3.h), the indirect impacts of critical habitat on State and county development approvals (DEA, Chapter VI, Section 4.h.), and the possible loss of property value (DEA, Chapter VI, Section 4.i). Because the intended critical habitat would cover less grazing land than the proposed critical habitat, the addendum revisited the possible direct section 7 costs on ranching activities and the potential loss of property value (Sections 4.e and 5.g, respectively). For about 2,070 acres of privately owned agricultural land in the intended critical habitat, the analysis found that the loss in property value would be a small to moderate fraction of $18.6 million.

(53) *Comment:* The DEA ignores the topic of subsistence gathering.

Our Response: The DEA did not address the potential indirect impact of the proposed critical habitat designation on subsistence activities for three reasons. First, subsistence activity is less extensive, and less important economically, on Oahu than it is on the other islands. This reflects the fact that Oahu has a comparatively large and diverse economy. Second, much of the subsistence hunting that does take place on Oahu is also recreational hunting, which is addressed in the DEA. Third, the DEA did not expect critical habitat to affect subsistence activities and the subsistence lifestyle.

Nevertheless, in response to the comment, the addendum addresses subsistence activities. The analysis found that it is unlikely that new or additional restrictions on access and prohibitions on subsistence will result from critical habitat designation. This assessment is partly based on the Hawaii State Constitution, which protects traditional subsistence activities. The analysis estimates that it is more likely that restrictions (if any) will occur in small, localized areas that have significant biological importance, *i.e.*, areas containing populations of the plants. However, because of the strong stewardship and conservation values associated with those who practice subsistence activities, combined with the cultural tradition of protecting environmentally sensitive areas, subsistence activities are likely to be consistent with any conservation restrictions in localized areas. Thus, the analysis anticipates no significant impact on subsistence activities as a result of the intended designation.

(54) *Comment:* Several commenters stated the following: The DEA fails to consider economic impacts of critical habitat that result through interaction with State law, specifically Hawaii's Land Use Law. Critical habitat could result in downzoning under State law. Hawaii Revised Statutes (HRS) § 205–2(e) states that conservation districts shall include areas necessary for conserving endangered species. HRS § 195D–5.1 states that DLNR shall initiate amendments in order to include the habitat of rare species. Even if DLNR does not act, the Land Use Commission (LUC) might initiate such changes, or they might be forced by citizen lawsuits. Areas for endangered species are placed in the protected subzone with the most severe restrictions. While existing uses can be grandfathered in, downzoning will prevent landowners from being able to shift uses in the future, reduce market value, and make the land unmortgageable. Although the Service acknowledges that there could be substantial indirect costs relating to redistricting of land to the Conservation District, several commentators disagreed with the characterization of these costs as unlikely. The DEA fails to consider additional third-party lawsuits to force redistricting of lands into the conservation district.

Our Response: Chapter VI, Section 4.g. of the DEA and Section 5.e. of the addendum discuss possible costs associated with redistricting land in critical habitat. Most of the land in the urban district and much of the land in the agricultural district initially proposed for designation are removed in the intended designation. As indicated in Section 5.e. of the addendum, the intended designation includes (1) approximately 3,319 acres of agricultural land, of which 2,070 acres are privately owned; and (2) approximately 0.6 acre of urban land, of which about 0.2 acre is privately owned. Under a worst-case scenario, where all land in the agricultural district is redistricted to Conservation, the reduction in land values would be approximately $18.6 million.

As discussed more fully in Chapter VI, Section 4.g. of the DEA and Section 5.e. of the addendum, agency-initiated and court-ordered redistricting of some of the privately owned land is reasonably foreseeable (moderate to high probability). Further, this analysis judges the probability that all of the parcels will be redistricted to be very low to low. Tables ES–1 and VI–3 in the DEA characterized the risk of redistricting all of the parcels in the proposed designation as ''undetermined,'' not as ''unlikely.'' To more accurately reflect the analysis, this analysis changes the probability to ''very low to low.'' But even if land is not redistricted, the DEA and the addendum noted that the State may seek agreements with landowners to protect the habitats of listed species in order to retain existing district designations.

The DEA recognized that a real or perceived risk of redistricting can cause a loss of land value that continues until the uncertainty is resolved by (1) the passage of time that reveals the extent of redistricting due to critical habitat, or (2) possibly a State court decision on issues raised by critical habitat designation. Over the long-term, a permanent loss of land value (if any) would depend on how the uncertainty is resolved.

(55) *Comment:* The Service has failed to mention the Federal court ruling on the *New Mexico Cattlegrowers Association* v. *U.S. Fish and Wildlife Service,* which requires consideration of the impact of listing as well as the impact of designating an area as critical habitat.

Our Response: The DEA and the addendum considered the economic impacts of section 7 consultations related to critical habitat even if they are attributable coextensively to the listed status of the species. In addition, the DEA and the addendum examined the indirect costs of critical habitat designation, *e.g.*, the relationship between critical habitat designation and a State or local statute.

(56) *Comment:* Any activity that could degrade critical habitat, including activities that are not subject to section 7 consultation, could be seen as an ''injury'' to (and therefore, under State law, a ''taking'' of) an endangered plant species under the State of Hawaii's endangered species law (Chapter 195D). It is important that this receive due consideration in evaluating the proposed critical habitat designations (for example, in completing the economic analysis) and that the Service explain to what extent it has considered the potential interplay between the Federal Endangered Species Act and Hawaii's endangered species laws.

Our Response: Chapter VI, Sections 4.b. and 4.f of the DEA and Section 5.d. of the addendum discuss possible indirect costs resulting from the interplay of the Federal Endangered Species Act and Hawaii State law (*e.g.*, court-ordered mandates to manage private lands for conservation of the plants or to reduce game-mammal populations that harm plants or their habitats). Both the DEA and the addendum considered the economic impacts of section 7 consultations related to critical habitat even if they are attributable coextensively to the listed status of the species. In addition, the DEA and the addendum examined any indirect costs of critical habitat designation. However, the impacts are not attributable to critical habitat designation when the listing of a species prompts action at the State or local level. Take prohibitions under Hawaii law are purely attributable to a listing decision and do not occur as a result of critical habitat designations. There are no take prohibitions associated with the plants' critical habitat.

(57) *Comment:* Several commenters stated the following: The Service did not adequately address the takings of private property as a result of designating critical habitat for endangered plants on Oahu. If the proposed designation of critical habitat precipitates conversion of agricultural lands to conservation land that has no economically beneficial use, then the

Federal and State governments will have taken private property.

Our Response: Chapter VI, Section 4.g. of the DEA and Section 5.e. of the addendum address costs involved in redistricting lands from the Agricultural District to the Conservation District. About 3,319 acres of the intended designation are in the agricultural district, 2,070 acres of which are privately owned. In the event that all of these lands are redistricted to the conservation district, the loss in land value would be approximately $18.6 million.

However, as discussed more fully in Chapter VI, Section 4.g. of the DEA and Section 5.e. of the addendum, agency-initiated and court-ordered redistricting of some of the privately owned land is reasonably foreseeable (moderate to high probability). But more to the point, any redistricting of land to Conservation, and any corresponding loss of economically beneficial use, would be decided by the LUC and the courts, not the Service, based on an array of State statutory factors. As such, the Federal government would not have taken private property.

(58) *Comment:* Several commenters stated the following: While the Service has stated that critical habitat affects only activities that require Federal permits or funding, and does not require landowners to carry out special management or restrict use of their land, this fails to address the breadth of Federal activities that affect private property in Hawaii and the extent to which private landowners are required to obtain Federal approval before they can use their property. These requirements also extend to State agencies requiring Federal funds or approvals.

Our Response: As discussed in Chapter V, Section 2.b. of the DEA, not every single project, land use, and activity that has a Federal involvement has historically been subject to section 7 consultation with the Service (*e.g.*, a federally guaranteed mortgage). Thus, the analysis was confined to those projects, land uses, and activities that are, in practice, likely to be subject to consultation. The analysis based this assessment on a review of past consultations, current practices, and the professional judgments of Service staff and other Federal agency staff.

(59) *Comment:* Several commenters stated the following: The impact of the proposed designations under State law is potentially more extensive than under Federal law since the Act contains at least general criteria for determining when alteration of critical habitat constitutes ''destruction or adverse modification.'' The lack of analogous provisions under State law lends itself to a much broader interpretation of what activities might be considered injurious to the species (and therefore prohibited). One commenter asked if, to the extent that the Service has considered the potential interplay between the Act and State statutes, whether the Service is aware of any circumstances where similar issues have been raised under other State conservation statutes when critical habitat was designated. Another commenter noted, however, that because Hawaii's land use laws are uniquely onerous, precedent from other States is of little value. The current wave of proposals to designate critical habitat are the first time that the Act has been applied to significant areas of private land in Hawaii. Consequently, even prior experience in Hawaii is of little relevance.

Our Response: The DEA and the addendum discuss costs resulting from the interplay of the Endangered Species Act and Hawaii State law in the sections on Indirect Costs. The uncertainties regarding the occurrence of many indirect costs and their magnitudes reflect the lack of extensive experience in Hawaii with critical habitat.

(60) *Comment:* Several commenters stated the following: The DEA fails to consider economic impacts of critical habitat that result through interaction with State law, specifically Hawaii's Environmental Impact Statement Law. HRS § 343–5 applies to any use of conservation land, and a full Environmental Impact Statement is required if any of the significance criteria listed in Hawaii Administrative Rule 11–200–12 apply. One of these criteria is that an action is significant if it ''substantially affects a rare, threatened or endangered species or its habitat.'' This will result in costly procedural requirements and delays. However, the DEA does not acknowledge that any impact on endangered species habitat will be deemed to be ''significant.'' In addition, multiple commenters stated that the DEA fails to evaluate the practical effect critical habitat designation will have on development. Special Management Area permits administered by the City & County of Honolulu, as required by Hawaii's Coastal Zone Management Act, will be harder to obtain, will result in delays, will cause a decline in property values, and might make it impossible to develop. This economic impact disappears because the DEA's bottom line erroneously counts only so-called ''direct'' costs of consultation. The Service has taken the position in other States that it has a right to intervene in local land use proceedings if they affect endangered species on private property, as evidenced by the Service's petition to the local zoning board in Arizona to postpone approval of a rezoning petition pending a survey to determine the extent to which an endangered plant was present on the property even though no Federal approval was being sought. That the Service does not address these activities in the DEA is a fundamental error of the analysis.

Our Response: Chapter VI, Section 4.h. of the DEA discussed additional State and county environmental review that would be required for projects in critical habitat. However, as mentioned in the addendum, even with the added State and county environmental review, the intended designation will have little or no practical effect on residential, resort, commercial, or industrial development because the analysis anticipates that no such development will occur in the intended critical habitat. Reasons for this are: (1) Most of the intended critical habitat is in mountainous areas that are unsuitable for development due to difficult access and terrain; (2) approximately 96 percent of the intended designation is in the State Conservation District where existing land-use controls severely limit development; (3) almost all of the remaining agricultural land in the intended designation is in areas that are not subject to development pressure because of steep slopes and little or no nearby infrastructure; (4) the small amount of land in the urban district (0.6 acre) is on steep slopes that cannot support development; and (5) all of the land intended for critical habitat designation that is in the Special Management Area is also within the conservation district.

(61) *Comment:* Several commenters stated the following: The DEA fails to consider economic impacts of critical habitat that result through interaction with State law, specifically the State Water Code. HRS § 174C–2 states that ''adequate provision shall be made for protection of fish and wildlife''. HRS § 174C–71 instructs the Commission of Water Resource Management to establish an instream use protection program to protect fish and wildlife. Since landowners might depend on water pumped from other watersheds, these effects can be far-reaching. It is impossible to tell from the descriptions in the proposal whether any water diversions will have to be reduced as a result of listing and critical habitat designation. It is unfair to dismiss costly but vital sources of energy and inexpensive irrigation water while maintaining the highest level of effort to

protect primary constituent elements for species that do not physically reside in the area but might somehow be transported. If the critical habitat proposal would require reducing water diversions from any stream, the Service should investigate whether that would take anyone's vested water rights. The Service has an obligation to thoroughly investigate this issue and refrain from designating critical habitat until it has determined whether its actions will affect water use. At minimum, portions of specific parcels that include water sources or water systems should be removed.

Our Response: Existing irrigation ditch systems and potable water systems are manmade features that to not contain the primary constituent elements for the plants. Because the Service does not include these manmade features in critical habitat designations, the intended designation will not affect the operation and maintenance of irrigation and potable water systems (DEA, Chapter II, Section 4).

Regarding new stream diversions, Chapter VI, Section 3.j. of the DEA stated that it is highly unlikely that new or expanded ditch systems would be proposed or approved within the proposed designation because it would directly or indirectly reduce stream flow, which is a major environmental concern. But if a stream diversion were to be proposed, critical habitat designation might result in an expanded biological assessment, project delays, project modifications, and an increased probability of denial (DEA, Chapter VI, Section 4.f.). Activities that alter watershed characteristics in ways that would appreciably reduce groundwater recharge or alter natural, dynamic wetland or other vegetative communities may directly or indirectly destroy or adversely modify critical habitat. 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. However, without more specific information on the scope and location of a future (and currently unplanned) stream diversion project, it is not possible to estimate the potential indirect costs.

(62) *Comment:* Any water diversion in, or upstream of, critical habitat will be challenged by people who oppose all diversions on principle. They will contend that diverting water from endangered plants risk driving them to extinction. Opponents of diversions could use the critical habitat designations to invent a colorable argument sufficient to delay and confuse water use decisions.

Our Response: See the response to the previous comment (61).

(63) *Comment:* The DEA fails to recognize that the indirect costs to private landowners to investigate the implications of critical habitat on their lands are sunk costs associated with the designation process.

Our Response: Chapter VI, Section 4.k. of the DEA indicated that landowners might want to learn how the designation may affect (1) the use of their land (either through restrictions or new obligations), and (2) the value of their land. The cost-estimate to investigate the implications of critical habitat was $80,000 to $400,000.

Section 5.g of the addendum revised the estimate to reflect the reduction in the number of potentially affected landowners as a result of the intended modifications to the critical habitat. The revised estimate ranges between $26,500 and $227,500. For completeness, the estimate includes expenditures made during the designation process (*i.e.*, sunk costs) and expenditures that will be made after the final designation.

Summary of Changes From the Proposed Rule

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

(1) We published 303 single species critical habitat units for 99 plant species on the island of Oahu. As proposed, units were identified for multiple species. Delineation of critical habitat for each individual species will assist landowners, Federal agencies, and the Service in focusing and streamlining section 7 consultations.

(2) We changed the scientific names for the following species associated with the listed species found in the ''SUPPLEMENTARY INFORMATION: *Discussion of the Plant Taxa*'' section: *Athyrium sandwichianum* changed to *Diplazium sandwichianum* for *Alsinidendron trinerve, Cyanea acuminata,* and *Diellia falcata; Athyrium arnottii* changed to *Diplazium arnottii* for *Schiedea kaaclae; Blechnum occidentale* changed to *Blechnum appendiculatum* in the discussions of *Alectryon macrococcus, Alsinidendron obovatum, Cenchrus agrimonioides, Ctenitis squamigera, Cyanea grimesiana* ssp. *obatae, Cyanea pinnatifida, Cyrtandra dentata, Delissea subcordata, Diellia erecta, Diellia falcata, Diellia unisora, Flueggea neowawraea, Hedyotis degeneri, Lipochaeta tenuifolia, Lysimachia filifolia, Neraudia angulata, Nototrichium humile, Phyllostegia hirsuta, Phyllostegia kaalaensis, Phyllostegia mollis, Schiedea kaalae,* and *Schiedea hookeri; Bryophyllum* sp. changed to *Kalanchoe* sp. for *Lipochaeta tenuifolia; Glycine wightii* changed to *Neonotonia wightii* for *Hibiscus brackenridgei; Lipochaeta* sp. changed to *Melanthera* sp. for *Sesbania tomentosa; Lipochaeta integrifolia* changed to *Melanthera integrifolia* for *Peucedanum sandwicense; Lipochaeta remyi* changed to *Melanthera remyi* in the discussions of *Hibiscus brackenridgei* and *Schiedea kealiae; Lipochaeta tenuis* changed to *Melanthera tenuis* in the discussions of *Lipochaeta lobata* var. *leptophylla, Nototrichium humile,* and *Schiedea hookeri; Lycopodium* sp. changed to *Lycopodium cernua* for *Lobelia oahuensis; Lycopodium cernuum* changed to *Lycopodium cernua* for *Platanthera holochila; Morinda sandwicensis* changed to *Morinda trimera* for *Flueggea neowawraea; Myrica faya* changed to *Morella faya* in the discussions of *Cyanea grimesiana* ssp. *obatae, Hedyotis parvula, Melicope saint-johnii, Schiedea kaalae, Silene perlmanii, Urera kaalae,* and *Viola chamissoniana* ssp. *chamissoniana; Phymatosorus scolopendria* changed to *Phymatosorus grossus* for *Diellia erecta; Pluchea symphytifolia* changed to *Pluchea carolinensis* for *Chamaesyce celastroides* var. *kaenana; Setaria gracilis* changed to *Setaria parviflora* for *Labordia cyrtandrae; Styphelia tameiameiae* changed to *Leptecophylla tameiameiae* in the discussions of *Bonamia menziesii, Cenchrus agriminiodes, Eugenia koolauensis, Hedyotis coriacea, Hedyotis degeneri, Lepidium arbuscula, Lobelia niihauensis, Platanthera holochila, Sanicula purpurea, Schiedea hookeri,* and *Viola chamissoniana* ssp. *chamissoniana; Thelypteris cyatheoides* changed to *Christella cyatheoides* in the discussion of *Cyanea crispa; Thelypteris parasitica* changed to *Christella parasitica* in the discussions of *Alectryon macrococcus, Cyanea grimesiana* ssp. *obatae, Cyanea truncata, Cyrtandra dentata, Phyllostegia kaalaensis, Phyllostegia mollis, Phyllostegia parviflora, Pteris lidgatei, Schiedea kaalae, Schiedea hookeri,* and *Urera kaalae; Thelypteris sandwicensis* changed to *Dryopteris sandwicensis* in the discussions of *Cyanea acuminata, Cyrtandra*

subumbellata, and *Pteris lidgatei;* and *Sphenomeris chusana* changed to *Sphenomeris chinensis* for *Pteris lidgatei.*

(3) In order to avoid confusion regarding the number of location occurrences for each species (that do not necessarily each represent a viable population) and the number of recovery populations (8 to 10 with 100, 300, or 500 reproducing individuals), we changed the word ''population'' to ''occurrence'' where appropriate and updated the number of occurrences and/or individuals for the following species found in the ''**SUPPLEMENTARY INFORMATION:** *Discussion of the Plant Taxa*'' section and ''Table 1.—Summary of existing occurrences on Oahu, and landownership for 101 species reported from Oahu'': *Abutilon sandwicense* changed from 16 populations to 30 occurrences; *Alectryon macrococcus* changed from 34 populations to 82 occurrences; *Alsinidendron obovatum* changed from 5 populations to 6 occurrences; *Alsinidendron trinerve* changed from 3 populations to 13 occurrences; *Bonamia menziesii* changed from 16 populations to 18 occurrences; *Cenchrus agrimonioides* changed from 8 populations to 7 occurrences; *Centaurium sebaeoides* changed from 3 populations to 2 occurrences; *Chamaesyce celastroides* var. *kaenana* changed from 13 populations to 15 occurrences; *Chamaesyce kuwaleana* changed from 4 populations to 5 occurrences; *Chamaesyce rockii* changed from 16 populations to 20 occurrences; *Ctenitis squamigera* changed from 4 populations to 8 occurrences; *Cyanea acuminata* changed from 22 populations to 20 occurrences; *Cyanea grimesiana* ssp. *grimesiana* changed from 6 populations to 7 occurrences; *Cyanea grimesiana* ssp. *obatae* changed from 6 populations to 8 occurrences; *Cyanea humboltiana* changed from 8 populations to 9 occurrences; *Cyanea koolauensis* changed from 25 populations to 42 occurrences; *Cyanea st.-johnii* changed from 6 populations to 7 occurrences; *Cyrtandra dentata* changed from 8 populations to 11 occurrences; *Cyrtandra subumbellata* changed from 2 populations to 5 occurrences; *Cyrtandra viridiflora* changed from 8 populations to 23 occurrences; *Delissea subcordata* changed from 18 populations to 21 occurrences; *Diellia falcata* changed from 29 populations to 30 occurrences; *Dubautia herbstobatae* changed from 4 populations to 12 occurrences; *Eugenia koolauensis* changed from 10 populations to 12 occurrences; *Euphorbia haeleeleana* changed from 6 populations to 8 occurrences; *Flueggea neowawraea* changed from 19 populations to 23 occurrences; *Gardenia mannii* changed from 31 populations to 49 occurrences; *Gouania meyenii* changed from 3 populations to 4 occurrences; *Hedyotis degeneri* changed from 5 populations to 4 occurrences; *Hedyotis parvula* changed from 5 populations to 7 occurrences; *Hesperomannia arborescens* changed from 23 populations to 36 occurrences; *Isodendrion longifolium* changed from 4 populations to 7 occurrences; *Lepidium arbuscula* changed from 10 populations to 12 occurrences; *Lipochaeta lobata* var. *leptophylla* changed from 5 populations to 4 occurrences; *Lipochaeta tenuifolia* changed from 12 populations to 41 occurrences; *Lobelia gaudichaudii* ssp. *koolauensis* changed from 4 populations to 5 occurrences; *Lobelia niihauensis* changed from 21 populations to 40 occurrences; *Lobelia oahuensis* changed from 10 populations to 12 occurrences; *Marsilea villosa* changed from 4 populations to 5 occurrences; *Melicope lydgatei* changed from 4 populations to 18 occurrences; *Melicope saint-johnii* changed from 5 populations to 6 occurrences; *Neraudia angulata* changed from 5 populations to 27 occurrences; *Nototrichium humile* changed from 21 populations to 25 occurrences; *Phlegmariurus nutans* changed from 5 populations to 3 occurrences; *Phyllostegia hirsuta* changed from 23 populations to 26 occurrences; *Phyllostegia kaalaensis* changed from 4 populations to 7 occurrences; *Phyllostegia mollis* changed from 8 populations to 5 occurrences; *Phyllostegia parviflora* changed from 2 populations to 6 occurrences; *Plantago princeps* changed from 6 populations to 11 occurrences; *Pteris lidgatei* changed from 5 populations to 9 occurrences; *Sanicula purpurea* changed from 4 populations to 5 occurrences; *Schiedea kaalae* changed from 8 populations to 7 occurrences; *Schiedea nuttallii* changed from 5 populations to 7 occurrences; *Silene lanceolata* changed from 2 populations to 4 occurrences; *Spermolepis hawaiiensis* changed from 2 populations to 6 occurrences; *Tetramolopium filiforme* changed from 6 populations to 21 occurrences; *Tetramolopium lepidotum* ssp. *lepidotum* changed from 4 populations to 5 occurrences; *Tetraplasandra gymnocarpa* changed from 20 populations to 30 occurrences; *Urera kaalae* changed from 11 populations to 12 occurrences; *Viola chamissoniana* ssp. *chamissoniana* changed from 5 populations to 15 occurrences; and *Viola oahuensis* changed from 9 populations to 18 occurrences.

(4) We revised the list of excluded, manmade features in the ''*Criteria Used to Identify Critical Habitat*'' and § 17.99(i) to include additional features based on information received during the public comment periods. We added 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 to aquaducts; existing trails; campgrounds and their immediate surrounding landscaped area; scenic lookouts; remote helicopter landing sites; existing fences; towers and associated structures to telecommunications equipment; other archaelogical sites to heiaus (indigenous places of worship or shrines); and electrical power transmission lines and distribution and communication facilities and regularly maintained associated rights-of-way and access ways.

(5) We made revisions to the unit boundaries based on information supplied by commenters, as well as information gained from field visits to some of the sites, that indicated that the primary constituent elements were not present in certain portions of the proposed unit, that certain changes in land use had occurred on lands within the proposed critical habitat that would preclude those areas from supporting the primary constituent elements, or that the areas were not essential to the conservation of the species in question.

(6) Based on information received during the public comment periods, we updated the elevation ranges in § 17.99(j) ''*Plants on the island of Oahu: Constituent elements*''.

(7) All Army lands were excluded under 3(5)(A) and 4(b)(2) of the Act because we believe the benefit of excluding these lands outweigh the benefits of including these lands in the final designation (See ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*'').

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

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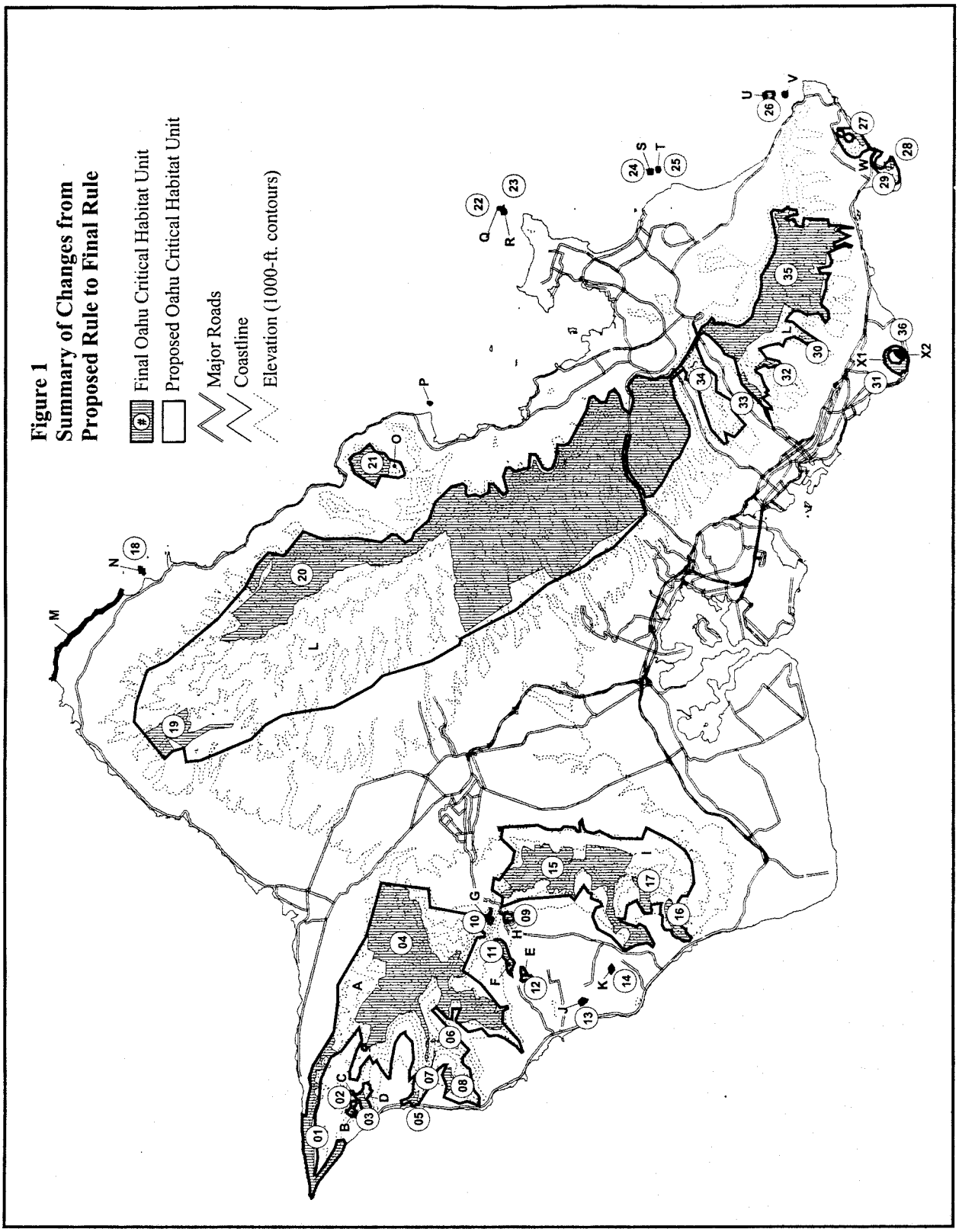


Oahu A

This unit was proposed as critical habitat for 65 species: *Abutilon sandwicense, Alectryon macrococcus, Alsinidendron obovatum, Alsinidendron trinerve, Bonamia menziesii, Cenchrus agrimonioides, Centaurium sebaeoides, Chamaesyce celastroides* var. *kaenana, Chamaesyce herbstii, Colubrina oppositifolia, Ctenitis squamigera, Cyanea acuminata, Cyanea grimesiana* ssp. *obatae, Cyanea longiflora, Cyanea superba, Cyperus trachysanthos, Cyrtandra dentata, Delissea subcordata, Diellia falcata,*

Diplazium molokaiense, Dubautia herbstobatae, Eragrostis fosbergii, Eugenia koolauensis, Euphorbia haeleeleana, Flueggea neowawraea, Gardenia mannii, Gouania meyenii, Gouania vitifolia, Hedyotis degeneri, Hedyotis parvula, Hesperomannia arborescens, Hesperomannia arbuscula, Hibiscus brackenridgei, Isodendrion laurifolium, Isodendrion longifolium, Isodendrion pyrifolium, Labordia cyrtandrae, Lepidium arbuscula, Lipochaeta lobata var. *leptophylla, Lipochaeta tenuifolia, Lobelia niihauensis, Mariscus pennatiformis, Melicope pallida, Neraudia angulata, Nototrichium humile, Peucedanum sandwicense, Phyllostegia hirsuta, Phyllostegia kaalaensis, Phyllostegia mollis, Plantago princeps, Sanicula mariversa, Schiedea hookeri, Schiedea kaalae, Schiedea kealiae, Schiedea nuttallii, Sesbania tomentosa, Silene lanceolata, Solanum sandwicense, Spermolepis hawaiiensis, Stenogyne kanehoana, Tetramolopium filiforme, Tetramolopium lepidotum* ssp. *lepidotum, Urera kaalae, Vigna o-wahuense,* and *Viola chamissoniana* ssp. *chamissoniana.*

We excluded the proposed critical habitat on Army lands at Makua Military Reservation for *Alsinidendron obovatum, Diellia falcata, Dubautia herbstobatae, Flueggea neowawraea, Gouania meyenii, Hedyotis parvula, Lepidium arbuscula, Lipochaeta tenuifolia, Lobelia niihauensis, Neraudia angulata, Nototrichium humile, Peucedanum sandwicense, Schiedea hookeri, Silene lanceolata, Tetramolopium filiforme, and Viola chamissoniana* ssp. *chamissoniana* and at Schofield Barracks for *Alsinidendron trinerve, Cyanea acuminata, Cyanea grimesiana* ssp. *obatae, Gardenia mannii, Labordia cyrtandrae, Phyllostegia hirsuta, Phyllostegia mollis, Solanum sandwicense, Stenogyne kanehoana, Tetramolopium filiforme, Urera kaalae,* and *Viola chamissoniana* ssp. *chamissoniana* because the benefits of excluding these areas outweigh the benefits of including these areas as critical habitat (see ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*'').

In addition, modifications were made to this unit to exclude areas that do not contain the primary constituent elements of *Alectryon macrococcus, Bonamia menziesii, Cenchrus agrimonioides, Colubrina oppositifolia, Ctenitis squamigera, Euphorbia haeleeleana, Flueggea neowawraea, Gouania meyenii, Gouania vitifolia, Hesperomannia arborescens, Hibiscus brackenridgei, Isodendrion laurifolium, Isodendrion longifolium, Isodendrion pyrifolium, Lobelia niihauensis, Phyllostegia mollis, Plantago princeps, Schiedea hookeri, Schiedea nuttallii, Spermolepis hawaiiensis,* and *Vigna o-wahuense,* all multi-island species. In order to meet the recovery goal of 8 to 10 populations within the historical range of each of these 21 species, locations on other islands have been designated as critical habitat (*i.e.,* locations on Kauai, Molokai, Maui, and/or Kahoolawe), other locations on Oahu are being designated as critical habitat in this rule; and/or other locations have been proposed for designation on the island of Hawaii. In addition, some essential areas were excluded under 4(b)(2) because active management of the area by the landowner outweighed the benefits of including that area as critical habitat. Modifications were also made to this unit to exclude areas that do not contain the primary constituent elements of *Abutilon sandwicense, Alsinidendron obovatum, Chamaesyce herbstii, Cyanea grimesiana* ssp. *obatae, Cyanea longiflora, Cyanea superba, Cyrtandra dentata, Delissea subcordata, Diellia falcata, Gardenia mannii, Hedyotis parvula, Labordia cyrtandrae, Lepidium arbuscula, Lipochaeta lobata* var. *leptophylla, Lipochaeta tenuifolia, Neraudia angulata, Phyllostegia hirsuta, Schiedea kealiae, Tetramolopium filiforme,* and *Viola chamissoniana* ssp. *chamissoniana,* all Oahu-endemic species. In order to meet the recovery goal of 8 to 10 populations within the historical range of each of these 20 species, other locations on Oahu are either being designated as critical habitat in this rule, or areas were excluded under 4(b)(2) in this rule because active management of the area by the landowner outweighed the benefits of including that area as critical habitat.

The area designated as critical habitat for the following 29 Oahu-endemic species provides habitat within their historical ranges for one population each of *Cyanea acuminata* and *Eragrostis fosbergii;* two populations of *Diellia falcata, Lipochaeta lobata* var. *leptophylla, Phyllostegia hirsuta, Schiedea kaalae, Tetramolopium filiforme,* and *Urera kaalae;* three populations of *Cyanea grimesiana* ssp. *obatae* and *Cyrtandra dentata;* four populations of *Alsinidendron trinerve, Chamaesyce celastroides* var. *kaenana, Delissea subcordata, Dubautia herbstobatae, Hedyotis parvula, Labordia cyrtandrae, Lepidium arbuscula, Lipochaeta tenuifolia, Sanicula mariversa,* and *Schiedea kealiae;* five populations of *Chamaesyce herbstii, Cyanea longiflora,* and *Viola chamissoniana* ssp. *chamissoniana;* six populations of *Alsinidendron obovatum, Cyanea superba,* and *Neraudia angulata;* seven populations of *Abutilon sandwicense;* and nine populations of *Hedyotis degeneri* and *Phyllostegia kaalaensis.*

The area designated as critical habitat for the following 33 multi-island species provides habitat within their historical ranges for one population each of *Alectryon macrococcus, Bonamia menziesii, Centaurium sebaeoides, Ctenitis squamigera, Cyperus trachysanthos, Diplazium molokaiense, Eugenia koolauensis, Euphorbia haeleeleana, Flueggea neowawraea, Gouania meyenii, Hesperomannia arborescens, Isodendrion pyrifolium, Lobelia niihauensis, Peucedanum sandwicense, Plantago princeps, Sesbania tomentosa, Silene lanceolata, Solanum sandwicense, Spermolepis hawaiiensis,* and *Vigna o-wahuense;* three populations of *Colubrina oppositifolia, Hesperomannia arbuscula, Hibiscus brackenridgei, Isodendrion longifolium, Melicope pallida, and Tetramolopium lepidotum* ssp. *lepidotum;* four populations of *Mariscus pennatiformis* and *Schiedea nuttallii;* five populations of *Cenchrus agrimonioides, Isodendrion laurifolium, Nototrichium humile,* and *Schiedea hookeri;* and six populations of *Gouania vitifolia.*

These modifications resulted in the reduction from 8,503 ha (21,013 ac) to 3,921 ha (9,689 ac). This unit was renamed Oahu 4—*Abutilon sandwicense*—a, Oahu 4—*Abutilon sandwicense*—b, Oahu 4—*Abutilon sandwicense*—c, Oahu 4—*Alectryon macrococcus*—a, Oahu 4—*Alsinidendron obovatum*—a, Oahu 4—*Alsinidendron obovatum*—b, Oahu 4—*Alsinidendron trinerve*—a, Oahu 4—*Bonamia menziesii*—c, Oahu 4—*Cenchrus agrimonioides*—a, Oahu 4—*Cenchrus agrimonioides*—b, Oahu 1—*Centaurium sebaeoides*—a, Oahu 1—*Chamaesyce celastroides* var. *kaenana*—a, Oahu 4—*Chamaesyce celastroides* var. *kaenana*—c, Oahu 5—*Chamaesyce celastroides* var. *kaenana*—d, Oahu 4—*Chamaesyce herbstii*—a, Oahu 4—*Colubrina oppositifolia*—a, Oahu 15—*Ctenitis squamigera*—a, Oahu 4—*Cyanea acuminata*—a, Oahu 4—*Cyanea grimesiana* ssp. *obatae*—a, Oahu 4—*Cyanea longiflora*—a, Oahu 4—*Cyanea longiflora*—b, Oahu 4—*Cyanea superba*—a, Oahu 4—*Cyanea superba*—b, Oahu 4—*Cyanea superba*—c, Oahu 1—*Cyperus trachysanthos*—a, Oahu 4—*Cyrtandra dentata*—a, Oahu 4—*Delissea subcordata*—a, Oahu 4—*Diellia falcata*—a, Oahu 4—*Diellia falcata*—b, Oahu 4—*Diplazium molokaiense*—a,

Oahu 4—*Dubautia herbstobatae*—a, Oahu 4—*Dubautia herbstobatae*—b, Oahu 7—*Dubautia herbstobatae*—c, Oahu 4—*Eragrostis fosbergii*—a, Oahu 4—*Eugenia koolauensis*—a, Oahu 4—*Euphorbia haeleeleana*—b, Oahu 4—*Flueggea neowawraea*—a, Oahu 4—*Gouania meyenii*—a, Oahu 4—*Gouania meyenii*—b, Oahu 5—*Gouania vitifolia*—c, Oahu 4—*Gouania vitifolia*—d, Oahu 4—*Gouania vitifolia*—e, Oahu 4—*Gouania vitifolia*—f, Oahu 4—*Gouania vitifolia*—g, Oahu 8—*Gouania vitifolia*—h, Oahu 4—*Hedyotis degeneri*—a, Oahu 4—*Hedyotis degeneri*—b, Oahu 4—*Hedyotis parvula*—a, Oahu 4—*Hesperomannia arborescens*—a, Oahu 4—*Hesperomannia arbuscula*—a, Oahu 4—*Hesperomannia arbuscula*—b, Oahu 1—*Hibiscus brackenridgei*—a, Oahu 4—*Hibiscus brackenridgei*—b, Oahu 5—*Hibiscus brackenridgei*—c, Oahu 4—*Isodendrion laurifolium*—a, Oahu 4—*Isodendrion laurifolium*—b, Oahu 4—*Isodendrion longifolium*—a, Oahu 5—*Isodendrion pyrifolium*—a, Oahu 4—*Labordia cyrtandrae*—a, Oahu 4—*Lepidium arbuscula*—a, Oahu 4—*Lipochaeta lobata* var. *leptophylla*—a, Oahu 4—*Lipochaeta tenuifolia*—c, Oahu 4—*Lipochaeta tenuifolia*—d, Oahu 4—*Lipochaeta tenuifolia*—e, Oahu 4—*Lobelia niihauensis*a, Oahu 4—*Mariscus pennatiformis*—a, Oahu 4—*Mariscus pennatiformis*—b, Oahu 4—*Melicope pallida*—a, Oahu 4—*Neraudia angulata*—b, Oahu 4—*Neraudia angulata*—c, Oahu 4—*Neraudia angulata*—d, Oahu 4—*Neraudia angulata*—e, Oahu 4—*Nototrichium humile*—b, Oahu 4—*Nototrichium humile*—c, Oahu 4—*Nototrichium humile*—d, Oahu 4—*Peucedanum sandwicense*—a, Oahu 4—*Phyllostegia hirsuta*—a, Oahu 4—*Phyllostegia kaalaensis*—a, Oahu 4—*Phyllostegia kaalaensis*—b, Oahu 4—*Phyllostegia kaalaensis*—c, Oahu 4—*Phyllostegia kaalaensis*—d, Oahu 4—*Phyllostegia kaalaensis*—e, Oahu Oahu 4—*Plantago princeps*—a, Oahu 4—*Plantago princeps*—b, Oahu 4—*Sanicula mariversa*—a, Oahu 4—*Sanicula mariversa*—b, Oahu 4—*Sanicula mariversa*—c, Oahu 6—*Sanicula mariversa*—d, Oahu 4—*Schiedea hookeri*—b, Oahu 4—*Schiedea hookeri*—c, Oahu 4—*Schiedea hookeri*—d, Oahu 4—*Schiedea kaalae*—a, Oahu 1—*Schiedea kealiae*—a, Oahu 4—*Schiedea nuttallii*—a, Oahu 1—*Sesbania tomentosa*—a, Oahu 4—*Silene lanceolata*—a, Oahu 4—*Solanum sandwicense*—a, Oahu 5—*Spermolepis hawaiiensis*—a, Oahu 4—*Tetramolopium filiforme*—a, Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—a, Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—b, Oahu 4—*Urera kaalae*—a, Oahu 4—*Urera kaalae*—b, Oahu 1—*Vigna o-wahuensis*—a, Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—a, Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—b, and Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—c.

Oahu B

This unit was proposed as critical habitat for seven species: *Bonamia menziesii, Euphorbia haeleeleana, Gouania vitifolia, Hibiscus brackenridgei, Isodendrion pyrifolium, Neraudia angulata,* and *Nototrichium humile.* We excluded the proposed critical habitat for *Euphorbia haeleeleana, Hibiscus brackenridgei, Isodendrion pyrifolium,* and *Nototrichium humile,* all multi-island species. This area is not essential for the conservation of these four species because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to their conservation, and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of these species. In addition, there are 10 other locations in historical ranges of these four species on Oahu and other islands that provide habitat for these species and that are either designated as critical habitat in this rule on Oahu, have been previously designated on Kauai, Molokai, and/or Maui, are found in areas on Oahu or other islands that are excluded under 4(b)(2) of the Act because active management of the area by the landowner outweighed the benefits of including that area as critical habitat, or have been proposed for designation on the island of Hawaii.

We excluded the proposed critical habitat for *Neraudia angulata,* a species endemic to Oahu. This area is not essential for the conservation of *Neraudia angulata* because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *N. angulata,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are 10 other locations in its historical range on Oahu that provide habitat for this species and that are either designated as critical habitat in this rule or are found in areas excluded under 4(b)(2) of the Act (Makua Military Reservation) because active management of the unit by the landowner outweighed the benefits of including it as critical habitat.

The area designated as critical habitat for the following multi-island species provides habitat within their historical ranges for one population each of *Bonamia menziesii* and *Gouania vitifolia.*

These modifications resulted in the reduction from 34 ha (83 ac) to 23 ha (58 ac). This unit was renamed Oahu 2—*Bonamia menziesii*—a and Oahu 2—*Gouania vitifolia*—a.

Oahu C

This unit was proposed as critical habitat for one species: *Bonamia menziesii,* a multi-island species. This area is not essential for the conservation of *Bonamia menziesii* because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *B. menziesii,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are 10 other locations in its historical range on Oahu and other islands that provide habitat for this species and that are either designated as critical habitat in this rule, are found in an area managed for the species on Lanai, have been designated on Kauai or Maui, or have been proposed for designation on the island of Hawaii. Exclusion of this area from critical habitat for *Bonamia menziesii* resulted in the complete removal of this unit (14 ha (35 ac)) from the final designation.

Oahu D

This unit was proposed as critical habitat for nine species: *Bonamia menziesii, Chamesyce celastroides* var. *kaenana, Euphorbia haeleeleana, Gouania vitifolia, Hibiscus brackenridgei, Isodendrion pyrifolium, Neraudia angulata, Nototrichium humile,* and *Schiedea hookeri.* We excluded the proposed critical habitat for *Hibiscus brackenridgei* and *Isodendrion pyrifolium,* both multi-island species. This area is not essential for the conservation of *Hibiscus brackenridgei* and *Isodendrion pyrifolium* because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the two species' conservation, and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of these species. In addition, there are 10

other locations for *Isodendrion pyrifolium* and at least 9 other locations for *Hibiscus brackenridgei* in their historical ranges on Oahu and other islands that provide habitat for these species and that are either designated as critical habitat in this rule, are found in an area managed for the species on Lanai, have been designated on Molokai and Maui, or have been proposed for designation on the island of Hawaii.

The area designated as critical habitat for the following Oahu endemic species provides habitat within their historical ranges for one population each of *Chamesyce celastroides* var. *kaenana* and *Neraudia angulata.* The area designated as critical habitat for the following multi-island species provides habitat within their historical ranges for one population each of *Bonamia menziesii, Euphorbia haeleeleana, Gouania vitifolia, Nototrichium humile,* and *Schiedea hookeri.*

These modifications resulted in the reduction from 110 ha (271 ac) to 67 ha (164 ac). This unit was renamed Oahu 3—*Bonamia menziesii*—b, Oahu 3—*Chamaesyce celastroides* var. *kaenana*—b, Oahu 3—*Euphorbia haeleeleana*—a, Oahu 3—*Gouania vitifolia*—b, Oahu 3—*Neraudia angulata*—a, Oahu 3—*Nototrichium humile*—a, and Oahu 3—*Schiedea hookeri*—a.

Oahu E

This unit was proposed as critical habitat for one species: *Chamaesyce kuwaleana.* Modifications were made to this unit to exclude small areas that do not contain the primary constituent elements of *C. kuwaleana.* The area designated as critical habitat for *C. kuwaleana* provides habitat within its historical range for one population. These modifications resulted in the slight reduction from 94 ha (38 ac) to 93 ha (37 ac). The unit was renamed Oahu 12—*Chamaesyce kuwaleana*—c.

Oahu F

This unit was proposed as critical habitat for two species: *Chamaesyce kuwaleana* and *Isodendrion pyrifolium.* We excluded the proposed critical habitat for *I. pyrifolium,* a multi-island species. This area is not essential for the conservation of this species because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *Isodendrion pyrifolium,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are 10 other locations in its historical range on Oahu and other islands that provide habitat for this species and that are either designated as critical habitat in this rule, are found in an area managed for the species on Lanai, have been designated on Molokai and Maui, or have been proposed for designation on the island of Hawaii. The area designated as critical habitat for *Chamaesyce kuwaleana* provides habitat within its historical range for one population. This modification resulted in the reduction from 81 ha (200 ac) to 53 ha (131 ac). This unit was renamed Oahu 11—*Chamaesyce kuwaleana*—b.

Oahu G

This unit was proposed as critical habitat for two species: *Tetramolopium filiforme* and *Viola chamissoniana* ssp. *chamissoniana.* We excluded the proposed critical habitat for *Tetramolopium filiforme* on Army lands at Schofield Barracks because the benefits of excluding this area outweigh the benefits of including this area (see ''Analysis of Impacts Under Section 4(b)(2): Other Impacts''). The area designated as critical habitat for *Viola chamissoniana* ssp. *chamissoniana* provides habitat within its historical range for one population. This modification resulted in the reduction from 16 ha (40 ac) to 6 ha (15 ac). This unit was renamed Oahu 10—*Viola chamissoniana* ssp. *chamissoniana*—d.

Oahu H

This unit was proposed as critical habitat for *Chamaesyce kuwaleana.* The area designated as critical habitat for *Chamaesyce kuwaleana* provides habitat within its historical range for one population. No modifications were made to the acreage of this unit, which was renamed Oahu 9—*Chamaesyce kuwaleana*—a.

Oahu I

This unit was proposed as critical habitat for 42 species: *Abutilon sandwicense, Alectryon macrococcus, Alsinidendron obovatum, Bonamia menziesii, Cenchrus agrimonioides, Chamaesyce herbstii, Chamaesyce kuwaleana, Cyanea grimesiana* ssp. *obatae, Cyanea pinnatifida, Cyrtandra dentata, Delissea subcordata, Diellia falcata, Diellia unisora, Flueggea neowawraea, Gardenia mannii, Gouania meyenii, Hedyotis coriacea, Hedyotis parvula, Hesperomannia arbuscula, Hibiscus brackenridgei, Isodendrion pyrifolium, Lepidium arbuscula, Lipochaeta lobata* var. *leptophylla, Lobelia niihauensis, Melicope pallida, Melicope saint-johnii, Neraudia angulata, Phyllostegia hirsuta, Phyllostegia kaalaensis, Phyllostegia mollis, Phyllostegia parviflora, Plantago princeps, Sanicula mariversa, Schiedea hookeri, Schiedea kaalae, Schiedea nuttallii, Silene perlmanii, Solanum sandwicense, Stenogyne kanehoana, Tetramolopium lepidotum* ssp. *lepidotum, Urera kaalae,* and *Viola chamissoniana* ssp. *chamissoniana.* We excluded the proposed critical habitat on Army lands at Schofield Barracks for *Cyanea grimesiana* ssp. *obatae, Gardenia mannii, Phyllostegia hirsuta, Phyllostegia mollis, Solanum sandwicense, Stenogyne kanehoana, Urera kaalae,* and *Viola chamissoniana* ssp. *chamissoniana* because the benefits of excluding this area outweigh the benefits of including this area (see ''Analysis of Impacts Under Section 4(b)(2): Other Impacts''). We also excluded the proposed critical habitat for *Cyrtandra dentata, Flueggea neowawraea,* and *Hibiscus brackenridgei.* This area is not essential for the conservation of these three species because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of these three species, and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of these species. In addition, there are at least 8 other locations for *Cyrtandra dentata,* and at least 10 other locations for *Flueggea neowawraea* and *Hibiscus brackenridgei,* in their historical ranges on Oahu and other islands that provide habitat for these species and that are either designated as critical habitat in this rule; are found on lands managed for the species on Lanai or Oahu's Army lands; have been designated on Kauai, Molokai, and Maui; or have been proposed for designation on the island of Hawaii.

Modifications were made to this unit to exclude areas that do not contain the primary constituent elements for *Alectryon macrococcus, Bonamia menziesii, Cenchrus agrimonioides,* and *Tetramolopium lepidotum* ssp. *lepidotum,* all multi-island species. In order to meet the recovery goal of 8 to 10 populations within the historical range of each of these 21 species, other locations either have been designated as critical habitat on Kauai, Molokai, Maui, and/or Kahoolawe; were excluded under 4(b)(2) on one or more of the Hawaiian islands because active management of an area by the landowner outweighed the benefits of including that area as critical habitat;

are being designated as critical habitat in this rule; and/or have been proposed for designation on the island of Hawaii. Modifications were also made to this unit to exclude areas that do not contain the primary constituent elements for *Abutilon sandwicense, Chamaesyce herbstii, Cyanea pinnatifida, Diellia falcata, Diellia unisora, Melicope saint-johnii, Neraudia angulata, Phyllostegia hirsuta,* and *Urera kaalae,* all Oahu-endemic species. In order to meet the recovery goal of 8 to 10 populations within the historical range of each of these 20 species, other locations on Oahu are either being designated as critical habitat in this rule or were excluded under 4(b)(2) in this rule because active management of an area by the landowner outweighed the benefits of including that area as critical habitat.

The area designated as critical habitat for the following 24 Oahu-endemic species provides habitat within their historical ranges for one population each of *Alsinidendron obovatum, Neraudia angulata,* and *Phyllostegia kaalaensis;* two populations each of *Chamaesyce herbstii, Chamaesyce kuwaleana, Gardenia mannii, Gouania meyenii, Sanicula mariversa,* and *Viola chamissoniana* ssp. *chamissoniana;* three populations each of *Abutilon sandwicense, Cyanea grimesiana* ssp. *obatae, Hedyotis parvula, Lepidium arbuscula, Melicope saint-johnii, Phyllostegia hirsuta,* and *Stenogyne kanehoana;* four populations each of *Cyanea pinnatifida, Delissea subcordata, Schiedea kaalae,* and *Urera kaalae;* six populations each of *Diellia unisora* and *Silene perlmanii;* seven populations of *Diellia falcata;* and eight populations of *Lipochaeta lobata* var. *leptophylla.*

The area designated as critical habitat for the following 15 multi-island species provides habitat within their historical ranges for one population each of *Alectryon macrococcus, Bonamia menziesii, Hedyotis coriacea, Lobelia niihauensis,* and *Plantago princeps;* two populations each of *Hesperomannia arbuscula, Isodendrion pyrifolium, Schiedea hookeri, Schiedea nuttallii,* and *Solanum sandwicense;* three populations each of *Cenchrus agrimonioides, Melicope pallida, Phyllostegia mollis,* and *Phyllostegia parviflora;* and five populations of *Tetramolopium lepidotum* ssp. *lepidotum.*

This modification resulted in the reduction from 5,109 ha (12,623 ac) to 1,917 ha (4,736 ac). This unit was renamed Oahu 15—*Abutilon sandwicense*—d, Oahu 15—*Abutilon sandwicense*—e, Oahu 17—*Abutilon sandwicense*—f, Oahu 15—*Alectryon macrococcus*—b, Oahu 15—*Alsinidendron obovatum*—c, Oahu 17—*Bonamia menziesii*—d, Oahu 15—*Cenchrus agrimonioides*—c, Oahu 15—*Cenchrus agrimonioides*—d, Oahu 15—*Chamaesyce herbstii*—b, Oahu 15—*Chamaesyce herbstii*—c, Oahu 15—*Chamaesyce kuwaleana*—d, Oahu 15—*Cyanea grimesiana* ssp. *obatae*—b, Oahu 15—*Cyanea grimesiana* ssp. *obatae*—c, Oahu 15—*Cyanea grimesiana* ssp. *obatae*—d, Oahu 15—*Cyanea pinnatifida*—a, Oahu 15—*Cyanea pinnatifida*—b, Oahu 15—*Cyanea pinnatifida*—c, Oahu 15—*Delissea subcordata*—b, Oahu 15—*Delissea subcordata*—c, Oahu 15—*Delissea subcordata*—d, Oahu 15—*Diellia falcata*—c, Oahu 15—*Diellia falcata*—d, Oahu 15—*Diellia unisora*—a, Oahu 15—*Gardenia mannii*—a, Oahu 15—*Gouania meyenii*—c, Oahu 15—*Hedyotis coriacea*—a, Oahu 4—*Hedyotis parvula*—b, Oahu 15—*Hedyotis parvula*—c, Oahu 15—*Hedyotis parvula*—d, Oahu 15—*Hesperomannia arbuscula*—c, Oahu 15—*Hesperomannia arbuscula*—d, Oahu 15—*Hesperomannia arbuscula*—e, Oahu 16—*Isodendrion pyrifolium*—b, Oahu 17—*Isodendrion pyrifolium*—c, Oahu 15—*Lepidium arbuscula*—b, Oahu 15—*Lepidium arbuscula*—c, Oahu 15—*Lipochaeta lobata* var. *leptophylla*—b, Oahu 17—*Lobelia niihauensis*—b, Oahu 15—*Melicope pallida*—b, Oahu 15—*Melicope pallida*—c, Oahu 15—*Melicope pallida—d,* Oahu 15—*Melicope pallida*—e, Oahu 15—*Melicope saint-johnii*—a, Oahu 15—*Melicope saint-johnii*—b, Oahu 15—*Neraudia angulata*—f, Oahu 15—*Phyllostegia hirsuta*—b, Oahu 15—*Phyllostegia hirsuta*—c, Oahu 15—*Phyllostegia kaalaensis*—f, Oahu 15—*Phyllostegia mollis*—a, Oahu 15—*Phyllostegia mollis*—b, Oahu 15—*Phyllostegia parviflora*—a, Oahu 15—*Phyllostegia parviflora*—b, Oahu 15—*Phyllostegia parviflora*—c, Oahu 15—*Plantago princeps*—c, Oahu 15—*Sanicula mariversa*—e, Oahu 15—*Sanicula mariversa*—f, Oahu 15—*Schiedea hookeri*—e, Oahu 15—*Schiedea hookeri*—f, Oahu 15—*Schiedea hookeri*—g, Oahu 15—*Schiedea kaalae*—b, Oahu 15—*Schiedea kaalae*—c, Oahu 15—*Schiedea kaalae*—d, Oahu 15—*Schiedea nuttallii*—b, Oahu 15—*Schiedea nuttallii*—c, Oahu 15—*Silene perlmanii*—a, Oahu 15—*Silene perlmanii*—b, Oahu 15—*Silene perlmanii*—c, Oahu 15—*Silene perlmanii*—d, Oahu 15—*Solanum sandwicense*—b, Oahu 15—*Solanum sandwicense*—c, Oahu 15—*Stenogyne kanehoana*—a, Oahu 15—*Stenogyne kanehoana*—c, Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—c, Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—d, Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—e, Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—f, Oahu 15—*Urera kaalae*—c, Oahu 15—*Urera kaalae*—d, Oahu 15—*Urera kaalae*—e, Oahu 15—*Urera kaalae*—f, Oahu 10—*Viola chamissoniana* ssp. *chamissoniana*—e, and Oahu 15—*Viola chamissoniana* ssp. *chamissoniana*—f.

Oahu J

This unit was proposed as critical habitat for *Marsilea villosa.* The area designated as critical habitat for *Marsilea villosa* provides habitat within its historical range for one population. No modifications were made to the acreage of this unit, which was renamed Oahu 13—*Marsilea villosa*—a.

Oahu K

This unit was proposed as critical habitat for *Marsilea villosa.* The area designated as critical habitat for *Marsilea villosa* provides habitat within its historical range for one population. No modifications were made to the acreage of this unit, which was renamed Oahu 14—*Marsilea villosa*—b.

Oahu L

This unit was proposed as critical habitat for 45 species: *Adenophorus periens, Bonamia menziesii, Chamaesyce celastroides* var. *kaenana, Chamaesyce deppeana, Chamaesyce rockii, Cyanea acuminata, Cyanea crispa, Cyanea grimesiana* ssp. *grimesiana, Cyanea humboltiana, Cyanea koolauensis, Cyanea longiflora, Cyanea st.-johnii, Cyanea superba, Cyanea truncata, Cyrtandra dentata, Cyrtandra polyantha, Cyrtandra subumbellata, Cyrtandra viridiflora, Delissea subcordata, Diellia erecta, Eugenia koolauensis, Gardenia mannii, Hedyotis coriacea, Hesperomannia arborescens, Isodendrion laurifolium, Isodendrion longifolium, Labordia cyrtandrae, Lobelia gaudichaudii* ssp. *koolauensis, Lobelia monostachya, Lobelia oahuensis, Lysimachia filifolia, Melicope lydgatei, Myrsine juddii, Phlegmariurus nutans, Phyllostegia hirsuta, Phyllostegia parviflora, Plantago princeps, Platanthera holochila, Pteris lidgatei, Sanicula purpurea, Schiedea kaalae, Solanum sandwicense, Tetraplasandra gymnocarpa, Trematolobelia singularis,* and *Viola oahuensis.* We excluded the proposed critical habitat on Army lands

at Schofield Barracks East Range for *Cyanea acuminata, Cyrtandra viridiflora, Gardenia mannii, Hesperomannia arborescens, Myrsine juddii, Phlegmariurus nutans,* and *Viola oahuensis;* at Kahuku Training Area for *Cyanea longiflora* and *Eugenia koolauensis;* and at Kawailoa Training Area for *Cyanea acuminata, Cyanea crispa, Cyanea grimesiana* ssp. *grimesiana, Cyanea humboltiana, Cyanea koolauensis, Cyanea longiflora, Cyanea st.-johnii, Cyrtandra dentata, Cyrtandra viridiflora, Gardenia mannii, Hesperomannia arborescens, Labordia cyrtandrae, Lobelia gaudichaudii* ssp. *koolauensis, Melicope lydgatei, Myrsine juddii, Phlegmariurus nutans, Phyllostegia hirsuta, Pteris lidgatei, Sanicula purpurea, Tetraplasandra gymnocarpa,* and *Viola oahuensis* because the benefits of excluding this area outweigh the benefits of including this area (see ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*''). We excluded the proposed critical habitat for *Solanum sandwicense,* a multi-island species. This area is not essential for the conservation of this species, because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *S. sandwicense,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are 10 other locations in its historical range on Oahu and Kauai that provide habitat for this species, which are either designated as critical habitat in this rule, in an area excluded under 4(b)(2) of the Act because active management of the area by the landowner outweighed the benefits of including that area as critical habitat (Schofield Barracks), or have been designated on Kauai.

Modifications were made to this unit to exclude areas that do not contain the primary constituent elements essential to the conservation of *Adenophorus periens, Bonamia menziesii, Cyanea grimesiana* ssp. *grimesiana, Diellia erecta, Eugenia koolauensis,* and *Hesperomannia arborescens,* all multi-island species. In order to meet the recovery goal of 8 to 10 populations within the historical range of each of these six species, other locations either have been designated as critical habitat on Kauai, Molokai, Maui, and/or Kahoolawe; were excluded under 4(b)(2) on Oahu, Lanai, and Maui because active management of an area by the landowner outweighed the benefits of including that area as critical habitat; are being designated as critical habitat in this rule; and/or have been proposed for designation on the island of Hawaii. Modifications were also made to this unit to exclude areas that do not contain the primary constituent elements essential to the conservation of *Chamaesyce rockii, Cyanea acuminata, Cyanea crispa, Cyanea humboltiana, Cyanea koolauensis, Cyanea longiflora, Cyanea st.-johnii, Cyanea truncata, Cyrtandra polyantha, Cyrtandra subumbellata, Cyrtandra viridiflora, Delissea subcordata, Gardenia mannii, Labordia cyrtandrae, Lobelia monostachya, Lobelia oahuensis, Melicope lydgatei, Phyllostegia hirsuta,* and *Viola oahuensis,* all island-endemic species. In order to meet the recovery goal of 8 to 10 populations within the historical range of each of these 19 species, other locations on Oahu are either being designated as critical habitat in this rule or were excluded under 4(b)(2) in this rule because active management of an area by the landowner outweighed the benefits of including that area as critical habitat.

The area designated as critical habitat for the following 27 Oahu-endemic species provides habitat within their historical ranges for two populations each of *Chamaesyce celastroides* var. *kaenana, Chamaesyce deppeana, Cyanea superba, Delissea subcordata, Gardenia mannii,* and *Phyllostegia hirsuta;* three populations each of *Cyanea longiflora,* and *Schiedea kaalae;* four populations of *Cyanea acuminata;* five populations each of *Chamaesyce rockii, Cyrtandra polyantha,* and *Cyrtandra viridiflora;* six populations each of *Labordia cyrtandrae, Melicope lydgatei, Myrsine juddii,* and *Trematolobelia singularis;* seven populations each of *Cyanea crispa, Cyanea koolauensis, Cyrtandra subumbellata, Lobelia gaudichaudii* ssp. *koolauensis, Lobelia monostachya,* and *Tetraplasandra gymnocarpa;* eight populations of *Cyanea humboltiana;* nine populations each of *Cyanea st.-johnii* and *Cyanea truncata;* and 10 populations each of *Lobelia oahuensis* and *Viola oahuensis.*

The area designated as critical habitat for the following 16 multi-island species provides habitat within their historical ranges for one population each of *Adenophorus periens, Bonamia menziesii, Diellia erecta, Hedyotis coriacea, Isodendrion laurifolium, Isodendrion longifolium,* and *Plantago princeps;* two populations each of *Hesperomannia orborescens* and *Platanthera holochila;* three populations each of *Cyanea grimesiana* ssp. *grimesiana* and *Pteris lidgatei;* four populations each of *Eugenia koolauensis* and *Sanicula puprurea;* five populations of *Phlegmariurus nutans;* and six populations each of *Lysimachia filifolia* and *Phyllostegia parviflora.*

This modification resulted in the reduction from 30,068 ha (74,301 ac) to 15,727 ha (38,863 ac). This unit was renamed Oahu 20—*Adenophorus periens*—a, Oahu 35—*Bonamia menziesii*—e, Oahu 35—*Chamaesyce celastroides* var. *kaenana*—e, Oahu 20—*Chamaesyce deppeana*—a, Oahu 25—*Chamaesyce deppeana*—b, Oahu 20—*Chamaesyce rockii*—a, Oahu 20—*Chamaesyce rockii*—b, Oahu 20—*Chamaesyce rockii*—c, Oahu 20—*Cyanea acuminata*—b, Oahu 20—*Cyanea crispa*—a, Oahu 20—*Cyanea crispa*—b, Oahu 35—*Cyanea crispa*—c, Oahu 20—*Cyanea grimesiana* ssp. *grimesiana*—a, Oahu 35—*Cyanea grimesiana* ssp. *grimesiana*—b, Oahu 19—*Cyanea grimesiana* ssp. *grimesiana*—c, Oahu 20—*Cyanea humboltiana*—a, Oahu 20—*Cyanea humboltiana*—b, Oahu 20—*Cyanea humboltiana*—c, Oahu 20—*Cyanea humboltiana*—d, Oahu 35—*Cyanea humboltiana*—e, Oahu 20—*Cyanea koolauensis*—a, Oahu 20—*Cyanea koolauensis*—b, Oahu 35—*Cyanea koolauensis*—c, Oahu 35—*Cyanea koolauensis*—d, Oahu 19—*Cyanea longiflora*—c, Oahu 20—*Cyanea st.-johnii*—a, Oahu 35—*Cyanea st.-johnii*—b, Oahu 35—*Cyanea superba*—d, Oahu 20—*Cyanea truncata*—a, Oahu 35—*Cyrtandra polyantha*—a, Oahu 20—*Cyrtandra subumbellata*—a, Oahu 20—*Cyrtandra subumbellata*—b, Oahu 20—*Cyrtandra viridiflora*—a, Oahu 35—*Delissea subcordata*—e, Oahu 35—*Delissea subcordata*—f, Oahu 35—*Diellia erecta*—a, Oahu 19—*Eugenia koolauensis*—b, Oahu 20—*Eugenia koolauensis*—c, Oahu 20—*Gardenia mannii*—b, Oahu 20—*Gardenia mannii*—c, Oahu 35—*Hedyotis coriacea*—b, Oahu 20—*Hesperomannia arborescens*—b, Oahu 35—*Isodendrion laurifolium*—c, Oahu 20—*Isodendrion longifolium*—b, Oahu 20—*Labordia cyrtandrae*—b, Oahu 20—*Labordia cyrtandrae*—c, Oahu 20—*Lobelia gaudichaudii* ssp. *koolauensis*—a, Oahu 30—*Lobelia monostachya*—a, Oahu 32—*Lobelia monostachya*—b, Oahu 33—*Lobelia monostachya*—c, Oahu 25—*Lobelia monostachya*—d, Oahu 20—*Lobelia oahuensis*—a, Oahu 35—*Lobelia oahuensis*—b, Oahu 20—*Lysimachia filifolia*—a, Oahu 20—*Melicope lydgatei*—a, Oahu 20—*Myrsine juddii*—a, Oahu 20—*Phlegmariurus nutans*—a, Oahu 20—*Phyllostegia hirsuta*—d, Oahu 20—*Phyllostegia parviflora*—d, Oahu 20—*Plantago princeps*—d, Oahu 20—

Plantago princeps—e, Oahu 20—*Platanthera holochila*—a, Oahu 20—*Platanthera holochila*—b, Oahu 20—*Pteris lidgatei*—a, Oahu 20—*Pteris lidgatei*—b, Oahu 20—*Pteris lidgatei*—c, Oahu 20—*Sanicula purpurea*—a, Oahu 20—*Schiedea kaalae*—e, Oahu 20—*Tetraplasandra gymnocarpa*—a, Oahu 20—*Tetraplasandra gymnocarpa*—b, Oahu 20—*Tetraplasandra gymnocarpa*—c, Oahu 20—*Tetraplasandra gymnocarpa*—d, Oahu 35—*Tetraplasandra gymnocarpa*—e, Oahu 35—*Tetraplasandra gymnocarpa*—f, Oahu 20—*Trematolobelia singularis*—a, Oahu 20—*Trematolobelia singularis*—b, Oahu 34—*Trematolobelia singularis*—c, Oahu 35—*Trematolobelia singularis*—d, Oahu 35—*Trematolobelia singularis*—e, Oahu 20—*Viola oahuensis*—a, and Oahu 20—*Viola oahuensis*—b.

Oahu M

This unit was proposed as critical habitat for *Sesbania tomentosa.* We excluded the proposed critical habitat for this multi-island species. This area is not essential for the conservation of *S. tomentosa* because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *S. tomentosa,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are at least 10 other locations in its historical range on Oahu and other islands that provide habitat for this species, which are either designated as critical habitat in this rule; have been designated on Kauai, Molokai, Maui, and the Northwestern Hawaiian Islands; or have been proposed for designation on the island of Hawaii. Exclusion of this unit from critical habitat for *Sesbania tomentosa* resulted in the removal of this 100 ha (246 ac) unit from the final designation.

Oahu N

This unit was proposed as critical habitat for two species: *Centaurium sebaeoides* and *Sesbania tomentosa.* We excluded the proposed critical habitat for *Centaurium sebaeoides,* a multi-island species. This area is not essential for the conservation of this species because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *C. sebaeoides,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are at least 10 other locations in its historical range on Oahu and other islands that provide habitat for this species, which are either designated as critical habitat in this rule; have been designated on Kauai, Molokai, and Maui; or are found in an area managed for the species on Lanai. The area designated as critical habitat for *Sesbania tomentosa* provides habitat within its historical range for one population. The exclusion of *Centaurium sebaeoides* did not result in a change to the acreage of this unit, which was renamed Oahu 18—*Sesbania tomentosa*—b.

Oahu O

This unit was proposed as critical habitat for three species: *Cyanea crispa, Cyanea truncata,* and *Schiedea kaalae.* Modifications were made to this unit to exclude areas that do not contain the primary constituent elements essential to the conservation of *Cyanea crispa* and *Cyanea truncata,* both endemic to Oahu. The area designated as critical habitat for the three Oahu-endemic species provides habitat within their historical ranges for one population each of *Cyanea crispa, Cyanea truncata,* and *Schiedea kaalae.* In order to meet the recovery goal of 8 to 10 populations within the historical range of each of these three species, other locations on Oahu are being designated as critical habitat in this rule. Modifications to this unit resulted in the reduction from 431 ha (1,066 ac) to 312 ha (772 ac). This unit was renamed Oahu 21—*Cyanea crispa*—c, Oahu 21—*Cyanea truncata*—b, and Oahu 21—*Schiedea kaalae*—f.

Oahu P

This unit was proposed as critical habitat for *Sesbania tomentosa.* We excluded the proposed critical habitat for this multi-island species. This area is not essential for the conservation of *S. tomentosa* because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *Sesbania tomentosa,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are at least 10 other locations in its historical range on Oahu and other islands that provide habitat for this species which are either designated as critical habitat in this rule; have been designated on Kauai, Molokai, and Maui, and the Northwestern Hawaiian Islands; or have been proposed for designation on the island of Hawaii. Exclusion of this unit from critical habitat for *Sesbania tomentosa* resulted in the removal of this entire unit (2 ha (3 ac)) from the final designation.

Oahu Q

This unit was proposed as critical habitat for two species: *Chamaesyce kuwaleana* and *Sesbania tomentosa.* We excluded the proposed critical habitat for *Sesbania tomentosa,* a multi-island species. This area is not essential for the conservation of this species because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *S. tomentosa,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are at least 10 other locations in its historical range on Oahu and other islands that provide habitat for this species, which are either designated as critical habitat in this rule; have been designated on Kauai, Molokai, and Maui, and the Northwestern Hawaiian Islands; or have been proposed for designation on the island of Hawaii. The area designated as critical habitat for the Oahu-endemic, *Chamaesyce kuwaleana,* provides habitat within its historical range for one population. No modifications were made to the acreage of this unit, which was renamed Oahu 22—*Chamaesyce kuwaleana*—e.

Oahu R

This unit was proposed as critical habitat for two species: *Chamaesyce kuwaleana* and *Sesbania tomentosa.* We excluded the proposed critical habitat for Sesbania tomentosa, a multi-island species. This area is not essential for the conservation of this species because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *S. tomentosa,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are at least 10 other locations in its historical range on Oahu and other islands that provide habitat for this species, which are either designated as critical habitat in this rule; have been designated on Kauai, Molokai, and Maui, and the Northwestern Hawaiian Islands; or have been proposed for designation on the island of Hawaii. The area designated as critical habitat for the Oahu-endemic, *Chamaesyce kuwaleana,* provides

habitat within its historical range for one population. No modifications were made to the acreage of this unit, which was renamed Oahu 23—*Chamaesyce kuwaleana*—f.

Oahu S

This unit was proposed as critical habitat for two species: *Sesbania tomentosa* and *Vigna o-wahuensis.* We excluded the proposed critical habitat for *Sesbania tomentosa,* a multi-island species. This area is not essential for the conservation of this species because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *S. tomentosa,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are at least 10 other locations in its historical range on Oahu and other islands that provide habitat for this species which are either designated as critical habitat in this rule; have been designated on Kauai, Molokai, and Maui, and the Northwestern Hawaiian Islands; or have been proposed for designation on the island of Hawaii. The area designated as critical habitat for the multi-island species, *Vigna o-wahuensis,* provides habitat within its historical range for one population. No modifications were made to the acreage of this unit, which renamed Oahu 24—*Vigna o-wahuensis*—b.

Oahu T

This unit was proposed as critical habitat for two species: *Sesbania tomentosa* and *Vigna o-wahuensis.* We excluded the proposed critical habitat for *Sesbania tomentosa,* a multi-island species. This area is not essential for the conservation of this species because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *S. tomentosa,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are at least 10 other locations in its historical range on Oahu and other islands that provide habitat for this species which are either designated as critical habitat in this rule; have been designated on Kauai, Molokai, and Maui, and the Northwestern Hawaiian Islands; or have been proposed for designation on the island of Hawaii. The area designated as critical habitat for the multi-island species, *Vigna o-wahuensis,* provides habitat within its historical range for one population. No modifications were made to the acreage of this unit, which was renamed Oahu 25—*Vigna o-wahuensis*—c.

Oahu U

This unit was proposed as critical habitat for three species: *Chamaesyce kuwaleana, Sesbania tomentosa,* and *Vigna o-wahuense.* We excluded the proposed critical habitat for *Sesbania tomentosa,* a multi-island species. This area is not essential for the conservation of this species because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *S. tomentosa,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are at least 10 other locations in its historical range on Oahu and other islands that provide habitat for this species which are either designated as critical habitat in this rule; have been designated on Kauai, Molokai, and Maui, and the Northwestern Hawaiian Islands; or have been proposed for designation on the island of Hawaii. The area designated as critical habitat for the multi-island species, *Vigna o-wahuensis,* and Oahu endemic, *Chamaesyce kuwaleana,* provides habitat within their historical ranges for one population of each. No modifications were made to the acreage of this unit, which was renamed Oahu 26—*Chamaesyce kuwaleana*—g and Oahu 26—*Vigna o-wahuensis*—d.

Oahu V

This unit was proposed as critical habitat for one species: *Sesbania tomentosa.* We excluded the proposed critical habitat for *Sesbania tomentosa,* a multi-island species. This area is not essential for the conservation of this species because it lacks one or more of the primary constituent elements, has a lower proportion of associated native species than other areas we consider to be essential to the conservation of *S. tomentosa,* and is less likely to contain the primary constituent elements long-term because it is not currently managed for conservation of this species. In addition, there are at least 10 other locations in its historical range on Oahu and other islands that provide habitat for this species which are either designated as critical habitat in this rule; have been designated on Kauai, Molokai, and Maui, and the Northwestern Hawaiian Islands; or have been proposed for designation on the island of Hawaii. Exclusion of this unit from critical habitat for *Sesbania tomentosa* resulted in the removal of this entire unit (4 ha (10 ac)) from the final designation.

Oahu W

This unit was proposed as critical habitat for three species: *Centaurium sebaeoides, Cyperus trachysanthos,* and *Marsilea villosa.* Modifications were made to this unit to exclude areas that do not contain the primary constituent elements essential to the conservation of *Centaurium sebaeoides,* a multi-island species. The area designated as critical habitat for the three multi-island species, *Centaurium sebaeoides, Cyperus trachysanthos,* and *Marsilea villosa,* provides habitat within their historical ranges for one population of each. Modifications to this unit resulted in the reduction from 340 ha (840 ac) to 43 ha (106 ac). This unit was renamed Oahu 27—*Centaurium sebaeoides*—b, Oahu 28—*Cyperus trachysanthos*—b, Oahu 29—*Cyperus trachysnthos*—c, Oahu 28—*Marsilea villosa*—c, and Oahu 29—*Marsilea villosa*—d.

Oahu X1

This unit was proposed as critical habitat for two multi-island species: *Gouania meyenii* and *Spermolepis hawaiiensis.* Modifications were made to this unit to exclude areas that do not contain the primary constituent elements essential to the conservation of *Gouania meyenii* and *Spermolepis hawaiiensis.* The area designated as critical habitat for *Gouania meyenii* and *Spermolepis hawaiiensis* provides habitat within their historical ranges for one population of each. These modifications resulted in the reduction from 117 ha (290 ac) to 116 ha (286 ac). This unit was renamed Oahu 31—*Gouania meyenii*—d and Oahu 31—*Spermolepis hawaiiensis*—b.

Oahu X2

This unit was proposed as critical habitat for two multi-island species: *Cyperus trachysanthos* and *Marsilea villosa.* Modifications were made to this unit to exclude small areas that do not contain the primary constituent elements essential to the conservation of *Cyperus trachysanthos* and *Marsilea villosa.* The area designated as critical habitat for *Cyperus trachysanthos* and *Marsilea villosa* provides habitat within their historical ranges for one population of each. This modification resulted in the reduction from 8 ha (21 ac) to 6 ha (15 ac). This unit was renamed Oahu 36—*Cyperus trachysanthos*—d and Oahu 36—*Marsilea villosa*—e.

Critical Habitat

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

Critical habitat receives protection under section 7 of the Act through the prohibition against destruction or adverse modification of critical habitat with regard to actions carried out, funded, or authorized by a Federal agency. Section 7 also requires conferences on Federal actions that are likely to result in the destruction or adverse modification of proposed critical habitat. In our regulations at 50 CFR 402.02, we define destruction or adverse modification as ''* * * a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.'' The relationship between a species' survival and its recovery has been a source of confusion for some in the past. We believe that a species' ability to recover depends on its ability to survive into the future when its recovery can be achieved; thus, the concepts of long-term survival and recovery are intricately linked. However, in the March 15, 2001, decision of the United States Court of Appeals for the Fifth Circuit (*Sierra Club* v. *Fish and Wildlife Service et al.,* 245 F.3d 434) regarding a not prudent finding, the court found our definition of destruction or adverse modification as currently contained in 50 CFR 402.02 to be invalid. In response to this decision, we are reviewing the regulatory definition of adverse modification in relation to the conservation of species.

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

Section 4 requires that we designate critical habitat for a species, to the extent such habitat is determinable, at the time of listing. When we designate critical habitat at the time of listing or under short court-ordered deadlines, we may not have sufficient information to identify all the areas essential for the conservation of the species, or we may inadvertently include areas that later will be shown to be nonessential. Nevertheless, we are required to designate those areas we know to be critical habitat, using the best information available to us.

Within the geographic areas occupied by the species, we will designate only areas that have features and habitat characteristics that are necessary to sustain the species. If the information available at the time of designation does not show that an area provides essential life cycle needs of the species, then the area should not be included in the critical habitat designation.

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

Our Policy on Information Standards Under the Endangered Species Act, published in the **Federal Register** on July 1, 1994 (59 FR 34271), provides criteria, establishes procedures, and provides guidance to ensure that our decisions represent the best scientific and commercial data available. It requires our biologists, to the extent consistent with the Act and with the use of the best scientific and commercial data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat. When determining which areas are critical habitat, a primary source of information should be the listing package for the species. Additional information may be obtained from recovery plans, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, and biological assessments or other unpublished materials.

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

A. Prudency

Designation of critical habitat is not prudent when one or both of the following situations exist: (i) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of such threat to the species; or (ii) such designation of critical habitat would not be beneficial to the species (50 CFR 424.12(a)(1)).

To determine whether critical habitat would be prudent for each species, we analyzed the potential threats and benefits for each species in accordance with the court's order. One species, *Cyrtandra crenata,* a Oahu endemic species, is no longer extant in the wild. *Cyrtandra crenata* was last seen in the wild in 1947 (HINHP Database 2001). In addition, this species is not known to be in storage or under propagation. Under these circumstances, we have determined that designation of critical habitat for *Cyrtandra crenata* is not prudent because such designation would be of no benefit to this species. If this species is relocated, we may revise this final determination to incorporate or address new information

as it becomes available (*See* 16 U.S.C. 1532(5)(B); 50 CFR 424.13(f)).

Due to low numbers of individuals and/or populations and their inherent immobility, the other 100 plant species could be vulnerable to unrestricted collection, vandalism, or disturbance. We examined the evidence currently available for each of these species and found specific evidence of vandalism, disturbance, and/or the threat of unrestricted collection for one species of *Pritchardia,* the native palm. At the time of listing, we determined that designation of critical habitat was not prudent for *Pritchardia kaalae* because it would increase the degree of threat from vandalism or collecting and would provide no benefit (61 FR 53108). Since then, we have received information on the commercial trade in palms conducted through the Internet (Grant Canterbury, Service, *in litt.* 2000). Several nurseries advertise and sell seedlings and young plants, including 13 species of Hawaiian *Pritchardia.* Seven of these species are federally protected, including *Pritchardia kaalae.* In light of this information, we believe that designation of critical habitat would likely increase the threat from vandalism or collection to this species of *Pritchardia* on Oahu. These plants are easy to identify, and they are attractive to collectors of rare palms, either for their personal use or to trade or sell for personal gain (Johnson 1996). We believe that the evidence shows that *Pritchardia kaalae* may be attractive to such collectors. The final listing rule for this species contained only general information on its distribution, but the publication of precise maps and descriptions of critical habitat in the **Federal Register** would make *Pritchardia kaalae* more vulnerable to incidents of vandalism or collection and, therefore, contribute to its decline and make recovery more difficult (61 FR 53089).

For *Pritchardia kaalae,* we believe that the benefits of designating critical habitat do not outweigh the potential increased threats from vandalism or collection. Given all of the above considerations, we determine that designation of critical habitat for *Pritchardia kaalae* is not prudent.

In the final rule designating critical habitat for plants on Lanai, published on January 9, 2003 (68 FR 1220), we explained why we believe that critical habitat was prudent for the following 17 multi-island species that also occur on Oahu: *Adenophorus periens, Bonamia menziesii, Cenchrus agrimonioides, Centaurium sebaeoides, Ctenitis squamigera, Cyanea grimesiana* ssp. *grimesiana, Cyperus trachysanthos, Diellia erecta, Diplazium molokaiense, Hesperomannia arborescens, Hibiscus brackenridgei, Isodendrion pyrifolium, Sesbania tomentosa, Silene lanceolata, Spermolepis hawaiiensis, Tetramolopium lepidotum* ssp. *lepidotum,* and *Vigna o-wahuensis.* In the final rule designating critical habitat for plants on Kauai and Niihau, published on February 27, 2003 (68 FR 9116), we explained why that critical habitat was prudent for the following 16 multi-island species that are also found on Oahu: *Alectryon macrococcus, Euphorbia haeleeleana, Flueggea neowawraea, Gouania meyenii, Isodendrion laurifolium, Isodendrion longifolium, Lobelia niihauensis, Lysimachia filifolia, Mariscus pennatiformis, Melicope pallida, Peucedanum sandwicense, Phlegmariurus nutans, Plantago princeps, Platanthera holochila, Schiedea nuttallii,* and *Solanum sandwicense.* In the final rule designating critical habitat for plants on Molokai, published on March 19, 2003 (68 FR 12982), we indicated why that critical habitat was prudent for the following four multi-island species that are also found on Oahu: *Eugenia koolauensis, Marsilea villosa, Phyllostegia mollis,* and *Pteris lidgatei.* In the final rule designating critical habitat for plants on Maui and Kahoolawe, published on May 14, 2003 (68 FR 25934) we indicated why we believe that critical habitat was prudent for the following eight multi-island species that are also found on Oahu: *Colubrina oppositifolia, Gouania vitifolia, Hedyotis coriacea, Hesperomannia arbuscula, Nototrichium humile, Phyllostegia parviflora, Sanicula purpurea,* and *Schiedea hookeri.*

We examined the potential threats and benefits for the other 54 taxa and have not, at this time, found specific evidence of taking, vandalism, collection, or trade of these taxa or of similarly situated species. Consequently, while we remain concerned that these activities could potentially threaten these 54 plant species in the future, consistent with applicable regulations (50 CFR 424.12(a)(1)(i)) and the court's discussion of these regulations, we do not find that any of these species are currently threatened by taking or other human activity. None of these threats would be exacerbated by the designation of critical habitat.

In the absence of finding that critical habitat would increase threats to a species, if there are any benefits to critical habitat designation, then a prudent finding is warranted. The potential benefits of designation of critical habitat for these 54 species include: (1) Triggering section 7 consultation in new areas where it would not otherwise occur because, for example, it is or has become unoccupied or the occupancy is in question; (2) focusing conservation activities on the most essential areas; (3) providing educational benefits to State or county governments or private entities; and 4) preventing people from causing inadvertent harm to the species.

In the case of these 54 species, there would be some benefits to critical habitat. The primary regulatory effect of critical habitat is the section 7 requirement that Federal agencies refrain from taking any action that is likely to destroy or adversely affect critical habitat. Thirty-seven of these species are reported on or near Federal lands (see Table 1), where actions are subject to section 7 consultation. Although a majority of the species considered in this rule are located exclusively on non-Federal lands with limited Federal activities, there could be Federal actions affecting these lands in the future. While a critical habitat designation for habitat currently occupied by these species would not likely change the section 7 consultation outcome, since an action that destroys or adversely modifies such critical habitat would also be likely to result in jeopardy to the species, there may be instances where section 7 consultation would be triggered only if critical habitat were designated. There would also be some educational or informational benefits to the designation of critical habitat. Benefits of designation would include the notification of land owners, land managers, and the general public of the importance of protecting the habitat of these species and dissemination of information regarding their essential habitat requirements.

Therefore, designation of critical habitat is prudent for these 54 plant species: *Abutilon sandwicense, Alsinidendron obovatum, Alsinidendron trinerve, Chamaesyce celastroides* var. *kaenana, Chamaesyce deppeana, Chamaesyce herbstii, Chamaesyce kuwaleana, Chamaesyce rockii, Cyanea acuminata, Cyanea crispa, Cyanea grimesiana* ssp. *obatae, Cyanea humboltiana, Cyanea koolauensis, Cyanea longiflora, Cyanea pinnatifida, Cyanea st.-johnii, Cyanea superba, Cyanea truncata, Cyrtandra dentata, Cyrtandra polyantha, Cyrtandra subumbellata, Cyrtandra viridiflora, Delissea subcordata, Diellia falcata, Diellia unisora, Dubautia herbstobatae, Eragrostis fosbergii,*

Gardenia mannii, Hedyotis degeneri, Hedyotis parvula, Labordia cyrtandrae, Lepidium arbuscula, Lipochaeta lobata var. *leptophylla, Lipochaeta tenuifolia, Lobelia gaudichaudii* ssp. *koolauensis, Lobelia monostachya, Lobelia oahuensis, Melicope lydgatei, Melicope saint-johnii, Myrsine juddii, Neraudia angulata, Phyllostegia hirsuta, Phyllostegia kaalaensis, Sanicula mariversa, Schiedea kaalae, Schiedea kealiae, Silene perlmanii, Stenogyne kanehoana, Tetramolopium filiforme, Tetraplasandra gymnocarpa, Trematolobelia singularis, Urera kaalae, Viola chamissoniana* ssp. *chamissoniana,* and *Viola oahuensis* because the potential benefits of critical habitat designation outweigh the potential threats.

B. Methods

As required by the Act and regulations (section 4(b)(2) and 50 CFR 424.12), we used the best scientific information available to determine areas that contain the physical and biological features that are essential for the conservation of *Abutilon sandwicense, Adenophorus periens, Alectryon macrococcus, Alsinidendron obovatum, Alsinidendron trinerve, Bonamia menziesii, Cenchrus agrimonioides, Centaurium sebaeoides, Chamaesyce celastroides* var. *kaenana, Chamaesyce deppeana, Chamaesyce herbstii, Chamaesyce kuwaleana, Chamaesyce rockii, Colubrina oppositifolia, Ctenitis squamigera, Cyanea acuminata, Cyanea crispa, Cyanea grimesiana* ssp. *grimesiana, Cyanea grimesiana* ssp. *obatae, Cyanea humboltiana, Cyanea koolauensis, Cyanea longiflora, Cyanea pinnatifida, Cyanea st.-johnii, Cyanea superba, Cyanea truncata, Cyperus trachysanthos, Cyrtandra dentata, Cyrtandra polyantha, Cyrtandra subumbellata, Cyrtandra viridiflora, Delissea subcordata, Diellia erecta, Diellia falcata, Diellia unisora, Diplazium molokaiense, Dubautia herbstobatae, Eragrostis fosbergii, Eugenia koolauensis, Euphorbia haeleeleana, Flueggea neowawraea, Gardenia mannii, Gouania meyenii, Gouania vitifolia, Hedyotis coriacea, Hedyotis degeneri, Hedyotis parvula, Hesperomannia arborescens, Hesperomannia arbuscula, Hibiscus brackenridgei, Isodendrion laurifolium, Isodendrion longifolium, Isodendrion pyrifolium, Labordia cyrtandrae, Lepidium arbuscula, Lipochaeta lobata* var. *leptophylla, Lipochaeta tenuifolia, Lobelia gaudichaudii* ssp. *koolauensis, Lobelia monostachya, Lobelia niihauensis, Lobelia oahuensis, Lysimachia filifolia, Mariscus pennatiformis, Marsilea villosa, Melicope lydgatei, Melicope pallida, Melicope saint-johnii, Myrsine juddii, Neraudia angulata, Nototrichium humile, Peucedanum sandwicense, Phlegmariurus nutans, Phyllostegia hirsuta, Phyllostegia kaalaensis, Phyllostegia mollis, Phyllostegia parviflora, Plantago princeps, Platanthera holochila, Pteris lidgatei, Sanicula mariversa, Sanicula purpurea, Schiedea hookeri, Schiedea kaalae, Schiedea kealiae, Schiedea nuttallii, Sesbania tomentosa, Silene lanceolata, Silene perlmanii, Solanum sandwicense, Spermolepis hawaiiensis, Stenogyne kanehoana, Tetramolopium filiforme, Tetramolopium lepidotum* ssp. *lepidotum, Tetraplasandra gymnocarpa, Trematolobelia singularis, Urera kaalae, Vigna o-wahuensis, Viola chamissoniana* ssp. *chamissoniana,* and *Viola oahuensis.* This information included the known locations; site-specific species information from the HINHP database and our own rare plant database; species information from the Center for Plant Conservation's (CPC's) rare plant monitoring database housed at the University of Hawaii's Lyon Arboretum; island-wide Geographic Information System (GIS) coverages (*e.g.*, vegetation, soils, annual rainfall, elevation contours, landownership); the final listing rules for these 99 species; the May 28, 2002, proposal; information received during the public comment periods and public hearings; recent biological surveys and reports; our recovery plans for these species; discussions with botanical experts; and recommendations from the Hawaii and Pacific Plant Recovery Coordinating Committee (HPPRCC) (*see* also the discussion below) (CPC *in litt.* 1999; GDSI 2000; HINHP Database 2000; HPPRCC 1998; Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997, 1998a, 1998b, 1999; 67 FR 37108).

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

The HPPRCC identified essential habitat areas for all listed, proposed, and candidate plants and evaluated species of concern to determine if essential habitat areas would provide for their habitat needs. However, the HPPRCC's mapping of habitat is distinct from the regulatory designation of critical habitat as defined by the Act. More data have been collected since the recommendations made by the HPPRCC in 1998. Much of the area that was identified by the HPPRCC as inadequately surveyed has now been surveyed to some degree. New location data for many species have been gathered. Also, the HPPRCC identified areas as essential based on species clusters (areas that included listed species as well as candidate species and species of concern), while we have only delineated areas that are essential for the conservation of the 99 listed species at issue. As a result, the critical habitat designations in this rule include not only some habitat that was identified as essential in the 1998 recommendations but also habitat that was not identified as essential in those recommendations.

C. Primary Constituent Elements

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

Much of what is known about the specific physical and biological requirements of *Abutilon sandwicense, Adenophorus periens, Alectryon macrococcus, Alsinidendron obovatum, Alsinidendron trinerve, Bonamia menziesii, Cenchrus agrimonioides, Centaurium sebaeoides, Chamaesyce celastroides* var. *kaenana, Chamaesyce deppeana, Chamaesyce herbstii, Chamaesyce kuwaleana, Chamaesyce rockii, Colubrina oppositifolia, Ctenitis squamigera, Cyanea acuminata, Cyanea crispa, Cyanea grimesiana* ssp. *grimesiana, Cyanea grimesiana* ssp. *obatae, Cyanea humboltiana, Cyanea koolauensis, Cyanea longiflora, Cyanea pinnatifida, Cyanea st.-johnii, Cyanea*

superba, Cyanea truncata, Cyperus trachysanthos, Cyrtandra dentata, Cyrtandra polyantha, Cyrtandra subumbellata, Cyrtandra viridiflora, Delissea subcordata, Diellia erecta, Diellia falcata, Diellia unisora, Diplazium molokaiense, Dubautia herbstobatae, Eragrostis fosbergii, Eugenia koolauensis, Euphorbia haeleeleana, Flueggea neowawraea, Gardenia mannii, Gouania meyenii, Gouania vitifolia, Hedyotis coriacea, Hedyotis degeneri, Hedyotis parvula, Hesperomannia arborescens, Hesperomannia arbuscula, Hibiscus brackenridgei, Isodendrion laurifolium, Isodendrion longifolium, Isodendrion pyrifolium, Labordia cyrtandrae, Lepidium arbuscula, Lipochaeta lobata var. *leptophylla, Lipochaeta tenuifolia, Lobelia gaudichaudii* ssp. *koolauensis, Lobelia monostachya, Lobelia niihauensis, Lobelia oahuensis, Lysimachia filifolia, Mariscus pennatiformis, Marsilea villosa, Melicope lydgatei, Melicope pallida, Melicope saint-johnii, Myrsine juddii, Neraudia angulata, Nototrichium humile, Peucedanum sandwicense, Phlegmariurus nutans, Phyllostegia hirsuta, Phyllostegia kaalaensis, Phyllostegia mollis, Phyllostegia parviflora, Plantago princeps, Platanthera holochila, Pteris lidgatei, Sanicula mariversa, Sanicula purpurea, Schiedea hookeri, Schiedea kaalae, Schiedea kealiae, Schiedea nuttallii, Sesbania tomentosa, Silene lanceolata, Silene perlmanii, Solanum sandwicense, Spermolepis hawaiiensis, Stenogyne kanehoana, Tetramolopium filiforme, Tetramolopium lepidotum* ssp. *lepidotum, Tetraplasandra gymnocarpa, Trematolobelia singularis, Urera kaalae, Vigna o-wahuensis, Viola chamissoniana* ssp. *chamissoniana,* and *Viola oahuensis* is described in the ''*Background*'' section of this final rule.

All areas designated as critical habitat are within the historical range of the 99 species at issue and contain one or more of the physical or biological features (primary constituent elements) essential for the conservation of the species.

As described in the discussions for each of the 99 species for which we are designating critical habitat, we are defining the primary constituent elements on the basis of the habitat features of the areas from which the plant species are reported, as described by the type of plant community (*e.g.*, *mesic Metrosideros polymorpha* forest), associated native plant species, locale information (*e.g.*, steep rocky cliffs, talus slopes, gulches, stream banks), and elevation. The habitat features provide the ecological components required by the plant. The type of plant community and associated native plant species indicate specific microclimate (localized climatic) conditions, retention and availability of water in the soil, soil microorganism community, and nutrient cycling and availability. The locale indicates information on soil type, elevation, rainfall regime, and temperature. Elevation indicates information on daily and seasonal temperature and sun intensity. Therefore, the descriptions of the physical elements of the locations of each of these species, including habitat type, plant communities associated with the species, location, and elevation, as described in the ''**SUPPLEMENTARY INFORMATION:** *Discussion of the Plant Taxa*'' section above, constitute the primary constituent elements for these species on the island of Oahu.

D. Criteria Used To Identify Critical Habitat

The lack of detailed scientific data on the life history of these plant species makes it impossible for us to develop a robust quantitative model (*e.g.*, population viability analysis (National Research Council 1995)) to identify the optimal number, size, and location of critical habitat units to achieve recovery (Beissinger and Westphal 1998; Burgman *et al.* 2001; Ginzburg *et al.* 1990; Karieva and Wennergren 1995; Menges 1990; Murphy *et al.* 1990; Taylor 1995). However, based on the best information available at this time, including information on which the listing of and recovery plans for these species were based, we have concluded that the current size and distribution of the extant populations are not sufficient to expect a reasonable probability of long-term survival and recovery of these plant species.

For each of these species, the overall recovery strategy outlined in the approved recovery plans includes: (1) Stabilization of existing wild populations, (2) protection and management of habitat, (3) enhancement of existing small populations and reestablishment of new populations within historic range, and (4) research on species biology and ecology (Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997, 1998a, 1998b, 1999). Thus, the long-term recovery of these species is dependent upon the protection of existing population sites and suitable unoccupied habitat within their historic range.

The overall recovery goal stated in the recovery plans for each of these species includes the establishment of 8 to 10 populations with a minimum of 100 mature, reproducing individuals per population for long-lived perennials; 300 mature, reproducing individuals per population for short-lived perennials; and 500 mature, reproducing individuals per population for the annual. (Please note that 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.) To be considered recovered, the populations of a multi-island species should be distributed among the islands of its known historic range (Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997, 1998a, 1998b, 1999). A population, for the purposes of this discussion and as defined in the recovery plans for these species, is a unit in which the individuals could be regularly cross-pollinated and influenced by the same small-scale events (such as landslides), and which contains a minimum of 100, 300, or 500 mature, reproducing individuals, depending on whether the species is a long-lived perennial, short-lived perennial, or annual.

Marsilea villosa, a short-lived perennial aquatic fern, was historically known from six populations on three different islands, Molokai, Oahu, and Niihau. This species is now extant only on Oahu and Molokai. Delisting objectives for this species include protection and stabilization of at least six (rather than 8 to 10) geographically distinct, self-sustaining populations (either three on Oahu and three on Molokai or three on Oahu, two on Molokai, and one on Niihau), stable or increasing population sizes, no active management needed, and self-maintenance of each population through two successive floods resulting in sexual reproduction. Delisting objectives for *Marsilea villosa* do not include a specific number of mature individuals per population because of its clonal nature, as it is extremely difficult to distinguish between individuals in clonal plant species (Service 1996a).

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

literature addressing the conservation of rare and endangered plants and animals (Beissinger and Westphal 1998; Burgman *et al.* 2001; Falk *et al.*1996; Ginzburg *et al.* 1990; Hendrix and Kyhl 2000; Karieva and Wennergren 1995; Luijten *et al.* 2000; Meffe and Carroll 1996; Menges 1990; Murphy *et al.*1990; Podolsky 2001; Quintana-Ascencio and Menges 1996; Taylor 1995; Tear *et al.* 1995; Wolf and Harrison 2001). The overall goal of recovery in the short-term is a successful population that can carry on basic life history processes, such as establishment, reproduction, and dispersal, at a level where the probability of extinction is low. In the long-term, the species and its populations should be at a reduced risk of extinction and be adaptable to environmental change through evolution and migration.

Many aspects of a species' life history are typically considered to determine guidelines for its interim stability and recovery, including longevity, breeding system, growth form, fecundity, ramet (a plant that is an independent member of a clone) production, survivorship, seed longevity, environmental variation, and successional stage of the habitat. Hawaiian species are poorly studied, and the only one of these characteristics that can be uniformly applied to all Hawaiian plant species is longevity (*i.e.*, long-lived perennial, short-lived perennial, and annual). In general, long-lived woody perennial species would be expected to be viable at population levels of 50 to 250 individuals per population, while short-lived perennial species would be viable at population levels of 1,500 to 2,500 individuals or more per population. These population numbers were refined for Hawaiian plant species by the HPPRCC (1994) due to the restricted distribution of suitable habitat typical of Hawaiian plants and the likelihood of smaller genetic diversity of several species that evolved from a single introduction. For recovery of Hawaiian plants, the HPPRCC recommended a general recovery guideline of 100 mature, reproducing individuals per population for long-lived perennial species; 300 mature, reproducing individuals per population for short-lived perennial species; and 500 mature, reproducing individuals per population for annual species.

The HPPRCC also recommended the conservation and establishment of 8 to 10 populations to address the numerous risks to the long-term survival and conservation of Hawaiian plant species. Although absent the detailed information inherent to the types of population viability analysis models described above (Burgman *et al.* 2001), this approach employs two widely recognized and scientifically accepted goals for promoting viable populations of listed species—(1) creation or maintenance of multiple populations so that a single or series of catastrophic events cannot destroy the entire listed species (Luijten *et al.* 2000; Menges 1990; Quintana-Ascencio and Menges 1996); and (2) increasing the size of each population in the respective critical habitat units to a level where the threats of genetic, demographic, and normal environmental uncertainties are diminished (Hendrix and Kyhl 2000; Luijten *et al.* 2000; Meffe and Carroll 1996; Podolsky 2001; Service 1997; Tear *et al.* 1995; Wolf and Harrison 2001). In general, the larger the number of populations and the larger the size of each population, the lower the probability of extinction (Meffe and Carroll 1996; Raup 1991). This basic conservation principle of redundancy applies to Hawaiian plant species. By maintaining 8 to 10 viable populations in several critical habitat units, the threats represented by a fluctuating environment are alleviated and the species has a greater likelihood of achieving long-term survival and recovery. Conversely, loss of one or more of the plant populations within any critical habitat unit could result in an increase in the risk that the entire listed species may not survive and recover.

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

In summary, the long-term survival and conservation of Hawaiian plant species requires the designation of critical habitat units on one or more of the Hawaiian islands with suitable habitat for 8 to 10 populations of each plant species. Some of this habitat is currently not known to be occupied by these species. To recover the species, it is essential to conserve suitable habitat in these unoccupied units, which in turn will allow for the establishment of additional populations through natural recruitment or managed reintroductions. Establishment of these additional populations will increase the likelihood that the species will survive and recover in the face of normal and stochastic events (*e.g.*, hurricanes, fire, and nonnative species introductions) (Mangel and Tier 1994; Pimm *et al.* 1998; Stacey and Taper 1992).

In this rule, we have defined the primary constituent elements based on the general habitat features of the areas from which the plants are reported, such as the type of plant community, the associated native plant species, the physical location (*e.g.*, steep rocky cliffs, talus slopes, stream banks), and elevation. The areas we are designating as critical habitat provide some or all of the habitat components essential for the conservation of the 99 plant species as discussed in the individual unit descriptions.

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

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

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

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

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

We then evaluated the resulting shape files (delineating historic elevational range and potentially suitable habitat). We refined elevation ranges, and we

avoided areas identified as not suitable for a particular species (*i.e.*, not containing the primary constituent elements). We then considered the resulting shape files for each species to define all suitable habitat on the island, including occupied and unoccupied habitat.

We further evaluated these shape files of suitable habitat. We used several factors to delineate the proposed critical habitat units from these land areas. We reviewed the recovery objectives, as described above and in recovery plans for each of the species, to determine if the number of populations and population size requirements needed for conservation would be available within the suitable habitat units identified as containing the appropriate primary constituent elements for each species. If more than the area needed for the number of recovery populations was identified as potentially suitable, only those areas within the least disturbed suitable habitat were included as proposed critical habitat. A population for this purpose is defined as a discrete aggregation of individuals located a sufficient distance from a neighboring aggregation such that the two are not affected by the same small-scale events and are not believed to be consistently cross-pollinated. In the absence of more specific information indicating the appropriate distance to assure limited cross-pollination, we are using a distance of 1,000 m (3,280 ft) based on our review of current literature on gene flow (Barret and Kohn 1991; Fenster and Dudash 1994; Havens 1998; Schierup and Christiansen 1996). We further refined the resulting critical habitat units by using satellite imagery and parcel data to eliminate areas that did not contain the appropriate vegetation or associated native plant species, as well as features such as cultivated agriculture fields, housing developments, and other areas that are unlikely to contribute to the conservation of one or more of the 99 plant species for which critical habitat was proposed on May 28, 2002. We used geographic features (ridge lines, valleys, streams, coastlines, etc.) or manmade features (roads or obvious land use) that created an obvious boundary for a unit as unit area boundaries.

Following publication of the proposed critical habitat rules, some of which were revised, for 255 Hawaiian plants (67 FR 3940, 67 FR 9806, 67 FR 15856, 67 FR 16492, 67 FR 34522, 67 FR 36968, 67 FR 37108), we reevaluated proposed critical habitat. State-wide, for each species using the applicable recovery guidelines (generally 8 to 10 populations with a minimum of 100 mature, reproducing individuals per population for long-lived perennial species; 300 mature, reproducing individuals per population for short-lived perennial species; and 500 mature, reproducing individuals per population for annual species) to determine if we had inadvertently proposed for designation too much or too little habitat to meet the essential recovery goals (HINHP Database 2000, 2001; Wagner *et al.* 1990, 1999).

Based on comments and information we received during the comment periods, we assessed the proposed critical habitat in order to ascertain which areas contained the highest quality habitat, had the highest likelihood of species conservation, were geographically distributed within the species' historical range, and were located a sufficient distance from each other such that populations of a single species are unlikely to be impacted by a single catastrophic event. We ranked areas of the proposed critical habitat by the quality of the primary constituent elements (*e.g.*, intact native plant communities, predominance of associated native plants versus nonnative plants), potential as a conservation area (*e.g.*, whether the land is zoned for conservation or whether the landowner is already participating in plant conservation actions), and current or expected management of known threats (*e.g.*, ungulate control; weed control; nonnative insect, slug, and snail control). Of these most essential areas, we selected adequate area to provide for 8 to 10 populations distributed among the islands of each species' historical range.

Areas that contain high quality primary constituent elements and conservation potential (*e.g.*, are zoned for conservation and have ongoing or expected threat abatement actions) were ranked the most essential. This ranking process also included determining which habitats were representative of the historic geographical and ecological distributions of the species (see ''Primary Constituent Elements''). Of the proposed critical habitat for a species, areas that were not ranked most essential and that may provide habitat for populations above the recovery goal of 8 to 10 populations were determined not essential for the conservation of the species and were excluded from the final designation. Areas that were excluded because the benefits of exclusion outweigh the benefits of inclusion under 4(b)(2) of the Act are included in the total count of habitat for 8 to 10 populations.

In selecting areas of designated critical habitat, we made an effort to avoid developed areas, such as towns and other similar lands, that are unlikely to contribute to the conservation of the 99 species. However, the minimum mapping unit that we used to approximate our delineation of critical habitat for these species did not allow us to exclude all such developed areas from the maps. Existing manmade features and structures within the boundaries of the mapped areas, 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 overlooks; 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; lawns and other rural residential landscaped areas do not contain one or more of the primary constituent elements and are therefore excluded from critical habitat designation under the terms of this regulation. Federal actions limited to those areas would not trigger a section 7 consultation unless they affect the species or primary constituent elements in adjacent critical habitat.

In summary, for these species, we utilized the approved recovery plan guidance to identify appropriately sized land units containing essential occupied and unoccupied habitat. Based on the best available information, we believe these areas constitute the essential habitat on Oahu to provide for the recovery of these 99 species.

The critical habitat areas described below constitute our best assessment of the physical and biological features needed for the conservation and special management needs of the 99 plant species, and are based on the best scientific and commercial information available (as described above). We publish this final rule acknowledging that we have incomplete information regarding many of the primary biological and physical requirements for these species. However, both the Act and the relevant court orders require us

to proceed with designation at this time based on the best information available. As new information accrues, we may consider reevaluating the boundaries of areas that warrant critical habitat designation.

Descriptions of Critical Habitat Units

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

TABLE 3.—APPROXIMATE CRITICAL HABITAT DESIGNATED AREA BY UNIT AND LANDOWNERSHIP OR JURISDICTION, OAHU, CITY AND COUNTY OF HONOLULU, HAWAII [1]

Unit name	State/local	Private	Federal	Total
Oahu 4—*Abutilon sandwicense*—a	453 ha (1,120 ac)	151 ha (372 ac)		604 ha (1,492 ac)
Oahu 4—*Abutilon sandwicense*—b	26 ha (65 ac)			26 ha (65 ac)
Oahu 4—*Abutilon sandwicense*—c	41 ha (102 ac)			41 ha (102 ac)
Oahu 15—*Abutilon sandwicense*—d			49 ha (121 ac)	49 ha (121 ac)
Oahu 15—*Abutilon sandwicense*—e	1 ha (2 ac)		32 ha (80 ac)	33 ha (81 ac)
Oahu 17—*Abutilon sandwicense*—f	30 ha (74 ac)			30 ha (74 ac)
Oahu 20—*Adenophorus periens*—a	606 ha (1,500 ac)	105 ha (259 ac)		711 ha (1,759 ac)
Oahu 4—*Alectryon macrococcus*—a	23 ha (58 ac)			23 ha (58 ac)
Oahu 15—*Alectryon macrococcus*—b		112 ha (278 ac)		112 ha (278 ac)
Oahu 4—*Alsinidendron obovatum*—a	176 ha (436 ac)			176 ha (436 ac)
Oahu 4—*Alsinidendron obovatum*—b	25 ha (62 ac)			25 ha (62 ac)
Oahu 15—*Alsinidendron obovatum*—c	1 ha (2 ac)	31 ha (75 ac)		32 ha (76 ac)
Oahu 4—*Alsinidendron trinerve*—a	60 ha (149 ac)			60 ha (149 ac)
Oahu 2—*Bonamia menziesii*—a	21 ha (51 ac)			21 ha (51 ac)
Oahu 3—*Bonamia menziesii*—b	42 ha (104 ac)			42 ha (104 ac)
Oahu 4—*Bonamia menziesii*—c	3 ha (8 ac)	91 ha (225 ac)		94 ha (233 ac)
Oahu 17—*Bonamia menziesii*—d	77 ha (191 ac)			77 ha (191 ac)
Oahu 35—*Bonamia menziesii*—e	121 ha (300 ac)	253 ha (624 ac)		374 ha (924 ac)
Oahu 4—*Cenchrus agrimonioides*—a	529 ha (1,306 ac)			529 ha (1,306 ac)
Oahu 4—*Cenchrus agrimonioides*—b	40 ha (99 ac)			40 ha (99 ac)
Oahu 15—*Cenchrus agrimonioides*—c		200 ha (495 ac)		200 ha (495 ac)
Oahu 15—*Cenchrus agrimonioides*—d		117 ha (290 ac)		117 ha (290 ac)
Oahu 1—*Centaurium sebaeoides*—a	61 ha (149 ac)	<1 ha (<1 ac)	<1 ha (<1 ac)	61 ha (149 ac)
Oahu 27—*Centaurium sebaeoides*—b	30 ha (74 ac)			30 ha (74 ac)
Oahu 1—*Chamaesyce celastroides* var. *kaenana*—a.	233 ha (571 ac)			233 ha (571 ac)
Oahu 3—*Chamaesyce celastroides* var. *kaenana*—b.	4 ha (11 ac)			4 ha (11 ac)
Oahu 4—*Chamaesyce celastroides* var. *kaenana*—c.	43 ha (107 ac)			43 ha (107 ac)
Oahu 5—*Chamaesyce celastroides* var. *kaenana*—d.	32 ha (80 ac)	4 ha (9 ac)		36 ha (89 ac)
Oahu 35—*Chamaesyce celastroides* var. *kaenana*—e.	1 ha (2 ac)	237 ha (585 ac)		238 ha (587 ac)
Oahu 20—*Chamaesyce deppeana*—a	3 ha (8 ac)	14 ha (33 ac)		17 ha (41 ac)
Oahu 35—*Chamaesyce deppeana*—b	16 ha (40 ac)	2 ha (6 ac)		18 ha (46 ac)
Oahu 4—*Chamaesyce herbstii*—a	429 ha (1,059 ac)			429 ha (1,059 ac)
Oahu 15—*Chamaesyce herbstii*—b		47 ha (116 ac)		47 ha (116 ac)
Oahu 15—*Chamaesyce herbstii*—c		21 ha (53 ac)		21 ha (53 ac)
Oahu 9—*Chamaesyce kuwaleana*—a			27 ha (68 ac)	27 ha (68 ac)
Oahu 11—*Chamaesyce kuwaleana*—b	19 ha (47 ac)		34 ha (83 ac)	53 ha (130 ac)
Oahu 12—*Chamaesyce kuwaleana*—c	37 ha (92 ac)			37 ha (92 ac)
Oahu 15—*Chamaesyce kuwaleana*—d	117 ha (288 ac)	67 ha (166 ac)		184 ha (454 ac)
Oahu 22—*Chamaesyce kuwaleana*—e	1 ha (3 ac)			1 ha (3 ac)
Oahu 23—*Chamaesyce kuwaleana*—f	6 ha (15 ac)			6 ha (15 ac)
Oahu 26—*Chamaesyce kuwaleana*—g	26 ha (63 ac)			26 ha (63 ac)
Oahu 20—*Chamaesyce rockii*—a	612 ha (1,512 ac)	214 ha (527 ac)		826 ha (2,039 ac)
Oahu 20—*Chamaesyce rockii*—b	8 ha (20 ac)	25 ha (63 ac)	164 ha (405 ac)	197 ha (488 ac)
Oahu 20—*Chamaesyce rockii*—c	85 ha (210 ac)	173 ha (429 ac)		258 ha (639 ac)
Oahu 4—*Colubrina oppositifolia*—a	766 ha (1,894 ac)	16 ha (41 ac)		782 ha (1,935 ac)
Oahu 4—*Ctenitis squamigera*—a	120 ha (297 ac)			120 ha (297 ac)
Oahu 4—*Cyanea acuminata*—a	82 ha (205 ac)			82 ha (205 ac)
Oahu 20—*Cyanea acuminata*—b	916 ha (2,260 ac)	1,022 ha (2,525 ac)	585 ha (1,446 ac)	2,522 ha (6,231 ac)
Oahu 20—*Cyanea crispa*—a	958 ha (2,367 ac)	873 ha (2,158 ac)		1,831 ha (4,525 ac)
Oahu 20—*Cyanea crispa*—b	597 ha (1,475 ac)	3,243 ha (8,010 ha)	20 ha (49 ac)	3,860 ha (9,534c)
Oahu 21—*Cyanea crispa*—c	114 ha (282 ac)	188 ha (465 ac)		302 ha (747 ac)
Oahu 35—*Cyanea crispa*—d	1,041 ha (2,573 ac)	295 ha (728 ac)		1,336 ha (3,301 ac)
Oahu 20—*Cyanea grimesiana* ssp. *grimesiana*—a.	342 ha (845 ac)	2,292 ha (5,661 ac)		2,634 ha (6,506 ac)
Oahu 35—*Cyanea grimesiana* ssp. *grimesiana*—b.	149 ha (367 ac)	181 ha (447 ac)		330 ha (814 ac)
Oahu 4—*Cyanea grimesiana* ssp. *obatae*—a	523 ha (1,289 ac)			523 ha (1,289 ac)
Oahu 15—*Cyanea grimesiana* ssp. *obatae*—b.	1 ha (1 ac)	184 ha (454 ac)	<1 ha (<1 ac)	185 ha (455 ac)

TABLE 3.—APPROXIMATE CRITICAL HABITAT DESIGNATED AREA BY UNIT AND LANDOWNERSHIP OR JURISDICTION, OAHU, CITY AND COUNTY OF HONOLULU, HAWAII [1]—Continued

Unit name	State/local	Private	Federal	Total
Oahu 15—*Cyanea grimesiana* ssp. *obatae*—c.		34 ha (84 ac)		34 ha (84 ac)
Oahu 15—*Cyanea grimesiana* ssp. *obatae*—d.	<1 ha (1 ac)	83 ha (204 ac)		83 ha (205 ac)
Oahu 20—*Cyanea humboltiana*—a	398 ha (982 ac)	105 ha (259 ac)		503 ha (1,241 ac)
Oahu 20—*Cyanea humboltiana*—b	24 ha (61 ac)	103 ha (254 ac)		127 ha (315 ac)
Oahu 20—*Cyanea humboltiana*—c	88 ha (219 ac)	212 ha (522 ac)		300 ha (741 ac)
Oahu 20—*Cyanea humboltiana*—d	20 ha (48 ac)	137 ha (340 ac)	3 ha (5 ac)	160 ha (393 ac)
Oahu 35—*Cyanea humboltiana*—e	493 ha (1,221 ac)	45 ha (110 ac)		538 ha (1,331 ac)
Oahu 20—*Cyanea koolauensis*—a	94 ha (233 ac)	374 ha (924 ac)		468 ha (1,157 ac)
Oahu 20—*Cyanea koolauensis*—b	68 ha (170 ac)	254 ha (629 ac)		322 ha (799 ac)
Oahu 35—*Cyanea koolauensis*—c	209 ha (517 ac)			209 ha (517 ac)
Oahu 35—*Cyanea koolauensis*—d	181 ha (448 ac)	131 ha (322 ac)		312 ha (770 ac)
Oahu 4—*Cyanea longiflora*—a	362 ha (894 ac)			362 ha (894 ac)
Oahu 4—*Cyanea longiflora*—b	61 ha (150 ac)			61 ha (150 ac)
Oahu 19—*Cyanea longiflora*—c	243 ha (602 ac)	81 ha (199 ac)		324 ha (801 ac)
Oahu 15—*Cyanea pinnatifida*—a		154 ha (380 ac)		154 ha (380 ac)
Oahu 15—*Cyanea pinnatifida*—b		42 ha (104 ac)		42 ha (104 ac)
Oahu 15—*Cyanea pinnatifida*—c	<1 ha (<1 ac)	129 ha (318 ac)		129 ha (318 ac)
Oahu 20—*Cyanea st.-johnii*—a	240 ha (593 ac)	414 ha (1,023 ac)	43 ha (107 ac)	697 ha (1,723 ac)
Oahu 35—*Cyanea st.-johnii*—b	123 ha (305 ha)	12 ha (29 ac)		135 ha (334 ac)
Oahu 4—*Cyanea superba*—a	303 ha (747 ac)			303 ha (747 ac)
Oahu 4—*Cyanea superba*—b	115 ha (286 ac)			115 ha (286 ac)
Oahu 4—*Cyanea superba*—c	183 ha (453 ac)	1 ha (3 ac)		184 ha (456 ac)
Oahu 35—*Cyanea superba*—d	170 ha (420 ac)	111 ha (277 ac)		281 ha (697 ac)
Oahu 20—*Cyanea truncata*—a	900 ha (2,226 ac)	1,129 ha (2,793 ac)		2,029 ha (5,019 ac)
Oahu 21—*Cyanea truncata*—b	59 ha (146 ac)	151 ha (374 ac)		210 ha (520 ac)
Oahu 1—*Cyperus trachysanthos*—a	78 ha (194 ac)			78 ha (194 ac)
Oahu 28—*Cyperus trachysanthos*—b	8 ha (20 ac)			8 ha (20 ac)
Oahu 29—*Cyperus trachysanthos*—c	4 ha (10 ac)			4 ha (10 ac)
Oahu 36—*Cyperus trachysanthos*—d	5 ha (13 ac)			5 ha (13 ac)
Oahu 4—*Cyrtandra dentata*—a	307 ha (758 ac)			307 ha (758 ac)
Oahu 35—*Cyrtandra polyantha*—a	112 ha (277 ac)	78 ha (192 ac)		190 ha (469 ac)
Oahu 20—*Cyrtandra subumbellata*—a	589 ha (1,455 ac)	240 ha (593 ac)		829 ha (2,048 ac)
Oahu 20—*Cyrtandra subumbellata*—b			67 ha (167 ac)	67 ha (167 ac)
Oahu 20—*Cyrtandra viridiflora*—a	505 ha (1,247 ac)	206 ha (509 ac)	71 ha (176 ac)	782 ha (1,932 ac)
Oahu 4—*Delissea subcordata*—a	762 ha (1,879 ac)	2 ha (6 ac)		764 ha (1,885 ac)
Oahu 15—*Delissea subcordata*—b		220 ha (545 ac)		220 ha (545 ac)
Oahu 15—*Delissea subcordata*—c		32 ha (78 ac)		32 ha (78 ac)
Oahu 15—*Delissea subcordata*—d		81 ha (200 ac)		81 ha (200 ac)
Oahu 35—*Delissea subcordata*—e	88 ha (217 ac)	204 ha (504 ac)		292 ha (721 ac)
Oahu 35—*Delissea subcordata*—f	1 ha (3 ac)	128 ha (314 ac)		129 ha (317 ac)
Oahu 35—*Diellia erecta*—a	173 ha (430 ac)	120 ha (301 ac)		293 ha (731 ha)
Oahu 4—*Diellia falcata*—a	59 ha (148 ac)			59 ha (148 ac)
Oahu 4—*Diellia falcata*—b	22 ha (54 ac)			22 ha (54 ac)
Oahu 15—*Diellia falcata*—c	23 ha (58 ac)	314 ha (776 ac)	4 ha (10 ac)	341 ha (844 ac)
Oahu 15—*Diellia falcata*—d	7 ha (17 ac)	170 ha (419 ac)	<1 ha (<1 ac)	178 ha (437 ac)
Oahu 15—*Diellia unisora*—a	68 ha (167 ac)	253 ha (626 ac)	41 ha (101 ac)	362 ha (894 ac)
Oahu 4—*Diplazium molokaiense*—a	139 ha (340 ac)			139 ha (340 ac)
Oahu 4—*Dubautia herbstobatae*—a	12 ha (29 ac)			12 ha (29 ac)
Oahu 4—*Dubautia herbstobatae*—b	76 ha (191 ac)	<1 ha (<1 ac)		76 ha (191 ac)
Oahu 7—*Dubautia herbstobatae*—c	3 ha (7 ac)			3 ha (7 ac)
Oahu 4—*Eragrostis fosbergii*—a	81 ha (199 ac)			81 ha (199 ac)
Oahu 4—*Eugenia koolauensis*—a	114 ha (280 ac)			114 ha (280 ac)
Oahu 19—*Eugenia koolauensis*—b	38 ha (94 ac)	111 ha (275 ac)		149 ha (369 ac)
Oahu 20—*Eugenia koolauensis*—c	71 ha (176 ac)	51 ha (127 ac)		122 ha (303 ac)
Oahu 3—*Euphorbia haeleeleana*—a	14 ha (38 ac)			14 ha (38 ac)
Oahu 4—*Euphorbia haeleeleana*—b	94 ha (233 ac)	262 ha (648 ac)		356 ha (881 ac)
Oahu 4—*Flueggea neowawraea*—a	845 ha (2,087 ac)			845 ha (2,087 ac)
Oahu 15—*Gardenia mannii*—a		266 ha (658 ac)		266 ha (658 ac)
Oahu 20—*Gardenia mannii*—b		206 ha (510 ac)		206 ha (510 ac)
Oahu 20—*Gardenia mannii*—c			1,311 ha (3,239 ac)	1,311 ha (3,239 ac)
Oahu 4—*Gouania meyenii*—a	47 ha (118 ac)			47 ha (118 ac)
Oahu 4—*Gouania meyenii*—b	39 ha (96 ac)			39 ha (96 ac)
Oahu 15—*Gouania meyenii*—c	2 ha (6 ac)	206 ha (509 ac)	<1 ha (<1 ac)	208 ha (515 ac)
Oahu 31—*Gouania meyenii*—d	116 ha (286 ac)			116 ha (286 ac)
Oahu 2—*Gouania vitifolia*—a	20 ha (49 ac)			20 ha (49 ac)
Oahu 3—*Gouania vitifolia*—b	48 ha (120 ac)			48 ha(120 ac)
Oahu 5—*Gouania vitifolia*—c	176 ha (434 ac)	20 ha (48 ac)		196 ha (482 ac)
Oahu 4—*Gouania vitifolia*—d	85 ha (208 ac)			85 ha (208 ac)
Oahu 4—*Gouania vitifolia*—e	102 ha (252 ac)			102 ha (252 ac)

TABLE 3.—APPROXIMATE CRITICAL HABITAT DESIGNATED AREA BY UNIT AND LANDOWNERSHIP OR JURISDICTION, OAHU, CITY AND COUNTY OF HONOLULU, HAWAII [1]—Continued

Unit name	State/local	Private	Federal	Total
Oahu 4—*Gouania vitifolia*—f	27 ha (67 ac)			27 ha (67 ac)
Oahu 4—*Gouania vitifolia*—g	17 ha (42 ac)	<1 ha (1 ac)		17 ha (43 ac)
Oahu 8—*Gouania vitifolia*—h	41 ha (101 ac)	23 ha (57 ac)		64 ha (158 ac)
Oahu 15—*Hedyotis coriacea*—a		185 ha (458 ac)		185 ha (458 ac)
Oahu 35—*Hedyotis coriacea*—b	9 ha (22 ac)	155 ha (382 ac)		164 ha (404 ac)
Oahu 4—*Hedyotis degeneri*—a	917 ha (2,265 ac)			917 ha (2,265 ac)
Oahu 4—*Hedyotis degeneri*—b	12 ha (29 ac)			12 ha (29 ac)
Oahu 4—*Hedyotis parvula*—a	387 ha (956 ac)			387 ha (956 ac)
Oahu 15—*Hedyotis parvula*—b			8 ha (19 ac)	8 ha (19 ac)
Oahu 15—*Hedyotis parvula*—c	42 ha (105 ac)	22 ha (54 ac)	31 ha (77 ac)	95 ha (236 ac)
Oahu 15—*Hedyotis parvula*—d	20 ha (48 ac)		30 ha (74 ac)	50 ha (122 ac)
Oahu 4—*Hesperomannia arborescens*—a	122 ha (301 ac)	3 ha (7 ac)		125 ha (308 ac)
Oahu 20—*Hesperomannia arborescens*—b	405 ha (1,001 ac)	184 ha (455 ac)		589 ha (1,456 ac)
Oahu 4—*Hesperomannia arbuscula*—a	597 ha (1,472 ac)			597 ha (1,472 ac)
Oahu 4—*Hesperomannia arbuscula*—b	32 ha (78 ac)			32 ha (78 ac)
Oahu 15—*Hesperomannia arbuscula*—c	2 ha (4 ac)	161 ha (398 ac)	<1 ha (<1 ac)	163 ha (402 ac)
Oahu 15—*Hesperomannia arbuscula*—d	2 ha (4 ac)	23 ha (56 ac)		25 ha (60 ac)
Oahu 15—*Hesperomannia arbuscula*—e	3 ha (5 ac)	67 ha (167 ac)		70 ha (172 ac)
Oahu 1—*Hibiscus brackenridgei*—a	20 ha (49 ac)	58 ha (144 ac)		78 ha (193 ac)
Oahu 4—*Hibiscus brackenridgei*—b	75 ha (185 ac)	485 ha (1,200 ac)		560 ha (1,385 ac)
Oahu 5—*Hibiscus brackenridgei*—c	23 ha (56 ac)	<1 ha (<1 ac)		23 ha (56 ac)
Oahu 4—*Isodendrion laurifolium*—a	616 ha (1,524)			616 ha (1,524 ac)
Oahu 4—*Isodendrion laurifolium*—b	62 ha (154 ac)			62 ha (154 ac)
Oahu 35—*Isodendrion laurifolium*—c	109 ha (270 ac)	168 ha (414 ac)		277 ha (684 ac)
Oahu 4—*Isodendrion longifolium*—a	529 ha (1,306 ac)	23 ha (57 ac)		552 ha (1,363 ac)
Oahu 20—*Isodendrion longifolium*—b			162 ha (399 ac)	162 ha (399 ac)
Oahu 5—*Isodendrion pyrifolium*—a	29 ha (71 ac)	1 ha (3 ac)		30 ha (74 ac)
Oahu 16—*Isodendrion pyrifolium*—b	129 ha (317 ac)	1 ha (1 ac)		130 ha (318 ac)
Oahu 17—*Isodendrion pyrifolium*—c	73 ha (181 ac)			73 ha (181 ac)
Oahu 4—*Labordia cyrtandrae*—a	161 ha (397 ac)			161 ha (397 ac)
Oahu 20—*Labordia cyrtandrae*—b	472 ha (1,168 ac)	123 ha (305 ac)		595 ha (1,473 ac)
Oahu 20—*Labordia cyrtandrae*—c	205 ha (508 ac)	412 ha (1,017 ac)		617 ha (1,525 ac)
Oahu 4—*Lepidium arbuscula*—a	330 ha (813 ac)			330 ha (813 ac)
Oahu 15—*Lepidium arbuscula*—b	38 ha (94 ac)	6 ha (16 ac)	74 ha (183 ac)	118 ha (293 ac)
Oahu 15—*Lepidium arbuscula*—c	38 ha (93 ac)		61 ha (151 ha)	99 ha (244 ac)
Oahu 4—*Lipochaeta lobata* var. *leptophylla*—a.	139 ha (345 ac)			139 ha (345 ac)
Oahu 15—*Lipochaeta lobata* var. *leptophylla*—b.	207 ha (514 ac)	53 ha (131 ac)	274 ha (676 ac)	534 ha (1,321 ac)
Oahu 4—*Lipochaeta tenuifolia*—a	23 ha (57 ac)			23 ha (57 ac)
Oahu 4—*Lipochaeta tenuifolia*—b	66 ha (167 ac)			66 ha (167 ac)
Oahu 4—*Lipochaeta tenuifolia*—c	118 ha (292 ac)			118 ha (292 ac)
Oahu 20—*Lobelia guadichaudii* ssp. *koolauensis*—a.	371 ha (915 ac)	458 ha (1,132 ac)	97 ha (241 ac)	926 ha (2,288 ac)
Oahu 30—*Lobelia monostachya*—a	48 ha (118 ac)	11 ha (32 ac)		59 ha (150 ac)
Oahu 22—*Lobelia monostachya*—b	1 ha 2 (ac)	46 ha (113 ac)		47 ha (115 ac)
Oahu 33—*Lobelia monostachya*—c	70 ha (173 ac)	<1 ha (1 ac)		70 ha (174 ac)
Oahu 35—*Lobelia monostachya*—d	123 ha (303 ac)	367 ha (906 ac)	3 ha (8 ac)	493 ha (1,217 ac)
Oahu 4—*Lobelia niihauensis*—a	44 ha (108 ac)			44 ha (108 ac)
Oahu 17—*Lobelia niihauensis*—b	41 ha (102 ac)			41 ha (102 ac)
Oahu 20—*Lobelia oahuensis*—a	204 ha (504 ac)	240 ha (593 ac)	46 ha (114 ac)	490 ha (1,211 ac)
Oahu 35—*Lobelia oahuensis*—b	139 ha (342 ac)	13 ha (32 ac)		152 ha (374 ac)
Oahu 20—*Lysimachia filifolia*—a	992 ha (2,450 ac)	512 ha (1,263 ac)	8 ha (21 ac)	1,512 ha (3,734 ac)
Oahu 4—*Mariscus pennatiformis*—a	166 ha (410 ac)			166 ha (410 ac)
Oahu 4—Mariscus pennatiformis—b	171 ha (421 ac)			171 ha (421 ac)
Oahu 13—*Marsilea villosa*—a			10 ha (25 ac)	10 ha (25 ac)
Oahu 14—*Marsilea villosa*—b			7 ha (18 ac)	7 ha (18 ac)
Oahu 28—*Marsilea villosa*—c	7 ha (18 ac)			7 ha (18 ac)
Oahu 29—*Marsilea villosa*—d	5 ha (11 ac)			5 ha (11 ac)
Oahu 36—*Marsilea villosa*—e	6 ha (14 ac)			6 ha (14 ac)
Oahu 20—*Melicope lydgatei*—a	351 ha (864 ac)	2,613 ha (6,458 ac)	535 ha (1,323 ac)	3,499 ha (8,645 ac)
Oahu 4—*Melicope pallida*—a	846 ha (2,089 ac)	9 ha (21 ac)		855 ha (2,110 ac)
Oahu 15—*Melicope pallida*—b		174 ha (431 ac)		174 ha (431 ac)
Oahu 15—*Melicope pallida*—c	2 ha (5 ac)		27 ha (66 ac)	29 ha (71 ac)
Oahu 15—*Melicope pallida*—d	10 ha (25 ac)		10 ha (26 ac)	20 ha (51 ac)
Oahu 15—*Melicope pallida*—e		243 ha (602 ac)		243 ha (602 ac)
Oahu 15—*Melicope saint-johnii*—a	2 ha (6 ac)	242 ha (598 ac)	<1 ha (<1 ac)	244 ha (604 ac)
Oahu 15—*Melicope saint-johnii*—b	28 ha (69 ac)	149 ha (368 ac)	37 ha (92 ac)	214 ha (529 ac)
Oahu 20—*Myrsine juddii*—a	386 ha (954 ac)	291 ha (719 ac)	273 ha (674 ac)	950 ha (2,347 ac)
Oahu 3—*Neraudia angulata*—a	39 ha (97 ac)			39 ha (97 ac)
Oahu 4—*Neraudia angulata*—b	83 ha (205 ac)	7 ha (17 ac)		90 ha (222 ac)

TABLE 3.—APPROXIMATE CRITICAL HABITAT DESIGNATED AREA BY UNIT AND LANDOWNERSHIP OR JURISDICTION, OAHU, CITY AND COUNTY OF HONOLULU, HAWAII [1]—Continued

Unit name	State/local	Private	Federal	Total
Oahu 4—*Neraudia angulata*—c	298 ha (736 ac)			298 ha (736 ac)
Oahu 4—*Neraudia angulata*—d	33 ha (81 ac)			33 ha (81 ac)
Oahu 4—*Neraudia angulata*—e	40 ha (98 ac)			40 ha (98 ac)
Oahu 15—*Neraudia angulata*—f	17 ha (44 ac)		66 ha (163 ac)	83 ha (207 ac)
Oahu 3—*Nototrichium humile*—a	20 ha (51 ac)			20 ha (51 ac)
Oahu 4—*Nototrichium humile*—b	168 ha (416 ac)	61 ha (152 ac)		229 ha (568 ac)
Oahu 4—*Nototrichium humile*—c	55 ha (138 ac)	181 ha (448 ac)		236 ha (586 ac)
Oahu 4—*Nototrichium humile*—d	30 ha (75 ac)			30 ha (75 ac)
Oahu 4—*Peucedanum sandwicense*—a	76 ha (186 ac)			76 ha (186 ac)
Oahu 20—*Phlegmariurus nutans*—a	713 ha (1,762 ac)	514 ha (1,269 ac)	398 ha (983 ac)	1,625 ha (4,014 ac)
Oahu 4—*Phyllostegia hirsuta*—a	113 ha (282 ac)			113 ha (282 ac)
Oahu 15—*Phyllostegia hirsuta*—b	1 ha (2 ac)	130 ha (322 ac)	<1 ha (<1 ac)	131 ha (324 ac)
Oahu 15—*Phyllostegia hirsuta*—c		69 ha (171 ac)		69 ha (171 ac)
Oahu 20—*Phyllostegia hirsuta*—d	719 ha (1,777 ac)	285 ha (706 ac)		1,004 ha (2,483 ac)
Oahu 4—*Phyllostegia kaalaensis*—a	57 ha (141 ac)			57 ha (141 ac)
Oahu 4—*Phyllostegia kaalaensis*—b	589 ha (1,456 ac)			589 ha (1,456 ac)
Oahu 4—*Phyllostegia kaalaensis*—c	119 ha (295 ac)	3 ha (9 ac)		122 ha (304 ac)
Oahu 4—*Phyllostegia kaalaensis*—d	28 ha (69 ac)			28 ha (69 ac)
Oahu 4—Phyllostegia kaalaensis—e	16 ha (39 ac)			16 ha (39 ac)
Oahu 15—*Phyllostegia kaalaensis*—f		30 ha (74 ac)		30 ha (74 ac)
Oahu 15—*Phyllostegia mollis*—a		152 ha (376 ac)		152 ha (376 ac)
Oahu 15—*Phyllostegia mollis*—b		85 ha (210 ac)		85 ha (210 ac)
Oahu 15—*Phyllostegia parviflora*—a		70 ha (173 ac)		70 ha (173 ac)
Oahu 15—*Phyllostegia parviflora*—b		21 ha (51 ac)		21 ha (51 ac)
Oahu 15—*Phyllostegia parviflora*—c		69 ha (171 ac)		69 ha (171 ac)
Oahu 20—*Phyllostegia parviflora*—d	806 ha (1,992 ac)	436 ha (1,078 ac)	188 ha (463 ac)	1,430 ha (3,533 ac)
Oahu 4—*Plantago princeps*—a	15 ha (37 ac)			15 ha (37 ac)
Oahu 4—*Plantago princeps*—b	52 ha (131 ac)			52 ha (131 ac)
Oahu 15—*Plantago princeps*—c		63 ha (157 ac)		63 ha (157 ac)
Oahu 20—*Plantago princeps*—d	99 ha (246 ac)	733 ha (1,810 ac)	160 ha (394 ac)	992 ha (2,450 ac)
Oahu 20—*Plantago princeps*—e	194 ha (477 ac)	103 ha (252 ac)		297 ha (729 ac)
Oahu 20—*Platanthera holochila*—a		35 ha (86 ac)		35 ha (86 ac)
Oahu 20—*Platanthera holochila*—b	<1 ha (<1 ac)	4 ha (9 ac)	161 ha (397 ac)	165 ha (407 ac)
Oahu 20—*Pteris lidgatei*—a	847 ha (2,091 ac)	386 ha (953 ac)		1,233 ha (3,044 ac)
Oahu 20—*Pteris lidgatei*—b	153 ha (377 ac)	25 ha (61 ac)	111 ha (273 ac)	289 ha (711 ac)
Oahu 20—*Pteris lidgatei*—c	267 ha (660 ac)	577 ha (1,424 ac)		844 ha (2,084 ac)
Oahu 4—*Sanicula mariversa*—a	7 ha (17 ac)			7 ha (17 ac)
Oahu 4—*Sanicula mariversa*—b	6 ha (15 ac)			6 ha (15 ac)
Oahu 4—*Sanicula mariversa*—c	25 ha (61 ac)			25 ha (61 ac)
Oahu 6—*Sanicula mariversa*—d	3 ha (8 ac)			3 ha (8 ac)
Oahu 15—*Sanicula mariversa*—e		14 ha (34 ac)		14 ha (34 ac)
Oahu 15—*Sanicula mariversa*—f	19 ha (46 ac)	20 ha (49 ac)		39 ha (95 ac)
Oahu 20—*Sanicula purpurea*—a	366 ha (903 ac)	289 ha (715 ac)	46 ha (114 ac)	701 ha (1,732 ac)
Oahu 3—*Schiedea hookeri*—a	22 ha (56 ac)			22 ha (56 ac)
Oahu 4—*Schiedea hookeri*—b	710 ha (1,755 ac)			710 ha (1,755 ac)
Oahu 4—*Schiedea hookeri*—c	248 ha (612 ac)			248 ha (612 ac)
Oahu 4—*Schiedea hookeri*—d	31 ha (78 ac)			31 ha (78 ac)
Oahu 15—*Schiedea hookeri*—e			14 ha (34 ac)	14 ha (34 ac)
Oahu 15—*Schiedea hookeri*—f		10 ha (25 ac)		10 ha (25 ac)
Oahu 15—*Schiedea hookeri*—g	33 ha (81 ac)	<1 ha (<1 ac)	50 ha (123 ac)	83 ha (204 ac)
Oahu 4—*Schiedea kaalae*—a	426 ha (1,051 ac)			426 ha (1,051 ac)
Oahu 15—*Schiedea kaalae*—b		134 ha (331 ac)		134 ha (331 ac)
Oahu 15—*Schiedea kaalae*—c		22 ha (53 ac)		22 ha (53 ac)
Oahu 15—*Schiedea kaalae*—d		39 ha (97 ac)		39 ha (97 ac)
Oahu 20—*Schiedea kaalae*—e	371 ha (915 ac)	8 ha (19 ac)		379 ha (934 ac)
Oahu 21—*Schiedea kaalae*—f	6 ha (15 ac)	99 ha (245 ac)		105 ha (260 ac)
Oahu 1—*Schiedea kealiae*—a	145 ha (357 ac)	49 ha (121 ac)		194 ha (478 ac)
Oahu 4—*Schiedea nuttallii*—a	527 ha (1,304 ac)			527 ha (1,304 ac)
Oahu 15—*Schiedea nuttallii*—b	1 ha (1 ac)	140 ha (346 ac)		141 ha (347 ac)
Oahu 15—*Schiedea nuttallii*—c		41 ha (102 ac)		41 ha (102 ac)
Oahu 1—*Sesbania tomentosa*—a	101 ha (250 ac)	<1 ha (<1 ac)	<1 ha (<1 ac)	101 ha (250 ac)
Oahu 18—*Sesbania tomentosa*—b	5 ha (12 ac)			5 ha (12 ac)
Oahu 4—*Silene lanceolata*—a	113 ha (281 ac)			113 ha (281 ac)
Oahu 15—*Silene perlmanii*—a	29 ha (73 ac)		36 ha (89 ac)	65 ha (162 ac)
Oahu 15—*Silene perlmanii*—b		5 ha (12 ac)		5 ha (12 ac)
Oahu 15—*Silene perlmanii*—c	18 ha (46 ac)		31 ha (78 ac)	49 ha (124 ac)
Oahu 15—*Silene perlmanii*—d		52 ha (130 ac)		52 ha (130 ac)
Oahu 4—*Solanum sandwicense*—a	104 ha (258 ac)			104 ha (258 ac)
Oahu 15—*Solanum sandwicense*—b	<1 ha (<1 ac)	146 ha (361 ac)		146 ha (361 ac)
Oahu 15—*Solanum sandwicense*—c	<1 ha (<1 ac)	78 ha (192 ac)		78 ha (192 ac)
Oahu 5—*Spermolepis hawaiiensis*—a	20 ha (51 ac)	1 ha (2 ac)		21 ha (53 ac)

TABLE 3.—APPROXIMATE CRITICAL HABITAT DESIGNATED AREA BY UNIT AND LANDOWNERSHIP OR JURISDICTION, OAHU, CITY AND COUNTY OF HONOLULU, HAWAII [1]—Continued

Unit name	State/local	Private	Federal	Total
Oahu 31—*Spermolepis hawaiiensis*—b	116 ha (286 ac)			116 ha (286 ac)
Oahu 15—*Stenogyne kanehoana*—a	1 ha (2 ac)	138 ha (342 ac)	1 ha (3 ac)	140 ha (347 ac)
Oahu 15—*Stenogyne kanehoana*—b	1 ha (2 ac)	42 ha (105 ac)		43 ha (107 ac)
Oahu 4—*Tetramolopium filiforme*—a	111 ha (273 ac)			111 ha (273 ac)
Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—a.	167 ha (413 ac)			167 ha (413 ac)
Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—b.	23 ha (56 ac)			23 ha (56 ac)
Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—c.			11 ha (28 ac)	11 ha (28 ac)
Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—d.	34 ha (84 ac)	12 ha (29 ac)	48 ha (120 ac)	94 ha (233 ac)
Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—e.	<1 ha (1 ac)	1 ha (2 ac)		1 ha (3 ac)
Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—f.	37 ha (92 ac)	182 ha (450 ac)	40 ha (99 ac)	259 ha (641 ac)
Oahu 20—*Tetraplasandra gymnocarpa*—a	454 ha (1,122 ac)	3 ha (7 ac)		457 ha (1,129 ac)
Oahu 20—*Tetraplasandra gymnocarpa*—b	71 ha (175 ac)	32 ha (79 ac)	132 ha (327 ac)	235 ha (581 ac)
Oahu 20—*Tetraplasandra gymnocarpa*—c	119 ha (295 ac)	292 ha (723 ac)		411 ha (1,018 ac)
Oahu 20—*Tetraplasandra gymnocarpa*—d	121 ha (299 ac)	231 ha (571 ac)	10 ha (24 ac)	362 ha (894 ac)
Oahu 35—*Tetraplasandra gymnocarpa*—e	152 ha (377 ac)			152 ha (377 ac)
Oahu 35—*Tetraplasnadra gymnocarpa*—f	131 ha (323 ac)	82 ha (205 ac)		213 ha (528 ac)
Oahu 20—*Trematolobelia singularis*—a	58 ha (147 ac)	27 ha (69 ac)	1 ha (3 ac)	86 ha (219 ac)
Oahu 20—*Trematolobelia singularis*—b	1 ha (3 ac)	9 ha (22 ac)	<1 ha (1 ac)	10 ha (26 ac)
Oahu 34—*Trematolobelia singularis*—c	<1 ha (1 ac)	2 ha (4 ac)		2 ha (5 ac)
Oahu 35—*Trematolobelia singularis*—d	13 ha (33 ac)			13 ha (33 ac)
Oahu 35—*Trematolobelia singularis*—e	23 ha (56 ac)	3 ha (8 ac)		26 ha (64 ac)
Oahu 4—*Urera kaalae*—a	53 ha (133 ac)			53 ha (133 ac)
Oahu 4—*Urera kaalae*—b	17 ha (43 ac)			17 ha (43 ac)
Oahu 15—*Urera kaalae*—c		224 ha (555 ac)	<1 ha (<1 ac)	224 ha (555 ac)
Oahu 15—*Urera kaalae*—d		35 ha (87 ac)		35 ha (87 ac)
Oahu 15—*Urera kaalae*—e	13 ha (31 ac)		38 ha (94 ac)	51 ha (125 ac)
Oahu 15—*Urera kaalae*—f	2 ha (5 ac)	80 ha (197 ac)		82 ha (202 ac)
Oahu 1—*Vigna o-wahuensis*—a	180 ha (447 ac)			180 ha (447 ac)
Oahu 24—*Vigna o-wahuensis*—b	4 ha (12 ac)			4 ha (12 ac)
Oahu 25—*Vigna o-wahuensis*—c	4 ha (9 ac)			4 ha (9 ac)
Oahu 26—*Vigna o-wahuensis*—d	26 ha (63 ac)			26 ha (63 ac)
Oahu 4—*Viola chamissoniana ssp. chamissoniana*—a.	199 ha (491 ac)			199 ha (491 ac)
Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—b.	10 ha (25 ac)			10 ha (25 ac)
Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—c.	22 ha (55 ac)			22 ha (55 ac)
Oahu 10—*Viola chamissoniana* ssp. *chamissoniana*—d.			6 ha (15 ac)	6 ha (15 ac)
Oahu15—*Viola chamissoniana* ssp. *chamissoniana*—e.			13 ha (31 ac)	13 ha (31 ac)
Oahu 15—*Viola chamissoniana* ssp. *chamissoniana*—f.		11 ha (28 ac)	18 ha (44 ac)	29 ha (72 ac)
Oahu 20—*Viola oahuensis*—a	402 ha (994 ac)	373 ha (923 ac)	125 ha (308 ac)	900 ha (2,225 ac)
Oahu 35—*Viola oahuensis*—b	74 ha (186 ac)			74 ha (186 ac)
Grand Total *	9,035 ha (22,326 ac)	10,985 ha (27,143 ac)	2,254 ha (5,571 ac)	2,274 ha (55,040 ac)

[1]Area differences due to digital mapping discrepancies between TMK data (GDSI 2000) and USGS coastline, or differences due to rounding.
*Totals take into consideration overlapping individual species units.

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

Area considered essential	33,179 ha 81,987 ac
Area not included because of species management or protection/Area excluded under4(b)(2).	10,905 ha 26,946 ac
Final Critical Habitat	22,274 ha 55,040 ac

Critical habitat includes habitat for these 99 species primarily in the upland portions of Oahu, as well as some coastal and off-shore lands. Lands designated as critical habitat have been divided into a total of 304 units. A brief description of each unit is presented below.

Oahu 4—*Abutilon sandwicense*—a

This unit is critical habitat for *Abutilon sandwicense* and is 604 ha (1,492 ac) on State (Mokuleia Forest Reserve and Kaala NAR) and private land, containing a portion of Dupont Trail. This unit provides habitat for 5 populations of 300 mature, reproducing individuals of the short-lived perennial *Abutilon sandwicense* and is currently occupied by 56 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the

expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or gulches in dry to mesic lowland forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Abutilon sandwicense*—b

This unit is critical habitat for *Abutilon sandwicense* and is 26 ha (65 ac) on State land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Abutilon sandwicense* and is currently occupied by 40 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or gulches in dry to mesic lowland forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Abutilon sandwicense*—c

This unit is critical habitat for *Abutilon sandwicense* and is 41 ha (102 ac) on State land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Abutilon sandwicense* and is currently occupied by 4 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or gulches in dry to mesic lowland forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Abutilon sandwicense*—d

This unit is critical habitat for *Abutilon sandwicense* and is 49 ha (121 ac) on Federal land (Honouliuli Preserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Abutilon sandwicense* and is currently occupied by 2 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or gulches in dry to mesic lowland forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Abutilon sandwicense*—e

This unit is critical habitat for *Abutilon sandwicense* and is 33 ha (81 ac) on State and Federal land (Lualualei Naval Reservation). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Abutilon sandwicense* and is currently occupied by 7 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or gulches in dry to mesic lowland forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 17—*Abutilon sandwicense*—f

This unit is critical habitat for *Abutilon sandwicense* and is 30 ha (74 ac) on State land (Nanakuli Forest Reserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Abutilon sandwicense* and is currently occupied by 115 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or gulches in dry to mesic lowland forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Adenophorus periens*—a

This unit is critical habitat for *Adenophorus periens* and is 711 ha (1,759 ac) on State (Kaipapau Forest Reserve, Hauula Forest Reserve, Sacred Falls State Park , and Kahana Valley State Park) and private land. This unit contains portions of the Summit Trail and Puu Pauao Summit. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Adenophorus periens* and is currently unoccupied. This unit is essential to the conservation of the species because it supports habitat that is essential to the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, tree trunks in *Metrosideros polymorpha* or *Metrosideros rugosa* wet forests. This unit is geographically separated from critical habitat designated on Kauai, Molokai, and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Alectryon macrococcus*—a

This is critical habitat for *Alectryon macrococcus* and is 23 ha (58 ac) on State land. This unit contains no named natural features. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Alectryon macrococcus* and is currently occupied by 78 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is essential for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, ridges, or gulches within mesic lowland forests. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai, Molokai, and Maui for

this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Alectryon macrococcus*—b

This is critical habitat for *Alectryon macrococcus* and is 112 ha (278 ac) on private (Honouliuli Preserve) land. This unit contains no named natural features. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Alectryon macrococcus* and is currently occupied by 83 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is essential for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, ridges, or gulches within mesic lowland forests. This unit provides for one population within this multi-island species' historical range on Oahu that is geographically separated from critical habitat designated on Oahu and other islands for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Alsinidendron obovatum*—a

This is critical habitat for *Alsinidendron obovatum* and is 176 ha (436 ac) on State land (Mokuleia Forest Reserve and Pahole NAR). This unit provides habitat for five populations of 300 mature, reproducing individuals of the short-lived perennial *Alsinidendron obovatum* and is currently occupied by 3 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridges and slopes in lowland diverse mesic forest dominated by *Acacia koa* and *Metrosideros polymorpha.* Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Alsinidendron obovatum*—b

This is critical habitat for *Alsinidendron obovatum* and is 25 ha (62 ac) on State land (Waianae Kai Forest Reserve). This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Alsinidendron obovatum* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridges and slopes in lowland diverse mesic forest dominated by *Acacia koa* and *Metrosideros polymorpha.* Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Alsinidendron obovatum*—c

This is critical habitat for *Alsinidendron obovatum* and is 32 ha (76 ac) on Federal and State land (Nanakuli Forest Reserve), containing a portion of Palikea Summit. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Alsinidendron obovatum* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridges and slopes in lowland diverse mesic forest dominated by *Acacia koa* and *Metrosideros polymorpha.* Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Alsinidendron trinerve*—a

This unit is critical habitat for *Alsinidedron trinerve* and is 60 ha (149 ac) on State land (Mokuleia Forest Reserve, Waianae Kai Forest Reserve, and Kaala NAR), containing a portion of Kaala Summit. This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Alsinidedron trinerve* and is currently occupied by 10 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes in wet forest or the wetter portions of diverse mesic forest dominated by *Metrosideros polymorpha* or *Ilex anomala* and *Metrosideros polymorpha* montane wet forest. We do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species. However, we have identified habitat for an additional three populations on Army lands at Schofield Barracks Military Reservation (see ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*'').

Oahu 2—*Bonamia menziesii*—a

This unit is critical habitat for *Bonamia menziesii* and is 21 ha (51 ac) on State land (Kaena Point State Park). This unit, in combination with unit Oahu 3—*Bonamia menziesii*—b, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Bonamia menziesii* and is currently occupied by 4 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or level ground in dry or mesic forest in open or closed canopy. This unit, together with unit Oahu 3—*Bonamia menziesii*—b, is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 3—*Bonamia menziesii*—b

This unit is critical habitat for *Bonamia menziesii* and is 42 ha (104 ac) on State land (Kaena Point State Park and Kuaokala Forest Reserve). This unit, in combination with unit Oahu 2—*Bonamia menziesii*—a, provides habitat for one population of 300 mature,

reproducing individuals of the short-lived perennial *Bonamia menziesii* and is currently occupied by 18 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or level ground in dry or mesic forest in open or closed canopy. This unit, together with units Oahu 2—*Bonamia menziesii*—a, is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Bonamia menziesii*—c

This unit is critical habitat for *Bonamia menziesii* and is 94 ha (233 ac) on State (Mokuleia Forest Reserve) and private land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Bonamia menziesii* and is currently occupied by 5 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or level ground in dry or mesic forest in open or closed canopy. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 17—*Bonamia menziesii*—d

This unit is critical habitat for *Bonamia menziesii* and is 77 ha (191 ac) on State land (Nanakuli Forest Reserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Bonamia menziesii* and is currently occupied by one individual. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or level ground in dry or mesic forest in open or closed canopy. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 35—*Bonamia menziesii*—e

This unit is critical habitat for *Bonamia menziesii* and is 374 ha (924 ac) on State (Honolulu Watershed Forest Reserve) and private land. This unit contains a portion of Kulepiamoa Ridge and Laulaupoe Gulch. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Bonamia menziesii* and is currently occupied by 5 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or level ground in dry or mesic forest in open or closed canopy. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Cenchrus agrimonioides*—a

This unit is critical habitat for *Cenchrus agrimonioides* and is 529 ha (1,306 ac) on State land (Mokuleia Forest Reserve, and Pahole and Kaala NAR). This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Cenchrus agrimonioides* and is currently occupied by 3 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, dry ridges or upper slopes or ridges in lowland mixed mesic forest. It provides habitat for the westernmost range of the species. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Cenchrus agrimonioides*—b

This unit is critical habitat for *Cenchrus agrimonioides* and is 40 ha (99 ac) on State land (Waianae Kai Forest Reserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cenchrus agrimonioides* and is currently occupied by 9 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, dry ridges or upper slopes or ridges in lowland mixed mesic forest. It provides habitat for the westernmost range of the species. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Cenchrus agrimonioides*—c

This unit is critical habitat for *Cenchrus agrimonioides* and is 200 ha (495 ac) on private land (Honouliuli Preserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cenchrus agrimonioides* and is currently occupied by 45 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, dry ridges or upper slopes or ridges in lowland mixed mesic forest. It provides habitat for the westernmost range of the species. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Cenchrus agrimonioides*—d

This unit is critical habitat for *Cenchrus agrimonioides* and is 117 ha (290 ac) on private land (Honouliuli Preserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cenchrus agrimonioides*

and is currently occupied by 2 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, dry ridges or upper slopes or ridges in lowland mixed mesic forest. It provides habitat for the westernmost range of the species. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 1—*Centaurium sebaeoides*—a

This unit is critical habitat for *Centaurium sebaeoides* and is 61 ha (149 ac) on State (Kaena Point NAR), private, and Federal land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Centaurium sebaeoides* and is currently occupied by one plant. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, volcanic or clay soils or cliffs in arid coastal areas or on coral plains. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai, Molokai, and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 27—*Centaurium sebaeoides*—b

This unit is critical habitat for *Centaurium sebaeoides* and is 30 ha (74 ac) on State land, containing a portion of the eastern flank of Koko Head Crater. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Centaurium sebaeoides* and is currently occupied by one individual. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, volcanic or clay soils or cliffs in arid coastal areas or on coral plains. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai, Molokai, and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 1—*Chamaesyce celastroides* var. *kaenana*—a

This unit is critical habitat for *Chamaesyce celastroides* var. *kaenana* and is 233 ha (571 ac) on State land (Kaena Point State Park). This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce celastroides* and is currently occupied by 543 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, windward talus slopes, leeward rocky cliffs, open grassy slopes, or vegetated cliff faces in coastal dry shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other four units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 3—*Chamaesyce celastroides* var. *kaenana*—b

This unit is critical habitat for *Chamaesyce celastroides* var. *kaenana* and is 4 ha (11 ac) on State land (Kaena Point State Park and Kuaokala Forest Reserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce celastroides* and is currently occupied by one individual. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, windward talus slopes, leeward rocky cliffs, open grassy slopes, or vegetated cliff faces in coastal dry shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other four units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Chamaesyce celastroides* var. *kaenana*—c

This unit is critical habitat for *Chamaesyce celastroides* var. *kaenana* and is 43 ha (107 ac) on State land (Waianae Kai Forest Reserve). This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce celastroides* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, windward talus slopes, leeward rocky cliffs, open grassy slopes, or vegetated cliff faces in coastal dry shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other four units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 5—*Chamaesyce celastroides* var. *kaenana*—d

This unit is critical habitat for *Chamaesyce celastroides* var. *kaenana* and is 36 ha (89 ac) on State and private land, containing a portion of Ohikilolo Ridge. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce celastroides* and is currently occupied by 2 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, windward talus slopes, leeward rocky cliffs, open grassy slopes, on vegetated cliff faces in coastal dry shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10

populations for this species, this unit is geographically separated from the other four units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Chamaesyce celastroides* var. *kaenana*—e

This unit is critical habitat for *Chamaesyce celastroides* var. *kaenana* and is 238 ha (587 ac) on State and private land. This unit contains a portion of Hawaii Loa Ridge, Kupaua Valley, Kuleplamoa Ridge, and Pia Valley. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce celastroides* and is currently unoccupied. The habitat features contained in this unit that are essential for this species include, but are not limited to, windward talus slopes, leeward rocky cliffs, open grassy slopes, or vegetated cliff faces in coastal dry shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other four units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Chamaesyce deppeana*—a

This unit is critical habitat for *Chamaesyce deppeana* and is 17 ha (41 ac) on State and private land, containing a portion of the Wilson Tunnel. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce deppeana* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, windward-facing ridge crests, cliff faces, and mixed native cliffs. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other unit designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Chamaesyce deppeana*—b

This unit is critical habitat for *Chamaesyce deppeana* and is 18 ha (46 ac) on State (Honolulu Watershed Forest Reserve) and private land, containing a portion of Nuuanu Pali. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce deppeana* and is currently occupied by 50 individuals. This unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, windward-facing ridge crests, cliff faces, and mixed native cliffs. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other unit designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Chamaesyce herbstii*—a

This unit is critical habitat for *Chamaesyce herbstii* and is 429 ha (1,059 ac) on State land (Mokuleia Forest Reserve and Pahole NAR). This unit provides habitat for 5 populations of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce herbstii* and is currently occupied by 60 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, shaded gulch bottoms and slopes in mesic *Acacia koa-Metrosideros polymorpha* lowland forests or diverse mesic forests. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Chamaesyce herbstii*—b

This unit is critical habitat for *Chamaesyce herbstii* and is 47 ha (116 ac) on private land (Honouliuli Preserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce herbstii* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, shaded gulch bottoms and slopes in mesic *Acacia koa-Metrosideros polymorpha* lowland forests or diverse mesic forests. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Chamaesyce herbstii*—c

This unit is critical habitat for *Chamaesyce herbstii* and is 21 ha (53 ac) on private land (Honouliuli Preserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce herbstii* and is currently occupied by 2 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, shaded gulch bottoms and slopes in mesic *Acacia koa-Metrosideros polymorpha* lowland forests or diverse mesic forests. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 9—*Chamaesyce kuwaleana*—a

This unit is critical habitat for *Chamaesyce kuwaleana* and is 27 ha (53 ac) on Federal land (Lualualei Naval Reservation), containing a portion of Mauna Kuwale. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce*

kuwaleana and is currently occupied by one individual. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, thin guano soil on basaltic rock; arid, exposed volcanic cliffs; dry or mesic rocky ridges; or sparsely vegetated slopes. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other six units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 11—*Chamaesyce kuwaleana*—b

This unit is critical habitat for *Chamaesyce kuwaleana* and is 53 ha (130 ac) on Federal (Lualualei Naval Reservation) and State land (Waianae Kai Forest Reserve), containing a portion of Kauaopuu Summit. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce kuwaleana* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, thin guano soil on basaltic rock; arid, exposed volcanic cliffs; dry or mesic rocky ridges; or sparsely vegetated slopes. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other six units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 12—*Chamaesyce kuwaleana*—c

This unit is critical habitat for *Chamaesyce kuwaleana* and is 37 ha (92 ac) on State land, containing a portion of Puu Kailio. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce kuwaleana* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, thin guano soil on basaltic rock; arid, exposed volcanic cliffs; dry or mesic rocky ridges; or sparsely vegetated slopes. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other six units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Chamaesyce kuwaleana*—d

This unit is critical habitat for *Chamaesyce kuwaleana* and is 184 ha (454 ac) on State and private land, containing a portion of Puu Heleakala. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce kuwaleana* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, thin guano soil on basaltic rock; arid, exposed volcanic cliffs; dry or mesic rocky ridges; or sparsely vegetated slopes. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other six units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 22—*Chamaesyce kuwaleana*—e

This unit is critical habitat for *Chamaesyce kuwaleana* and is 1 ha (3 ac) on State land (Moku Manu Island State Seabird Sanctuary). This unit, in combination with unit Oahu 23—*Chamaesyce kuwaleana*—f, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce kuwaleana* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, thin guano soil on basaltic rock; arid, exposed volcanic cliffs; dry or mesic rocky ridges; or sparsely vegetated slopes. This unit, together with unit 23—*Chamaesyce kuwaleana*—f, provides for one population within this island-endemic species' historical range on Oahu. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other six units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 23—*Chamaesyce kuwaleana*—f

This unit is critical habitat for *Chamaesyce kuwaleana* and is 6 ha (15 ac) on State land (Moku Manu Island State Seabird Sanctuary). This unit, in combination with unit Oahu 22—*Chamaesyce kuwaleana*—e, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce kuwaleana* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, thin guano soil on basaltic rock; arid, exposed volcanic cliffs; dry or mesic rocky ridges; or sparsely vegetated slopes. This unit, together with unit 22—*Chamaesyce kuwaleana*—e, provides for one population within this island-endemic species' historical range on Oahu. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species., this unit is geographically separated from the other six units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 26—*Chamaesyce kuwaleana*—g

This unit is critical habitat for *Chamaesyce kuwaleana* and is 26 ha (63 ac) on State land (Manana Island State Seabird Sanctuary), containing a portion of Manana Island. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce kuwaleana* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, thin guano soil on basaltic rock; arid, exposed volcanic cliffs; dry or mesic rocky ridges; or sparsely vegetated slopes. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other six units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Chamaesyce rockii*—a

This unit is critical habitat for *Chamaesyce rockii* and is 826 ha (2,039 ac) on Federal (Oahu Forest National Wildlife Refuge), private, and State land (Kaipapau Forest Reserve, Hauula Forest Reserve, Sacred Falls State Park, Kahana Valley State Park, and Ewa Forest Reserve). This unit contains a portion of Puu Kainapuaa, Koolau Summit Trail, Puu Pauao, and Puu Kaaumakua. This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce rockii* and is currently occupied by 563 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present populations. The habitat features contained in this unit that are essential for this species include, but are not limited to, gulch slopes, gulch bottoms, and ridge crests in wet *Metrosideros polymorpha-Dicranopteris linearis* forest and shrubland. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Chamaesyce rockii*—b

This unit is critical habitat for *Chamaesyce rockii* and is 197 ha (487 ac) on private and State land (Kahana Valley State Park), containing Puu Kaaumakua. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce rockii* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, gulch slopes, gulch bottoms, and ridge crests in wet *Metrosideros polymorpha-Dicranopteris linearis* forest and shrubland. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Chamaesyce rockii*—c

This unit is critical habitat for *Chamaesyce rockii* and is 258 ha (639 ac) on State (Ewa Forest Reserve) and private land, containing a portion of Eleao Summit. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Chamaesyce rockii* and is currently occupied by one individual. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, gulch slopes, gulch bottoms, and ridge crests in wet *Metrosideros polymorpha-Dicranopteris linearis* forest and shrubland. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Colubrina oppositifolia*—a

This unit is critical habitat for *Colubrina oppositifolia* and is 782 ha (1,935 ac) on private and State land (Mokuleia Forest Reserve and Kaala and Pahole NARs), containing a portion of Dupont Trail. This unit provides habitat for 3 populations of 100 mature, reproducing individuals of the long-lived *Colubrina oppositifolia* and is currently occupied by 53 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, lowland dry or mesic forests dominated by *Diospyros sandwicensis.* It provides habitat for the westernmost range of the species. This unit provides is geographically separated from critical habitat designated on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Ctenitis squamigera*—a

This unit is critical habitat for *Ctenitis squamigera* and is 120 ha (297 ac) on State land (Mokuleia Forest Reserve and Kaala NAR), containing a portion of Dupont Trail. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Colubrina oppositifolia* and is currently occupied by 12 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, gentle to steep slopes in *Metrosideros polymorpha-Diospyros sandwicensis* mesic forest or diverse mesic forest. This unit is geographically separated from critical habitat designated on Kauai, Maui, and Molokai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Cyanea acuminata*—a

This unit is critical habitat for *Cyanea acuminata* and is 82 ha (205 ac) on State land (Mokuleia Forest Reserve, Kaala NAR, and Waianae Kai Forest Reserve). This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea acuminata* and is currently occupied by 20 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, ridges, or stream banks in *Metrosideros polymorpha-Dicranopteris linearis* or *Acacia koa-Metrosideros polymorpha* wet or mesic forest or shrubland, or *Diospyros sandwicensis-Metrosideros polymorpha* lowland mesic forest. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea acuminata*—b

This unit is critical habitat for *Cyanea acuminata* and is 2,522 ha (6,231 ac) on private and State land (Hauula Forest Reserve, Sacred Falls State Park, Kahana Valley State Park, Kaipapau Forest Reserve, and Waiahole Forest Reserve). This unit contains a portion of Castle Trail, Koolau Summit Trail, Puu Pauao, Puu Kaaumakua, Kipapa Trail, and Eleao Summit. This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea acuminata* and is currently occupied by 30 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, ridges, or stream banks in *Metrosideros polymorpha-Dicranopteris linearis* or *Acacia koa-Metrosideros polymorpha* wet or mesic forest or shrubland, or *Diospyros sandwicensis-Metrosideros polymorpha* lowland mesic forest. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea crispa*—a

This unit is critical habitat for *Cyanea crispa* and is 1,831 ha (4,525 ac) on private and State land (Hauula Forest Reserve, Sacred Falls State Park, and Kaipapau Forest Reserve). This unit contains Sacred Falls and a portion of Castle Trail. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea crispa* and is currently occupied by 11 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, moist gullies, or stream banks in open mesic forests or closed wet forests. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea crispa*—b

This unit is critical habitat for *Cyanea crispa* and is 3,860 ha (9,529 ac) on private, Federal, and State land (Waiahole Forest Reserve, Kaneohe Forest Reserve, Keaiwa Heiau State Recreation Area, and Fort Shafter). This unit contains a portion of Aiea Loop Trail, Halawa Trail, Luluku Tunnel, Puu Kahuauli, Puu Kawipoo, Puu Keahiakahoe, and Puu Uau. This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea crispa* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, moist gullies, or stream banks in open mesic forests or closed wet forests. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 21—*Cyanea crispa*—c

This unit is critical habitat for *Cyanea crispa* and is 302 ha (747 ac) on private and State land (Kahana Valley State Park), containing a portion of Hidden Valley. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea crispa* and is currently occupied by 13 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, moist gullies, or stream banks in open mesic forests or closed wet forests. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Cyanea crispa*—d

This unit is critical habitat for *Cyanea crispa* and is 1,336 ha (3,301 ac) on private and State land (Honolulu Watershed Forest Reserve). This unit contains a portion of Kaau Crater, Kainawaaunui Summit, Konahuanui Summit, Manoa Falls, Manoa Tunnel, Mount Olympus, Palikea Summit, Puu Lanipo, and Waaloa Spring. This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea crispa* and is currently occupied by 27 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, moist gullies, or stream banks in open mesic forests or closed wet forests. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea grimesiana* ssp. *grimesiana*—a

This unit is critical habitat for *Cyanea grimesiana* ssp. *grimesiana* and is 2,634 ha (6,506 ac) on State (Ewa Forest Reserve and Keaiwa Heiau State Recreation Area) and private land. This unit contains a portion of Aiea Loop Trail, Puu Kawipoo, Puu Uau, and Waimano Trail. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea grimesiana* ssp. *grimesiana* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, rocky or steep slopes of stream banks in mesic forest often dominated by *Metrosideros polymorpha* or *Metrosideros polymorpha* and *Acacia koa.* It provides habitat for the westernmost range of the species. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 35—*Cyanea grimesiana* ssp. *grimesiana*—b

This unit is critical habitat for *Cyanea grimesiana* ssp. *grimesiana* and is 330 ha (814 ac) on private and State land (Honolulu Watershed Forest Reserve). This unit contains no named natural features. This unit provides habitat for

one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea grimesiana* ssp. *grimesiana* and is currently occupied by 6 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, rocky or steep slopes of stream banks in mesic forest often dominated by *Metrosideros polymorpha* or *Metrosideros polymorpha* and *Acacia koa.* It provides habitat for the westernmost range of the species. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Cyanea grimesiana* ssp. *obatae*—a

This unit is critical habitat for *Cyanea grimesiana* ssp. *obatae* and is 523 ha (1,289 ac) on State land (Mokuleia Forest Reserve and Pahole NAR). This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea grimesiana* ssp. *obatae* and is currently occupied by 4 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, moist, shaded slopes in diverse mesic to wet lowland forests. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Cyanea grimesiana* ssp. *obatae*—b

This unit is critical habitat for *Cyanea grimesiana* ssp. *obatae* and is 185 ha (455 ac) on State, private, and Federal land (Lualualei Naval Reservation). This unit contains a portion of Puu Hapapa and Puu kanehoa. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea grimesiana* ssp. *obatae* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, moist, shaded slopes in diverse mesic to wet lowland forests. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Cyanea grimesiana* ssp. *obatae*—c

This unit is critical habitat for *Cyanea grimesiana* ssp. *obatae* and is 34 ha (84 ac) on private land (Honouliuli Preserve). This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea grimesiana* ssp. *obatae* and is currently occupied by three individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, moist, shaded slopes in diverse mesic to wet lowland forests. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Cyanea grimesiana* ssp. *obatae*—d

This unit is critical habitat for *Cyanea grimesiana* ssp. *obatae* and is 83 ha (205 ac) on State and private land (Honouliuli Preserve), containing the Palikea Summit. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea grimesiana* ssp. *obatae* and is currently occupied by 5 plants. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, moist, shaded slopes in diverse mesic to wet lowland forests. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea humboltiana*—a

This unit is critical habitat for *Cyanea humboltiana* and is 503 ha (1,241 ac) on private and State land (Hauula Forest Reserve, Sacred Falls State Park, and Kaipapau Forest Reserve), containing a portion of the Koolau Summit Trail. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea humboltiana* and is currently occupied by 9 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, wet *Metrosideros polymorpha-Dicranopteris linearis* lowland shrubland. This unit is geographically separated from the other four units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea humboltiana*—b

This unit is critical habitat for C*yanea humboltiana* and is 127 ha (315 ac) on private and State land (Ewa Forest Reserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea humboltiana* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, wet *Metrosideros polymorpha-Dicranopteris linearis* lowland shrubland. This unit is geographically separated from the other four units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea humboltiana*—c

This unit is critical habitat for *Cyanea humboltiana* and is 300 ha (741 ac) on private and State land (Waiahole Forest Reserve), containing a portion of Puu Kawipoo. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea humboltiana* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, wet *Metrosideros polymorpha-Dicranopteris linearis* lowland shrubland. This unit is geographically separated from the other four units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea humboltiana*—d

This unit is critical habitat for *Cyanea humboltiana* and is 160 ha (393 ac) on private, Federal, and State land (Kaneohe Forest Reserve), containing a portion of Puu Keahiakahoe. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea humboltiana* and is currently occupied by one plant. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, wet *Metrosideros polymorpha-Dicranopteris linearis* lowland shrubland. This unit is geographically separated from the other four units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Cyanea humboltiana*—e

This unit is critical habitat for *Cyanea humboltiana* and is 538 ha (1,331 ac) on private and State land (Honolulu Watershed Forest Reserve). This unit contains a portion of Kainawaaunui Summit, Konahuanui Summit, Manoa Falls, Mount Olympus, Palikea Summit, and Puu Lanipo. This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea humboltiana* and is currently occupied by 21 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, wet *Metrosideros polymorpha-Dicranopteris linearis* lowland shrubland. This unit is geographically separated from the other four units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea koolauensis*—a

This unit is critical habitat for *Cyanea koolauensis* and is 468 ha (1,157 ac) on private and State land (Sacred Falls State Park, Kaipapau Forest Reserve, and Kahuku Forest Reserve). This unit contains a portion of Kawailoa Trail, Puu Kainapuaa, and Koolau Summit Trail. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea koolauensis* and is currently occupied by 46 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, stream banks, and ridge crests in wet *Metrosideros polymorpha-Dicranopteris linearis* forest or shrubland. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea koolauensis*—b

This unit is critical habitat for *Cyanea koolauensis* and is 322 ha (799 ac) on private and State land (Ewa Forest Reserve and Waiahole Forest Reserve), containing a portion of Eleao Summit. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea koolauensis* and is currently occupied by 4 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, stream banks, and ridge crests in wet *Metrosideros polymorpha-Dicranopteris linearis* forest or shrubland. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Cyanea koolauensis*—c

This unit is critical habitat for *Cyanea koolauensis* and is 209 ha (517 ac) on State land (Honolulu Watershed Forest Reserve). This unit contains a portion of Konahuanui Summit and Manoa Falls. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea koolauensis* and is currently occupied by 10 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, stream banks, and ridge crests in wet *Metrosideros polymorpha-Dicranopteris linearis* forest or shrubland. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Cyanea koolauensis*—d

This unit is critical habitat for *Cyanea koolauensis* and is 312 ha (770 ac) on private and State land (Honolulu Watershed Forest Reserve). This unit contains a portion of Kaau Crater, Kainawaaunui Summit, Palikea Summit, and Puu Lanipo. This unit provides habitat for two populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea koolauensis* and is currently occupied by seven individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes, stream banks, and

ridge crests in wet *Metrosideros polymorpha-Dicranopteris linearis* forest or shrubland. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Cyanea longiflora*—a

This unit is critical habitat for *Cyanea longiflora* and is 362 ha (894 ac) on State land (Mokuleia Forest Reserve and Pahole Kaala NARs). This unit contains a portion of Kamaohanui Summit. This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea longiflora* and is currently occupied by 3 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes, bases of cliffs, or ridge crests in mesic *Acacia koa-Metrosideros polymorpha* lowland forest. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Cyanea longiflora*—b

This unit is critical habitat for *Cyanea longiflora* and is 61 ha (150 ac) on State land (Waianae Kai Forest Reserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea longiflora* and is currently occupied by 15 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes, bases of cliffs, or ridge crests in mesic *Acacia koa-Metrosideros polymorpha* lowland forest. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 19—*Cyanea longiflora*—c

This unit is critical habitat for *Cyanea longiflora* and is 324 ha (801 ac) on private and State land (Pupukea-Paumalu Forest Reserve). This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea longiflora* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes, bases of cliffs, or ridge crests in mesic *Acacia koa-Metrosideros polymorpha* lowland forest. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Cyanea pinnatifida*—a

This unit is critical habitat for *Cyanea pinnatifida* and is 154 ha (380 ac) on private land (Honouliuli Preserve). This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea pinnatifida* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, wet, rocky slopes in diverse mesic forest. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Cyanea pinnatifida*—b

This unit is critical habitat for *Cyanea pinnatifida* and is 42 ha (104 ac) on private land (Honouliuli Preserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea pinnatifida* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, wet, rocky slopes in diverse mesic forest. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Cyanea pinnatifida*—c

This unit is critical habitat for *Cyanea pinnatifida* and is 129 ha (318 ac) on State and private land (Honouliuli Preserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea pinnatifida* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, wet, rocky slopes in diverse mesic forest. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea st.-johnii*—a

This unit is critical habitat for *Cyanea st.-johnii* and is 697 ha (1,723 ac) on private, Federal (Oahu Forest National Wildlife Refuge), and State land (Hauula Forest Reserve, Sacred Falls State Park, Kahana Valley State Park, and Waiahole Forest Reserve). This unit contains a portion of Eleao Summit, Puu Kaaumakua Summit, and Puu Pauao Summit. This unit provides habitat for 6 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea st.-johnii* and is currently occupied by 44 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, wet, windswept slopes and

ridges in *Metrosideros polymorpha* mixed lowland shrubland or *Metrosideros polymorpha-Dicranopteris linearis* lowland shrubland. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Cyanea st.-johnii*—b

This unit is critical habitat for *Cyanea st.-johnii* and is 135 ha (334 ac) on private and State land (Honolulu Watershed Forest Reserve). This unit contains a portion of Kainawaaunui Summit, Konahuanui Summit, Mount Olympus, Palikea Summit, and Puu Lanipo Summit. This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea st.-johnii* and is currently occupied by 12 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, wet, windswept slopes and ridges in *Metrosideros polymorpha* mixed lowland shrubland or *Metrosideros polymorpha-Dicranopteris linearis* lowland shrubland. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Cyanea superba*—a

This unit is critical habitat for *Cyanea superba* and is 303 ha (747 ac) on State land (Mokuleia Forest Reserve and Pahole NAR). This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea superba* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, sloping terrain on well drained rocky substrate within mesic forest. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Cyanea superba*—b

This unit is critical habitat for *Cyanea superba* and is 115 ha (286 ac) on State land (Mokuleia Forest Reserve and Pahole NAR). This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea superba* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, sloping terrain on well drained rocky substrate within mesic forest. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Cyanea superba*—c

This unit is critical habitat for *Cyanea superba* and is 184 ha (456 ac) on private and State land (Mokuleia Forest Reserve and Kaala NAR). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea superba* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, sloping terrain on well drained rocky substrate within mesic forest. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Cyanea superba*—d

This unit is critical habitat for *Cyanea superba* and is 281 ha (697 ac) on private and State land (Honolulu Watershed Forest Reserve). This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea superba* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, sloping terrain on well drained rocky substrate within mesic forest. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyanea truncata*—a

This unit is critical habitat for *Cyanea truncata* and is 2,029 ha (5,019 ac) on private and State land (Sacred Falls State Park, Kaipapau Forest Reserve, Hauula Forest Reserve, Kahana Valley State Park, and Waiahole Forest Reserve). This unit contains a portion of Castle Trail, Puu Pauao, Sacred Falls, Sacred Falls Trail, and Waiahole Ditch Tunnel. This unit provides habitat for 9 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyanea truncata* and is currently occupied by one plant. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, windward slopes and stream banks in mesic to wet forests. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 21—*Cyanea truncata*—b

This unit is critical habitat for *Cyanea truncata* and is 210 ha (520 ac) on private and State land (Kahana Valley State Park), containing a portion of Hidden Valley. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyanea truncata* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, windward slopes and stream banks in mesic to wet forests. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species,

in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 1—*Cyperus trachysanthos*—a

This unit is critical habitat for *Cyperus trachysanthos* and is 78 ha (194 ac) on State land, containing a portion of Kaena Point. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyperus trachysanthos* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, seasonally wet sites (mud flats, wet clay soil, seasonal ponds, or wet cliff seeps) on seepy flats, coastal cliffs, or talus slopes. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Niihau for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 28—*Cyperus trachysanthos*—b

This unit is critical habitat for *Cyperus trachysanthos* and is 8 ha (20 ac) on State land, containing a portion of Nonoula Crater. This unit, in combination with unit Oahu 29—*Cyperus trachysanthos*—c, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyperus trachysanthos* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, seasonally wet sites (mud flats, wet clay soil, seasonal ponds, or wet cliff seeps) on seepy flats, coastal cliffs, or talus slopes. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Niihau for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 29—*Cyperus trachysanthos*—c

This unit is critical habitat for *Cyperus trachysanthos* and is 4 ha (10 ac) on State land, containing a portion of Ihelhelauakea Crater. This unit, in combination with unit Oahu 28—*Cyperus trachysanthos*—b, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyperus trachysanthos* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, seasonally wet sites (mud flats, wet clay soil, seasonal ponds, or wet cliff seeps) on seepy flats, coastal cliffs, or talus slopes. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Niihau for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 36—*Cyperus trachysanthos*—d

This unit is critical habitat for *Cyperus trachysanthos* and is 5 ha (13 ac) on State land (Diamond Head State Park), containing a portion of Diamond Head. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyperus trachysanthos* and is currently occupied by 40 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, seasonally wet sites (mud flats, wet clay soil, seasonal ponds, or wet cliff seeps) on seepy flats, coastal cliffs, or talus slopes. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Niihau for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Cyrtandra dentata*—a

This unit is critical habitat for *Cyrtandra dentata* and is 307 ha (758 ac) on State land (Mokuleia Forest Reserve and Pahole NAR. This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyrtandra dentata* and is currently occupied by 20 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, gulches, slopes, stream banks, or ravines in mesic or wet forest. This unit is geographically separated from Army lands at Kawailoa Training Area that provide habitat for five populations of this species, in order to avoid all populations from being destroyed by one naturally occurring catastrophic event (see ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*'').

Oahu 35—*Cyrtandra polyantha*—a

This unit is critical habitat for *Cyrtandra polyantha* and is 190 ha (469 ac) on private and State land (Honolulu Watershed Forest Reserve and Kuliouou Forest Reserve), containing a portion of Puu o Kona. This unit provides habitat for 5 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyrtandra polyantha* and is currently occupied by 3 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridges in *Metrosideros polymorpha* mesic or wet forests. We do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species.

Oahu 20—*Cyrtandra subumbellata*—a

This unit is critical habitat for *Cyrtandra subumbellata* and is 829 ha (1,457 ac) on private and State land (Hauula Forest Reserve, Sacred Falls State Park, Kaipapau Forest Reserve, Kahana Valley State Park, and Ewa Forest Reserve), containing a portion of Castle Trail, Puu Kaaumakua, and Puu Pauao. This unit provides habitat for 6 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyrtandra subumbellata* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, moist slopes or gulch bottoms in wet forest dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha-Dicranopteris linearis-Acacia koa.* Although we do not believe that enough

habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other unit designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyrtandra subumbellata*—b

This unit is critical habitat for *Cyrtandra subumbellata* and is 67 ha (167 ac) on State land. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Cyrtandra subumbellata* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, moist slopes or gulch bottoms in wet forest dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha-Dicranopteris linearis-Acacia koa.* Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other unit designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Cyrtandra viridiflora*—a

This unit is critical habitat for *Cyrtandra viridiflora* and is 782 ha (1,932 ac) on private and State land (Hauula Forest Reserve, Sacred Falls State Park, Kaipapau Forest Reserve, Kahana Valley State Park, and Ewa Forest Reserve). This unit contains Puu Kaaumakua, Puu Pauao, and portions of the Koolau Summit Trail. This unit provides habitat for 5 populations of 300 mature, reproducing individuals of the short-lived perennial *Cyrtandra viridiflora* and is currently occupied by 33 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, moist slopes or gulch bottoms in wet forest dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha-Dicranopteris linearis-Acacia koa.*

Oahu 4—*Delissea subcordata*—a

This unit is critical habitat for *Delissea subcordata* and is 764 ha (1,885 ac) on private and State land (Mokuleia Forest Reserve and Pahole and Kaala NARs). This unit contains no named natural features. This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Delissea subcordata* and is currently occupied by 4 plants. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep gulch slopes in mixed mesic forests. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Delissea subcordata*—b

This unit is critical habitat for *Delissea subcordata* and is 220 ha (545 ac) on private land (Honouliuli Preserve). This unit, in combination with unit Oahu 15—*Delissea subcordata*—c, provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Delissea subcordata* and is currently occupied by 9 plants. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep gulch slopes in mixed mesic forests. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Delissea subcordata*—c

This unit is critical habitat for *Delissea subcordata* and is 32 ha (78 ac) on private land (Honouliuli Preserve). This unit, in combination with unit Oahu 15—*Delissea subcordata*—b, provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Delissea subcordata* and is currently occupied by 3 plants. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep gulch slopes in mixed mesic forests. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Delissea subcordata*—d

This unit is critical habitat for *Delissea subcordata* and is 81 ha (200 ac) on private land (Honouliuli Preserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Delissea subcordata* and is currently occupied by 3 plants. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep gulch slopes in mixed mesic forests. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Delissea subcordata*—e

This unit is critical habitat for *Delissea subcordata* and is 292 ha (721 ac) on private and State land (Honouliuli Preserve), containing a portion of Mauumae Ridge. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Delissea subcordata* and is currently unoccupied. This unit is essential to the conservation of the species because it includes habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep gulch slopes in mixed mesic forests. This unit is geographically

separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Delissea subcordata*—f

This unit is critical habitat for *Delissea subcordata* and is 129 ha (317 ac) on State and private land. This unit contains a portion of Kulepiamoa Ridge, Pia Valley, and Kupaua Valley. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Delissea subcordata* and is currently unoccupied. This unit is essential to the conservation of the species because it includes habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep gulch slopes in mixed mesic forests. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Diellia erecta*—a

This unit is critical habitat for *Diellia erecta* and is 293 ha (731 ac) on private and State land (Honolulu Watershed Forest Reserve). This unit contains a portion of Kulepiamoa Ridge and Laulaupoe Gulch. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Diellia erecta* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep gulch slopes or sparsely vegetated rock faces in mesic forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai, Molokai, and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Diellia falcata*—a

This unit is critical habitat for *Diellia falcata* and is 59 ha (148 ac) on State land (Pahole NAR and Mokuleia Forest Reserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Diellia falcata* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, deep shade or open understory on moderate to moderately steep slopes and gulch bottoms in diverse mesic forest. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Diellia falcata*—b

This unit is critical habitat for *Diellia falcata* and is 22 ha (54 ac) on State land (Pahole NAR and Mokuleia Forest Reserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Diellia falcata* and is currently occupied by 20 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, deep shade or open understory on moderate to moderately steep slopes and gulch bottoms in diverse mesic forest. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Diellia falcata*—c

This unit is critical habitat for *Diellia falcata* and is 341 ha (844 ac) on State, Federal (Lualualei Naval Reservation), and private land (Honouliuli Preserve). This unit contains a portion of Puu Hapapa, Puu Kanehoa, and Puu Kaua. This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Diellia falcata* and is currently occupied by 297 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, deep shade or open understory on moderate to moderately steep slopes and gulch bottoms in diverse mesic forest. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Diellia falcata*—d

This unit is critical habitat for *Diellia falcata* and is 178 ha (437 ac) on State, Federal (Lualualei Naval Reservation), and private land (Honouliuli Preserve), containing a portion of Palikea Summit. This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Diellia falcata* and is currently occupied by 1,230 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and habitat that is necessary to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, deep shade or open understory on moderate to moderately steep slopes and gulch bottoms in diverse mesic forest. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Diellia unisora*—a

This unit is critical habitat for *Diellia unisora* and is 362 ha (894 ac) on State, Federal (Lualualei Naval Reservation), and private land (Honouliuli Preserve). This unit contains a portion of Palikea Summit, Laikea Trail, Pohakea Pass, Puu Kanehoa, and Puu Kaua. This unit provides habitat for 6 populations of 300 mature, reproducing individuals of the short-lived perennial *Diellia unisora* and is currently occupied by 697 plants. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the establishment of additional populations. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep slopes or gulch bottoms in deep shade or open understory in mesic forest. We do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, but this unit is large enough that one naturally occurring

catastrophic event is unlikely to destroy habitat for all six populations.

Oahu 4—*Diplazium molokaiense*—a

This unit is critical habitat for *Diplazium molokaiense* and is 139 ha (340 ac) on State land (Mokuleia Forest Reserve, Kaala NAR, and Waianae Kai Forest Reserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Diplazium molokaiense* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, rocky, wooded gulch walls in wet forests. This unit is geographically separated from critical habitat designated on Kauai, Molokai, and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Dubautia herbstobatae*—a

This unit is critical habitat for *Dubautia herbstobatae* and is 12 ha (29 ac) on State land (Makua Keauu Forest Reserve). This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Dubautia herbstobatae* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, rock outcrops, ridges, moderate slopes, or vertical cliffs in dry or mesic shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. In addition, this unit is geographically separated from Army lands at Makua Military Reservation that provide habitat for two populations of this species (see ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*'').

Oahu 4—*Dubautia herbstobatae*—b

This unit is critical habitat for *Dubautia herbstobatae* and is 76 ha (191 ac) on private and State land (Waianae Kai Forest Reserve), containing a portion of Puu Kawiwi Summit. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Dubautia herbstobatae* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, rock outcrops, ridges, moderate slopes, or vertical cliffs in dry or mesic shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. In addition, this unit is geographically separated from Army lands at Makua Military Reservation that provide habitat for two populations of this species (see ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*'').

Oahu 7—*Dubautia herbstobatae*—c

This unit is critical habitat for *Dubautia herbstobatae* and is 3 ha (7 ac) on State land (Makua Keauu Forest Reserve). This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Dubautia herbstobatae* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, rock outcrops, ridges, moderate slopes, or vertical cliffs in dry or mesic shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. In addition, this unit is geographically separated from Army lands at Makua Military Reservation that provide habitat for two populations of this species (see ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*'').

Oahu 4—*Eragrostis fosbergii*—a

This unit is critical habitat for *Eragrostis fosbergii* and is 81 ha (199 ac) on State (Waianae Kai Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Eragrostis fosbergii* and is currently occupied by 6 plants. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridge crests or moderate slopes in dry or mesic forests. We do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species.

Oahu 4—*Eugenia koolauensis*—a

This unit is critical habitat for *Eugenia koolauensis* and is 114 ha (280 ac) on State land, containing a portion of Kaukonahua Stream. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Eugenia koolauensis* and is currently occupied by 2 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, gentle to steep slopes or ridges in mesic or dry forests dominated by *Metrosideros polymorpha* or *Diospyros* sp. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 19—*Eugenia koolauensis*—b

This unit is critical habitat for *Eugenia koolauensis* and is 149 ha (369 ac) on private and State (Pupukea-Paumalu Forest Reserve) land, containing a portion of Mount Kawela. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Eugenia koolauensis* and is currently occupied by 8 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes

habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, gentle to steep slopes or ridges in mesic or dry forests dominated by *Metrosideros polymorpha* or *Diospyros* sp. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Eugenia koolauensis*—c

This unit is critical habitat for *Eugenia koolauensis* and is 122 ha (303 ac) on private and State (Hauula Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for 2 populations of 100 mature, reproducing individuals of the long-lived perennial *Eugenia koolauensis* and is currently occupied by 2 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, gentle to steep slopes or ridges in mesic or dry forests dominated by *Metrosideros polymorhpha* or *Diospyros* sp. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 3—*Euphorbia haeleeleana*—a

This unit is critical habitat for *Euphorbia haeleeleana* and is 14 ha (38 ac) on State (Kaena State Park, Kuaokala Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Euphorbia haeleeleana* and is currently occupied by 50 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, dry forest dominated by *Diospyros* sp. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Euphorbia haeleeleana*—b

This unit is critical habitat for *Euphorbia haeleeleana* and is 356 ha (881 ac) on private and State (Mokuleia Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Euphorbia haeleeleana* and is currently occupied by 49 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, dry forest dominated by Diospyros sp. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Flueggea neowawraea*—a

This unit is critical habitat for *Flueggea neowawraea* and is 845 ha (2,087 ac) on State (Mokuleia Forest Reserve and Pahole and Kaala NARs) land. This unit contains no named natural features. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Flueggea neowawraea* and is currently occupied by 10 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, gulch slopes, ridge crests, or areas near streams in dry or mesic forest. This unit is geographically separated from critical habitat designated on Kauai, Molokai, and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Gardenia mannii*—a

This unit is critical habitat for *Gardenia mannii* and is 266 ha (658 ac) on private (Honouliuli Preserve) land, containing Honouliuli Contour Trail. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Gardenia mannii* and is currently occupied by 4 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to moderately steep gulch slopes, ridge crests, gulch bottoms, and stream banks in mesic or wet forests. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. This unit is also geographically separated from Army lands at Schofield Barracks and Kawailoa that provide habitat for six populations of this species.

Oahu 20—*Gardenia mannii*—b

This unit is critical habitat for *Gardenia mannii* and is 206 ha (510 ac) on private land, containing Kaluakauila Gulch. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gardenia mannii* and is currently occupied by 2 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to moderately steep gulch slopes, ridge crests, gulch bottoms, and stream banks in mesic or wet forests. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. This unit is also geographically separated from Army lands at Schofield Barracks and Kawailoa that provide habitat for six populations of this species.

Oahu 20—*Gardenia mannii*—c

This unit is critical habitat for *Gardenia mannii* and is 1,311 ha (3,239 ac) on private land, containing a portion of Puu Kamana. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gardenia mannii* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to moderately steep gulch slopes, ridge crests, gulch bottoms, and stream banks in mesic or wet forests. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. This unit is also geographically separated from Army lands at Schofield Barracks and Kawailoa that provide habitat for six populations of this species.

Oahu 4—*Gouania meyenii*—a

This unit is critical habitat for *Gouania meyenii* and is 47 ha (118 ac) on State (Waianae Kai Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania meyenii* and is currently occupied by 62 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep slopes in dry shrubland or mesic lowland forest. This unit is geographically separated from the other units designated on Oahu and Kauai as critical habitat for this multi-island species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Gouania meyenii*—b

This unit is critical habitat for *Gouania meyenii* and is 39 ha (96 ac) on State (Waianae Kai Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania meyenii* and is currently occupied by 3 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep slopes in dry shrubland or mesic lowland forest. This unit is geographically separated from the other units designated on Oahu and Kauai as critical habitat for this multi-island species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Gouania meyenii*—c

This unit is critical habitat for *Gouania meyenii* and is 208 ha (515 ac) on Federal (Lualualei Naval Reservation), State, and private (Honouliuli Preserve) land, containing a portion of Puu Hapapa and Puu Kanehoa. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania meyenii* 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 on Oahu in order to reach recovery goals. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep slopes in dry shrubland or mesic lowland forest. This unit is geographically separated from the other units designated on Oahu and Kauai as critical habitat for this multi-island species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 31—*Gouania meyenii*—d

This unit is critical habitat for *Gouania meyenii* and is 116 ha (286 ac) on State (Diamond Head State Park) land, containing a portion of Kuilei Cliffs. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania meyenii* 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 on Oahu in order to reach recovery goals. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep slopes in dry shrubland or mesic lowland forest. This unit is geographically separated from the other units designated on Oahu and Kauai as critical habitat for this multi-island species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 2—*Gouania vitifolia*—a

This unit is critical habitat for *Gouania vitifolia* and is 20 ha (49 ac) on State (Kaena Point State Park and Kuaokala Forest Reserve) land. This unit contains no named natural features. This unit, along with Oahu 3—*Gouania vitifolia*—b, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania vitifolia* 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 on Oahu in order to reach recovery goals. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, sides of ridges or gulches in dry to mesic forests. This unit is geographically separated from critical habitat designated elsewhere on Oahu and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 3—*Gouania vitifolia*—b

This unit is critical habitat for *Gouania vitifolia* and is 48 ha (120 ac) on State (Kuaokala Forest Reserve) land. This unit contains no named natural features. This unit, along with Oahu 2—*Gouania vitifolia*—a, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania vitifolia* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, sides of ridges or gulches in dry to mesic forests. This unit is geographically separated from critical habitat designated elsewhere on Oahu and Maui for this species in order to avoid all recovery populations being

destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Gouania vitifolia*—c

This unit is critical habitat for *Gouania vitifolia* and is 196 ha (482 ac) on private and State (Mokuleia Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania vitifolia* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, sides of ridges or gulches in dry to mesic forests. This unit is geographically separated from critical habitat designated elsewhere on Oahu and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Gouania vitifolia*—d

This unit is critical habitat for *Gouania vitifolia* and is 85 ha (208 ac) on State (Waianae Kai Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania vitifolia* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, sides of ridges or gulches in dry to mesic forests. This unit is geographically separated from critical habitat designated elsewhere on Oahu and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Gouania vitifolia*—e

This unit is critical habitat for *Gouania vitifolia* and is 102 ha (252 ac) on State land in the Waianae Kai area. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania vitifolia* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, sides of ridges or gulches in dry to mesic forests. This unit is geographically separated from critical habitat designated elsewhere on Oahu and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Gouania vitifolia*—f

This unit is critical habitat for *Gouania vitifolia* and is 27 ha (67 ac) on State (Waianae Kai Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania vitifolia* and is currently occupied by one individual. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, sides of ridges or gulches in dry to mesic forests. This unit is geographically separated from critical habitat designated elsewhere on Oahu and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 5—*Gouania vitifolia*—g

This unit is critical habitat for *Gouania vitifolia* and is 17 ha (43 ac) on private and State land in the Waianae Kai area. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania vitifolia* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, sides of ridges or gulches in dry to mesic forests. This unit is geographically separated from critical habitat designated elsewhere on Oahu and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 8—*Gouania vitifolia*—h

This unit is critical habitat for *Gouania vitifolia* and is 64 ha (158 ac) on private and State (Makua Keaau Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Gouania vitifolia* and is currently occupied by 45 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, sides of ridges or gulches in dry to mesic forests. This unit is geographically separated from critical habitat designated elsewhere on Oahu and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Hedyotis coriacea*—a

This unit is critical habitat for *Hedyotis coriacea* and is 185 ha (458 ac) on private (Honouliuli Preserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Hedyotis coriacea* 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 on Oahu in order to reach recovery goals. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, rocky slopes in dry to mesic *Dodonaea viscosa* dominated shrublands or forests. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 35—*Hedyotis coriacea*—b

This unit is critical habitat for *Hedyotis coriacea* and is 164 ha (404 ac) on State and private land, containing a portion of Kulepiamoa Ridge. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Hedyotis coriacea* 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 on Oahu in order to reach recovery goals. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, rocky slopes in dry to mesic *Dodonaea viscosa* dominated shrublands or forests. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Hedyotis degeneri*—a

This unit is critical habitat for *Hedyotis degeneri* and is 917 ha (2,265 ac) on State (Mokuleia Forest Reserve and Kaala and Pahole NARs) land. This unit contains no named natural features. This unit provides habitat for 8 populations of 300 mature, reproducing individuals of the short-lived perennial *Hedyotis degeneri* and is currently occupied by 201 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridge crests in diverse mesic forest. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. In addition, this unit is extensive enough that one catastrophic event would be unlikely to affect habitat for all eight populations.

Oahu 4—*Hedyotis degeneri*—b

This unit is critical habitat for *Hedyotis degeneri* and is 12 ha (29 ac) on State (Waianae Kai Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Hedyotis degeneri* and is currently occupied by 6 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridge crests in diverse mesic forest. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Hedyotis parvula*—a

This unit is critical habitat for *Hedyotis parvula* and is 387 ha (956 ac) on State (Mokuleia Forest Reserve and Kaala NAR) land and contains a portion of Dupont Trail and Kamaohanui Summit. This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Hedyotis parvula* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, cliff faces or their bases, rock outcrops, or ledges in mesic habitat. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Hedyotis parvula*—b

This unit is critical habitat for *Hedyotis parvula* and is 8 ha (19 ac) on State land, containing a portion of Puu Hapapa. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Hedyotis parvula* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, cliff faces or their bases, rock outcrops, or ledges in mesic habitat. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Hedyotis parvula*—c

This unit is critical habitat for *Hedyotis parvula* and is 95 ha (236 ac) on Federal (Lualualei Naval Reservation), State, and private (Honouliuli Preserve) land, containing a portion of Puu Kaua and Puu Kanehoa. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Hedyotis parvula* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, cliff faces or their bases, rock outcrops, or ledges in mesic habitat. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Hedyotis parvula*—d

This unit is critical habitat for *Hedyotis parvula* and is 50 ha (122 ac) on State and Federal (Lualualei Naval Reservation) land, containing a portion of Palikea Summit. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Hedyotis parvula* and is currently occupied by 4 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, cliff faces or their bases, rock outcrops, or ledges in mesic habitat. This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Hesperomannia arborescens*—a

This unit is critical habitat for *Hesperomannia arborescens* and is 125 ha (308 ac) on private and State (Kaala NAR) land, containing a portion of Kamaohanui Summit. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Hesperomannia arborescens* and is currently occupied by 5 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides

habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes, ridge tops, or gulches in lowland wet forests or shrublands. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Hesperomannia arborescens*—b

This unit is critical habitat for *Hesperomannia arborescens* and is 589 ha (1,456 ac) on private and State (Hauula Forest Reserve, Sacred Falls State Park, and Kaipapau Forest Reserve) land, containing a portion of Sacred Falls. This unit provides habitat for 2 populations of 100 mature, reproducing individuals of the long-lived perennial *Hesperomannia arborescens* and is currently occupied by 24 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes, ridge tops, or gulches in lowland wet forests or shrublands. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Hesperomannia arbuscula*—a

This unit is critical habitat for *Hesperomannia arbuscula* and is 597 ha (1,472 ac) on State (Mokuleia Forest Reserve and Pahole and Kaala NARs) land. This unit contains no named natural features. This unit provides habitat for 2 populations of 100 mature, reproducing individuals of the long-lived perennial *Hesperomannia arbuscula* and is currently occupied by 13 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes or ridges in dry to wet forest dominated by *Acacia koa* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Hesperomannia arbuscula*—b

This unit is critical habitat for *Hesperomannia arbuscula* and is 32 ha (78 ac) on State (Waianae Kai Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Hesperomannia arbuscula* and is currently occupied by 70 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes or ridges in dry to wet forest dominated by *Acacia koa* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Hesperomannia arbuscula*—c

This unit is critical habitat for *Hesperomannia arbuscula* and is 163 ha (402 ac) on Federal, State, and private (Honouliuli Preserve) land, containing a portion of Puu Kanehoa. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Hesperomannia arbuscula* and is currently occupied by 7 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes or ridges in dry to wet forest dominated by *Acacia koa* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Hesperomannia arbuscula*—d

This unit is critical habitat for *Hesperomannia arbuscula* and is 25 ha (60 ac) on State and private (Honouliuli Preserve) land, containing a portion of Puu Kaua. This unit, in combination with Oahu 15—*Hesperomannia arbuscula*—e, provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Hesperomannia arbuscula* 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 on Oahu in order to reach recovery goals. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes or ridges in dry to wet forest dominated by *Acacia koa* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Hesperomannia arbuscula*—e

This unit is critical habitat for *Hesperomannia arbuscula* and is 70 ha (172 ac) on State and private (Honouliuli Preserve) land, containing a portion of Palikea Summit and Palikea Trail. This unit, in combination with Oahu 15—*Hesperomannia arbuscula*—d, provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Hesperomannia arbuscula* and is currently occupied by 12 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, slopes or ridges in dry to wet forest dominated by *Acacia koa* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 1—*Hibiscus brackenridgei*—a

This unit is critical habitat for *Hibiscus brackenridgei* and is 78 ha (193 ac) on State and private land, containing a portion of Peacock Flat Trail. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Hibiscus brackenridgei* and is currently occupied by 3 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for *Hibiscus brackenridgei* ssp. *mokuleianus* include, but are not limited to, slopes, cliffs, or arid ledges in lowland dry forest or shrubland. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Hibiscus brackenridgei*—b

This unit is critical habitat for *Hibiscus brackenridgei* and is 560 ha (1,385 ac) on private and State (Mokuleia Forest Reserve) land, containing a portion of Puu Iki. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Hibiscus brackenridgei* and is currently occupied by 158 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for *Hibiscus brackenridgei* ssp. *mokuleianus* include, but are not limited to, slopes, cliffs, or arid ledges in lowland dry forest or shrubland. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 5—*Hibiscus brackenridgei*—c

This unit is critical habitat for *Hibiscus brackenridgei* and is 23 ha (56 ac) on State and private land in the Waianae Kai area. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Hibiscus brackenridgei* and is currently occupied by 4 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for *Hibiscus brackenridgei* ssp. *molokaiana* include, but are not limited to, dry shrublands. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Isodendrion laurifolium*—a

This unit is critical habitat for *Isodendrion laurifolium* and is 616 ha (1,524 ac) on State (Mokuleai Forest Reserve and Pahole and Kaala NARs) land, containing a portion of Dupont Trail. This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Isodendrion laurifolium* and is currently occupied by 19 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, gulch slopes, ravines, or ridges in diverse mesic or dry forest dominated by *Metrosideros polymorpha, Acacia koa, Eugenia reinwardtiana,* or *Diospyros sandwicensis.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Isodendrion laurifolium*—b

This unit is critical habitat for *Isodendrion laurifolium* and is 62 ha (154 ac) on State (Waianae Kai Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Isodendrion laurifolium* and is currently occupied by 46 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, gulch slopes, ravines, or ridges in diverse mesic or dry forest dominated by *Metrosideros polymorpha, Acacia koa, Eugenia reinwardtiana,* or *Diospyros sandwicensis.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 35—*Isodendrion laurifolium*—c

This unit is critical habitat for *Isodendrion laurifolium* and is 277 ha (684 ac) on private and State (Honolulu Watershed Forest Reserve) land, containing a portion of Laulaupoe Gulch. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Isodendrion laurifolium* 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 on Oahu in order to reach recovery goals. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, gulch slopes, ravines, or ridges in diverse mesic or dry forest dominated by *Metrosideros polymorpha, Acacia koa, Eugenia reinwardtiana,* or *Diospyros sandwicensis.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Isodendrion longifolium*–a

This unit is critical habitat for *Isodendrion longifolium* and is 552 ha (1,363 ac) on private and State (Mokuleia Forest Reserve and Kaala NAR) land, containing a portion of Dupont Trail. This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Isodendrion longifolium* and is currently occupied by 40 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently

considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or stream banks in mixed mesic or lowland wet *Metrosideros polymorpha-Dicranopteris linearis* forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Isodendrion longifolium*—b

This unit is critical habitat for *Isodendrion longifolium* and is 162 ha (399 ac) on private land. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Isodendrion longifolium* 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 on Oahu in order to reach recovery goals. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes or stream banks in mixed mesic or lowland wet *Metrosideros polymorpha-Dicranopteris linearis* forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 5—*Isodendrion pyrifolium*—a

This unit is critical habitat for *Isodendrion pyrifolium* and is 30 ha (74 ac) on State and private land in the Waianae Kai area. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Isodendrion pyrifolium* 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 on Oahu in order to reach recovery goals. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, bare, rocky hills or wooded ravines in dry shrublands. This unit provides is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 16—*Isodendrion pyrifolium*—b

This unit is critical habitat for *Isodendrion pyrifolium* and is 130 ha (318 ac) on private and State (Nanakuli Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Isodendrion pyrifolium* 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 on Oahu in order to reach recovery goals. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, bare, rocky hills or wooded ravines in dry shrublands. This unit provides is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 17—*Isodendrion pyrifolium*—c

This unit is critical habitat for *Isodendrion pyrifolium* and is 73 ha (181 ac) on State (Nanakuli Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Isodendrion pyrifolium* 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 on Oahu in order to reach recovery goals. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, bare, rocky hills or wooded ravines in dry shrublands. This unit provides is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Labordia cyrtandrae*—a

This unit is critical habitat for *Labordia cyrtandrae* and is 161 ha (397 ac) on State (Mokuleia Forest Reserve, Kaala NAR, and Waianae Kai Forest Reserve) land, containing a portion of Kamaohanui Summit. This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Labordia cyrtandrae* and is currently occupied by 17 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, shady gulches, slopes, or glens in mesic to wet forests and shrublands dominated by *Metrosideros polymorpha, Diplopterygium pinnatum,* and/or *Acacia koa.* This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Labordia cyrtandrae*—b

This unit is critical habitat for *Labordia cyrtandrae* and is 595 ha (1,473 ac) on private and State (Hauula Forest Reserve, Sacred Falls State Park, and Kaipapau Forest Reserve) land, containing a portion of the Koolau Summit Trail. This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Labordia cyrtandrae* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, shady gulches, slopes, or glens in mesic to wet forests and shrublands dominated by *Metrosideros polymorpha, Diplopterygium pinnatum,* and/or *Acacia koa.* This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Labordia cyrtandrae*—c

This unit is critical habitat for *Labordia cyrtandrae* and is 617 ha (1,525 ac) on private and State (Waiahole Forest Reserve and Ewa Forest Reserve) land, containing a portion of Eleao, Nanaikaalaea, and Ulimakoli Summits. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Labordia cyrtandrae* and is currently occupied by one individual. This unit is essential to the conservation of the species because it supports an

extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, shady gulches, slopes, or glens in mesic to wet forests and shrublands dominated by *Metrosideros polymorpha, Diplopterygium pinnatum,* and/or *Acacia koa.* This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Lepidium arbuscula*—a

This unit is critical habitat for *Lepidium arbuscula* and is 330 ha (813 ac) on State (Waianae Kai Forest Reserve) land, containing a portion of Kamaileunu Ridge, Puu Kawiwi, and Puu Kepauala. This unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Lepidium arbuscula* and is currently occupied by 51 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, exposed ridge tops and cliff faces in mesic and dry vegetation communities. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Lepidium arbuscula*—b

This unit is critical habitat for *Lepidium arbuscula* and is 118 ha (293 ac) on Federal (Lualualei Naval Reservation), State, and private (Honouliuli Preserve) land, containing a portion of Puu Kaua. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Lepidium arbuscula* and is currently occupied by 150 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, exposed ridge tops and cliff faces in mesic and dry vegetation communities. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Lepidium arbuscula*—c

This unit is critical habitat for *Lepidium arbuscula* and is 99 ha (244 ac) on Federal (Lualualei Naval Reservation) and State land. This unit contains no named natural features. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Lepidium arbuscula* and is currently occupied by 613 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population. The habitat features contained in this unit that are essential for this species include, but are not limited to, exposed ridge tops and cliff faces in mesic and dry vegetation communities. This unit is geographically separated from the other two units designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Lipochaeta lobata* var. *leptophylla*—a

This unit is critical habitat for *Lipochaeta lobata* var. *leptophylla* and is 139 ha (345 ac) on State (Waianae Kai Forest Reserve) land, containing a portion of Puu Kawiwi. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Lipochaeta lobata* var. *leptophylla* and is currently occupied by 2 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, cliffs, ridges, or slopes in dry or mesic shrubland. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Lipochaeta lobata* var. *leptophylla*—b

This unit is critical habitat for *Lipochaeta lobata* var. *leptophylla* and is 534 ha (1,321 ac) on Federal (Lualualei Naval Reservation), State, and private (Honouliuli Preserve) land, containing a portion of Palikea Summit, Pohakea Pass, Puu Hapapa, Puu Kanehoa, and Puu Kaua. This unit provides habitat for 8 populations of 300 mature, reproducing individuals of the short-lived perennial *Lipochaeta lobata* var. *leptophylla* and is currently occupied by 144 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, cliffs, ridges, or slopes in dry or mesic shrubland. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Lipochaeta tenuifolia*—a

This unit is critical habitat for *Lipochaeta tenuifolia* and is 23 ha (57 ac) on State (Makua Keaau Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Lipochaeta tenuifolia* and is currently occupied by 50 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridge tops or bluffs in open areas or protected pockets of dry to mesic forest or shrublands. Although we do not believe that enough critical habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. In addition, this unit is separated from Army lands at Makua Military Reservation that provide

habitat for one population of this species.

Oahu 4—*Lipochaeta tenuifolia*—b

This unit is critical habitat for *Lipochaeta tenuifolia* and is 66 ha (167 ac) on State (Kaala NAR) land. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Lipochaeta tenuifolia* and is currently occupied by 100 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridge tops or bluffs in open areas or protected pockets of dry to mesic forest or shrublands. Although we do not believe that enough critical habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. In addition, this unit is separated from Army lands at Makua Military Reservation that provide habitat for one population of this species.

Oahu 4—*Lipochaeta tenuifolia*—c

This unit is critical habitat for *Lipochaeta tenuifolia* and is 118 ha (292 ac) on State (Waianae Kai Forest Reserve) land. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Lipochaeta tenuifolia* and is currently occupied by 150 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridge tops or bluffs in open areas or protected pockets of dry to mesic forest or shrublands. Although we do not believe that enough critical habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other two units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. In addition, this unit is separated from Army lands at Makua Military Reservation that provide habitat for one population of this species.

Oahu 20—*Lobelia gaudichaudii* ssp. *koolauensis*—a

This unit is critical habitat for *Lobelia gaudichaudii* ssp. *koolauensis* and is 926 ha (2,287 ac) on private and State (Oahu Forest National Wildlife Refuge, Hauula Forest Reserve, Sacred Falls State Park, Kaipapau Forest Reserve, Kahana Valley State Park, Ewa Forest Reserve, and Waiahole Forest Reserve) land, containing a portion of Eleao, Puu Kaaumakua, and Puu Pauao Summits, and the Koolau Summit Trail. This unit provides habitat for 7 populations of 300 mature, reproducing individuals of the short-lived perennial *Lobelia gaudichaudii* ssp. *koolauensis* and is currently occupied by 247 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, moderate to steep slopes in *Metrosideros polymorpha* lowland wet shrublands or bogs. This unit is extensive and is geographically separated from Army lands at Kawailoa Training Area that provide habitat for two populations of this species (see ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*''). It is therefore unlikely that all populations would be destroyed by one naturally occurring catastrophic event.

Oahu 30—*Lobelia monostachya*—a

This unit is critical habitat for *Lobelia monostachya* and is 59 ha (150 ac) on private and State (Honolulu Watershed Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Lobelia monostachya* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, sparsely vegetated cliffs in mesic shrubland. Although we do not believe that enough critical habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other three units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 32—*Lobelia monostachya*—b

This unit is critical habitat for *Lobelia monostachya* and is 47 ha (115 ac) on private and State (Honolulu Watershed Forest Reserve) land, containing a portion of Kulepiamoa, Mauumae, and Wiliwilinui Ridges. This unit provides habitat for 4 populations of 100 mature, reproducing individuals of the long-lived perennial *Lobelia monostachya* and is currently occupied by 3 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, sparsely vegetated cliffs in mesic shrubland. Although we do not believe that enough critical habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other three units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 33—*Lobelia monostachya*—c

This unit is critical habitat for *Lobelia monostachya* and is 70 ha (174 ac) on private and State (Honolulu Watershed Forest Reserve and Waahila Ridge State Park) land, containing a portion of Waahila Ridge. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Lobelia monostachya* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, sparsely vegetated cliffs in mesic shrubland. Although we do not believe that enough critical habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other three units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Lobelia monostachya*—d

This unit is critical habitat for *Lobelia monostachya* and is 493 ha (1,217 ac) on private, Federal, and State (Honolulu Watershed Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Lobelia monostachya* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep, sparsely vegetated cliffs in mesic shrubland. Although we do not believe that enough critical habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other three units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Lobelia niihauensis*—a

This unit is critical habitat for *Lobelia niihauensis* and is 44 ha (108 ac) on State (Waianae Kai Forest Reserve) land, containing a portion of Puu Kawiwi. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Lobelia niihauensis* and is currently occupied by 14 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, exposed mesic or dry cliffs or ledges. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 17—*Lobelia niihauensis*—b

This unit is critical habitat for *Lobelia niihauensis* and is 41 ha (102 ac) on State (Nanakuli Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Lobelia niihauensis* and is currently occupied by 37 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, exposed mesic or dry cliffs or ledges. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Lobelia oahuensis*—a

This unit is critical habitat for *Lobelia oahuensis* and is 493 ha (1,218 ac) on private, Federal, and State (Oahu Forest National Wildlife Refuge, Kahana Valley State Park, Ewa Forest Reserve, and Waiahole Forest Reserve) land, containing a portion of Puu Pauao, and Eleao, Puu Kaaumakua, Puu Kahuauli, and Puu Keahiakahoe Summits. This unit provides habitat for 7 populations of 300 mature, reproducing individuals of the short-lived perennial *Lobelia oahuensis* and is currently occupied by 13 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes on summit cliffs in cloudswept wet forests or in lowland wet shrublands that are frequently exposed to heavy wind and rain. This unit is rather extensive and is geographically separated from the other unit designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Lobelia oahuensis*—b

This unit is critical habitat for *Lobelia oahuensis* and is 152 ha (374 ac) on private and State (Honolulu Watershed Forest Reserve and Kuliouou Forest Reserve) land, containing a portion of Kaiawaaunui, Konahuanui, and Palike Summits, Mount Olympus, and Puu o Kona. This unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Lobelia oahuensis* and is currently occupied by 38 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep slopes on summit cliffs in cloudswept wet forests or in lowland wet shrublands that are frequently exposed to heavy wind and rain. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Lysimachia filifolia*—a

This unit is critical habitat for *Lysimachia filifolia* and is 1,512 ha (3,734 ac) on private, Federal, and State (Hauula Forest Reserve, Sacred Falls State Park, Kaipapau Forest Reserve, Kahana Valley State Park, Waiahole Forest Reserve, and Kaneohe Forest Reserve) land, containing a portion of Castle Trail, Keaahala Spring, Nanaikaalaea Summit, Nuuanu Pali, Puu Kaaumakua, Puu Kahuauli, Puu Keahiakahoe, Puu Pauao, Sacred Falls, Waiahole Ditch, and the Luluku Tunnels. This unit provides habitat for 6 populations of 300 mature, reproducing individuals of the short-lived perennial *Lysimachia filifolia* and is currently occupied by 160 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, mossy banks at the base of cliff faces within the spray zone of waterfalls or along streams. This unit is geographically separated from critical habitat designated on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Mariscus pennatiformis*—a

This unit is critical habitat for *Mariscus pennatiformis* and is 166 ha (410 ac) on State (Pahole NAR and Mokuleia Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Mariscus pennatiformis* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, mesic and wet *Metrosideros polymorpha* forest and *Metrosideros polymorpha-Acacia koa* forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai, Maui, and the Northwestern Hawaiian Islands for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Mariscus pennatiformis*—b

This unit is critical habitat for *Mariscus pennatiformis* and is 171 ha (421 ac) on State (Mokuleia Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Mariscus pennatiformis* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, mesic and wet *Metrosideros polymorpha* forest and *Metrosideros polymorpha-Acacia koa* forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai, Maui, and the Northwestern Hawaiian Islands for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 13—*Marsilea villosa*—a

This unit is critical habitat for *Marsilea villosa* and is 10 ha (25 ac) on Federal (Lualualei Naval Reservation) land. This unit contains no named natural features. This unit provides habitat for one population of an unknown number of mature, reproducing individuals of the annual *Marsilea villosa* and is currently occupied by 50 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, seasonal wetlands in cinder craters, vernal pools surrounded by lowland dry forest vegetation, mud flats, and lowland grasslands. This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 14—*Marsilea villosa*—b

This unit is critical habitat for *Marsilea villosa* and is 7 ha (18 ac) on State (Lualualei Naval Reservation) land. This unit contains no named natural features. This unit provides habitat for one population of an unknown number of mature, reproducing individuals of the annual *Marsilea villosa* and is currently occupied by one individual. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the westernmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, seasonal wetlands in cinder craters, vernal pools surrounded by lowland dry forest vegetation, mud flats, and lowland grasslands. This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 28—*Marsilea villosa*—c

This unit is critical habitat for *Marsilea villosa* and is 7 ha (18 ac) on State land, containing a portion of the flanks of Koko Head Crater. This unit, in combination with unit Oahu 29—*Marsilea villosa*—d, provides habitat for one population of an unknown number of mature, reproducing individuals of the annual *Marsilea villosa* and is currently occupied by 10 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, seasonal wetlands in cinder craters, vernal pools surrounded by lowland dry forest vegetation, mud flats, and lowland grasslands. This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 29—*Marsilea villosa*—d

This unit is critical habitat for *Marsilea villosa* and is 5 ha (11 ac) on State land, containing a portion of the flanks of Koko Head Crater. This unit, in combination with unit Oahu 28—*Marsilea villosa*—c, provides habitat for one population of an unknown number of mature, reproducing individuals of the annual *Marsilea villosa* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, seasonal wetlands in cinder craters, vernal pools surrounded by lowland dry forest vegetation, mud flats, and lowland grasslands. This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 36—*Marsilea villosa*—e

This unit is critical habitat for *Marsilea villosa* and is 6 ha (14 ac) on State (Diamond Head State Park) land. This unit contains no named natural features. This unit provides habitat for one population of an unknown number of mature, reproducing individuals of the annual *Marsilea villosa* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, seasonal wetlands in cinder craters, vernal pools surrounded by lowland dry forest vegetation, mud flats, and lowland grasslands. This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Melicope lydgatei*—a

This unit is critical habitat for *Melicope lydgatei* and is 3,499 ha (8,645 ac) on private and State (Ewa Forest Reserve and Keaiwa Heiau State Park) land, containing a portion of Puu Uau, and Aiea, Kipapa, and Waimano Trails.

This unit provides habitat for 6 populations of 100 mature, reproducing individuals of the long-lived perennial *Melicope lydgatei* and is currently occupied by 2 individuals. This unit is essential to the conservation of the species because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridges in mesic or wet forests. This unit is geographically separated from Army lands at Kawailoa Training Area that provide habitat for five populations of this species, in order to avoid all populations from being destroyed by one naturally occurring catastrophic event (*see* ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*'').

Oahu 4—*Melicope pallida*—a

This unit is critical habitat for *Melicope pallida* and is 855 ha (2,110 ac) on private and State (Mokuleia Forest Reserve and Kaala and Pahole NARs) land, containing a portion of Dupont Trail. This unit provides habitat for 3 populations of 100 mature, reproducing individuals of the long-lived perennial *Melicope pallida* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep rock faces in lowland dry or mesic forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Melicope pallida*—b

This unit is critical habitat for *Melicope pallida* and is 174 ha (431 ac) on private (Honouliuli Preserve) land. This unit contains no named natural features. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Melicope pallida* 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 on Oahu in order to reach recovery goals. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep rock faces in lowland dry or mesic forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Melicope pallida*—c

This unit is critical habitat for *Melicope pallida* and is 29 ha (71 ac) on Federal (Lualualei Naval Reservation) and State land. This unit contains no named natural features. This unit, in combination with unit Oahu 15—*Melicope pallida*—d, provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Melicope pallida* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep rock faces in lowland dry or mesic forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Melicope pallida*—d

This unit is critical habitat for *Melicope pallida* and is 20 ha (51 ac) on State and Federal (Lualualei Naval Reservation) land. This unit, in combination with unit Oahu 15—*Melicope pallida*—c, contains no named natural features. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Melicope pallida* 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 on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep rock faces in lowland dry or mesic forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Melicope pallida*—e

This unit is critical habitat for *Melicope pallida* and is 243 ha (602 ac) on private (Honouliuli Preserve) land. This unit contains no named natural features. This unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Melicope pallida* and is currently occupied by one individual. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. It provides habitat for the easternmost range of the species. The habitat features contained in this unit that are essential for this species include, but are not limited to, steep rock faces in lowland dry or mesic forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Melicope saint-johnii*—a

This unit is critical habitat for *Melicope saint-johnii* and is 244 ha (604 ac) on Federal (Lualualei Naval Reservation), State, and private (Honouliuli Preserve) land, containing a portion of Puu Hapapa, Puu Kanehoa, and Puu Kaua. This unit provides habitat for 2 populations of 100 mature, reproducing individuals of the long-lived perennial *Melicope saint-johnii* and is currently occupied by 4 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridges or gulch bottoms in mesic forest. Although we do not believe that enough critical habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other unit designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Melicope saint-johnii*—b

This unit is critical habitat for *Melicope saint-johnii* and is 214 ha (529 ac) on Federal (Lualualei Naval Reservation), State (Nanakuli Forest Reserve), and private (Honouliuli Preserve) land, containing a portion of Palikea Summit. This unit provides habitat for one population of 100

mature, reproducing individuals of the long-lived perennial *Melicope saint-johnii* and is currently occupied by 161 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridges or gulch bottoms in mesic forest. Although we do not believe that enough critical habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other unit designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Myrsine juddii*—a

This unit is critical habitat for *Myrsine juddii* and is 950 ha (2,347 ac) on private and State (Hauula Forest Reserve, Sacred Falls State Park, Kaipapau Forest Reserve, Kahana Valley State Park, and Ewa Forest Reserve) land, containing the Koolau Summit Trail. This unit provides habitat for 6 populations of 100 mature, reproducing individuals of the long-lived perennial *Myrsine juddii* and is currently occupied by 5,000 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population. The habitat features contained in this unit that are essential for this species include, but are not limited to, ridge crests or gulch slopes in wet forests or shrublands dominated by *Metrosideros polymorpha* or a mixture of Metrosideros polymorpha and *Dicranopteris linearis*. This unit is extensive and is geographically separated from Army lands at Kawailoa and Schofield Barracks that provide habitat for four populations of this species (see ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*''). It is therefore unlikely that all populations would be destroyed by one naturally occurring catastrophic event.

Oahu 3—*Neraudia angulata*—a

This unit is critical habitat for *Neraudia angulata* and is 39 ha (97 ac) on State (Kaena Point State Park and Kuaokala Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Neraudia angulata* and is currently occupied by 2 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for *Neraudia angulata* var. *angulata* include, but are not limited to, slopes, ledges, or gulches in lowland mesic or dry forest. The habitat features contained in this unit that are essential for *Neraudia angulata* var. *dentata* include, but are not limited to, cliffs, rock embankments, gulches, or slopes in mesic or dry forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species, and from habitat for three populations on Army lands at Makua Military Reservation, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Neraudia angulata*—b

This unit is critical habitat for *Neraudia angulata* and is 90 ha (222 ac) on private and State (Mokuleia Forest Reserve and Pahole NAR) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Neraudia angulata* and is currently occupied by one individual. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for *Neraudia angulata* var. *angulata* include, but are not limited to, slopes, ledges, or gulches in lowland mesic or dry forest. The habitat features contained in this unit that are essential for *Neraudia angulata* var. *dentata* include, but are not limited to, cliffs, rock embankments, gulches, or slopes in mesic or dry forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species and from habitat for three populations on Army lands at Makua Military Reservation, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Neraudia angulata*—c

This unit is critical habitat for *Neraudia angulata* and is 298 ha (736 ac) on State land in the Waianae Kai area. This unit contains no named natural features. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Neraudia angulata* 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 on Oahu in order to reach recovery goals The habitat features contained in this unit that are essential for *Neraudia angulata* var. *angulata* include, but are not limited to, slopes, ledges, or gulches in lowland mesic or dry forest. The habitat features contained in this unit that are essential for *Neraudia angulata* var. *dentata* include, but are not limited to, cliffs, rock embankments, gulches, or slopes in mesic or dry forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species and from habitat for three populations on Army lands at Makua Military Reservation, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Neraudia angulata*—d

This unit is critical habitat for *Neraudia angulata* and is 33 ha (81 ac) on State (Waianae Kai Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Neraudia angulata* and is currently occupied by one individual. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for *Neraudia angulata* var. *angulata* include, but are not limited to, slopes, ledges, or gulches in lowland mesic or dry forest. The habitat features contained in this unit that are essential for *Neraudia angulata* var. *dentata* include, but are not limited to, cliffs, rock embankments, gulches, or slopes in mesic or dry forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species and from habitat for three populations on Army lands at Makua Military Reservation, in order to avoid all

recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Neraudia angulata*—e

This unit is critical habitat for *Neraudia angulata* and is 40 ha (98 ac) on State (Waianae Kai Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Neraudia angulata* and is currently occupied by 40 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for *Neraudia angulata* var. *angulata* include, but are not limited to, slopes, ledges, or gulches in lowland mesic or dry forest. The habitat features contained in this unit that are essential for *Neraudia angulata* var. *dentata* include, but are not limited to, cliffs, rock embankments, gulches, or slopes in mesic or dry forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species and from habitat for three populations on Army lands at Makua Military Reservation, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Neraudia angulata*—f

This unit is critical habitat for *Neraudia angulata* and is 83 ha (207 ac) on Federal (Lualualei Naval Reservation) and State land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Neraudia angulata* and is currently occupied by 5 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for *Neraudia angulata* var. *angulata* include, but are not limited to, slopes, ledges, or gulches in lowland mesic or dry forest. The habitat features contained in this unit that are essential for *Neraudia angulata* var. *dentata* include, but are not limited to, cliffs, rock embankments, gulches, or slopes in mesic or dry forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species and from habitat for three populations on Army lands at Makua Military Reservation, in order to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 3—*Nototrichium humile*—a

This unit is critical habitat for *Nototrichium humile* and is 20 ha (51 ac) on State (Kaena Point State Park and Kuaokala Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Nototrichium humile* and is currently occupied by 900 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population. The habitat features contained in this unit that are essential for this species include, but are not limited to, cliff faces, gulches, stream banks, or steep slopes in dry or mesic forest often dominated by *Sapindus oahunensis* or *Diopsyros sandwicensis.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Nototrichium humile*—b

This unit is critical habitat for *Nototrichium humile* and is 229 ha (568 ac) on private and State (Pahole NAR and Mokuleia Forest Reserve) land, containing a portion of Mokuleia Trail. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Nototrichium humile* and is currently occupied by 10 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, cliff faces, gulches, stream banks, or steep slopes in dry or mesic forest often dominated by *Sapindus oahunensis* or *Diopsyros sandwicensis.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Nototrichium humile*—c

This unit is critical habitat for *Nototrichium humile* and is 236 ha (586 ac) on private and State (Mokuleia Forest Reserve and Kaala NAR) land. This unit contains no named natural features. This unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Nototrichium humile* and is currently occupied by 54 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, cliff faces, gulches, stream banks, or steep slopes in dry or mesic forest often dominated by *Sapindus oahunensis* or *Diopsyros sandwicensis.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Nototrichium humile*—d

This unit is critical habitat for *Nototrichium humile* and is 30 ha (75 ac) on State (Waianae Kai Forest Reserve) land. This unit contains no named natural features. This unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Nototrichium humile* and is currently occupied by 215 individuals. This unit is essential to the conservation of the species because it supports an extant colony of this species and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential for this species include, but are not limited to, cliff faces, gulches, stream banks, or steep slopes in dry or mesic forest often dominated by *Sapindus oahunensis* or *Diopsyros sandwicensis.* This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Peucedanum sandwicense*—a

This unit is critical habitat for *Peucedanum sandwicense* and is 76 ha

(186 ac) on State (Waianae Kai Forest Reserve) lands, containing Puu Kawiwi. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Peucedanum sandwicense* and is currently occupied by 34 individuals. The unit is important to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Peucedanum sandwicense* include, but are not limited to, cliffs, slopes, or ridges in *Metrosideros polymorpha* lowland mesic forest. This unit is geographically separated from critical habitat designated on Kauai, Molokai, and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Phlegmariurus nutans*—a

This unit is critical habitat for *Phlegmariurus nutans* and is 1,624 ha (4,014 ac) on State (Hauula Forest Reserve, Sacred Falls State Park, Kaipapau Forest Reserve, Kahana Valley State Park, and Ewa Forest Reserve), and private lands. Natural features found in this unit include Castle Trail, Puu Kaaumakua, and Puu Pauao. The unit provides habitat for 5 populations of 300 mature, reproducing individuals of the short-lived perennial *Phlegmariurus nutans* and is currently occupied by contains 5 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phlegmariurus nutans* include, but are not limited to, tree trunks on open ridges, forested slopes, or cliffs in *Metrosideros polymorpha*-dominated wet forests, on cliffs, in shrublands, or in mesic forests. This unit is geographically separated from critical habitat designated on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Phyllostegia hirsuta*—a

This unit is critical habitat for *Phyllostegia hirsuta* and is 113 ha (282 ac) on State (Mokuleia Forest Reserve, Kaala NAR, and Waianae Kai Forest Reserve) lands. There are no named natural features in this unit. This unit contains 4 individuals and provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia hirsuta.* The unit is essential to the species' conservation because it supports an extant colony and includes habitat that is important for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia hirsuta* include, but are not limited to, steep, shaded slopes, cliffs, ridges, gullies, or stream banks in mesic or wet forests dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha* and *Dicranopteris linearis.* This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Phyllostegia hirsuta*—b

This unit is critical habitat for *Phyllostegia hirsuta* and is 131 ha (324 ac) on Federal (Lualualei Naval Reservation), State, and private (Honouliuli Preserve) lands, containing Puu Hapapa and Puu Kanehoa. This unit it currently occupied by 50 individuals and provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia hirsuta.* The unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia hirsuta* include, but are not limited to, steep, shaded slopes, cliffs, ridges, gullies, or stream banks in mesic or wet forests dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha* and *Dicranopteris linearis.* This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Phyllostegia hirsuta*—c

This unit is critical habitat for *Phyllostegia hirsuta* and is 69 ha (171 ac) on private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit is currently occupied by 2 individuals and provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia hirsuta.* The unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia hirsuta* include, but are not limited to, steep, shaded slopes, cliffs, ridges, gullies, or stream banks in mesic or wet forests dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha* and *Dicranopteris linearis.* This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Phyllostegia hirsuta*—d

This unit is critical habitat for *Phyllostegia hirsuta* and is 1,004 ha (2,483 ac) on State (Hauula Forest Reserve, Sacred Falls State Park, and Kaipapau Forest Reserve) and private lands, containing the Koolau Summit Trail. This unit is occupied by 39 individuals and provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia hirsuta.* The unit is essential to species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia hirsuta* include, but are not limited to, steep, shaded slopes, cliffs, ridges, gullies, or stream banks in mesic or wet forests dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha* and *Dicranopteris linearis.* This unit is geographically separated from the other three units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Phyllostegia kaalaensis*—a

This unit is critical habitat for *Phyllostegia kaalaensis* and is 57 ha (141 ac) on State (Pahole NAR and Mokuleia Forest Reserve) lands. There are no named natural features in this unit. This unit is occupied by 21 individuals and provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia kaalaensis.* This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently

considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia kaalaensis* include, but are not limited to, gulch slopes or bottoms or almost vertical rock faces in mesic forest or *Sapindus oahuensis* forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Phyllostegia kaalaensis*—b

This unit is critical habitat for *Phyllostegia kaalaensis* and is 589 ha (1,456 ac) on State (Pahole and Kaala NARs and Mokuleia Forest Reserve) lands and contains Dupont Trail. This unit currently occupied by an unknown number of individuals and provides habitat for 6 populations of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia kaalaensis.* This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia kaalaensis* include, but are not limited to, gulch slopes or bottoms or almost vertical rock faces in mesic forest or *Sapindus oahuensis* forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Phyllostegia kaalaensis*—c

This unit is critical habitat for *Phyllostegia kaalaensis* and is 122 ha (304 ac) on State (Kaala NAR, Mokuleia Forest Reserve) and private lands. There are no named natural features in this unit. The unit is currently occupied by 10 individuals and provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia kaalaensis.* This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia kaalaensis* include, but are not limited to, gulch slopes or bottoms or almost vertical rock faces in mesic forest or *Sapindus oahuensis* forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Phyllostegia kaalaensis*—d

This unit is critical habitat for *Phyllostegia kaalaensis* and is 28 ha (69 ac) on State (Waianae Kai Forest Reserve) lands containing Waianae Kai. This unit, combined with Oahu 4—*Phyllostegia kaalaensis*—e, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia kaalaensis* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Phyllostegia kaalaensis* include, but are not limited to, gulch slopes or bottoms or almost vertical rock faces in mesic forest or *Sapindus oahuensis* forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Phyllostegia kaalaensis*—e

This unit is critical habitat for *Phyllostegia kaalaensis* and is 16 ha (39 ac) on State (Waianae Kai Forest Reserve) lands containing Waianae Kai. This unit is currently occupied by 8 individuals and, combined with Oahu 4—*Phyllostegia kaalaensis*—d, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia kaalaensis.* This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia kaalaensis* include, but are not limited to, gulch slopes or bottoms or almost vertical rock faces in mesic forest or *Sapindus oahuensis* forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Phyllostegia kaalaensis*—f

This unit is critical habitat for *Phyllostegia kaalaensis* and is 30 ha (74 ac) on private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia kaalaensis* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is important to the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Phyllostegia kaalaensis* include, but are not limited to, gulch slopes or bottoms or almost vertical rock faces in mesic forest or *Sapindus oahuensis* forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Phyllostegia mollis*—a

This unit is critical habitat for *Phyllostegia mollis* and is 152 ha (376 ac) on private (Honouliuli Preserve) lands containing Puu Kanehoa. The unit is currently occupied by 7 individuals and provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia mollis.* This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia hirsuta* include, but are not limited to, steep slopes or gulches in diverse mesic to wet forests. This unit is geographically separated from other critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Phyllostegia mollis*—b

This unit is critical habitat for *Phyllostegia mollis* and is 85 ha (210 ac) on private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit is currently occupied by 7 individuals and provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia mollis.* This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia hirsuta* include,

but are not limited to, steep slopes or gulches in diverse mesic to wet forests. This unit is geographically separated from other critical habitat designated elsewhere on Oahu and on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15–*Phyllostegia parviflora*—a

This unit is critical habitat for *Phyllostegia parviflora* var. *lydgatei* and is 70 ha (173 ac) on private (Honouliuli Preserve) lands. This unit contains no named natural features. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia parviflora* var. *lydgatei* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Phyllostegia parviflora* var. *lydgatei* include, but are not limited to, moderate to steep slopes in mesic forests. This unit is geographically separated from other critical habitat designated on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Phyllostegia parviflora*—b

This unit is critical habitat for *Phyllostegia parviflora* var. *lydgatei* and is 21 ha (51 ac) on private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit is occupied by unknown number of individuals and provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia parviflora* var. *lydgatei.* This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia parviflora* var. *lydgatei* include, but are not limited to, moderate to steep slopes in mesic forests. This unit is geographically separated from other critical habitat designated on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Phyllostegia parviflora*—c

This unit is critical habitat for *Phyllostegia parviflora* var. *lydgatei* and is 69 ha (171 ac) on private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit is occupied by 50 individuals and provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia parviflora* var. *lydgatei.* This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia parviflora* var. *lydgatei* include, but are not limited to, moderate to steep slopes in mesic forests. This unit is geographically separated from other critical habitat designated on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Phyllostegia parviflora*—d

This unit is critical habitat for *Phyllostegia parviflora* var. *parviflora* and is 1,430 ha (3,534 ac) on State (Hauula Forest Reserve, Sacred Falls State Park, Kaipapau Forest Reserve, Kahana Valley State Park, Ewa Forest Reserve) and private lands, containing Castle Trail, Puu Kaaumakua, Puu Pauao, and the Koolau Summit Trail. The unit is occupied by 30 individuals and provides habitat for 6 populations of 300 mature, reproducing individuals of the short-lived perennial *Phyllostegia parviflora* var. *parviflora.* This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Phyllostegia parviflora* var. *parviflora* include, but are not limited to, *Metrosideros polymorpha* mixed lowland wet forest. This unit is geographically separated from other critical habitat designated on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Plantago princeps*—a

This unit is critical habitat for *Plantago princeps* var. *longibracteata* and is 15 ha (37 ac) on State lands. There are no named natural features in this unit. The unit, is occupied by 2 individuals and, in combination with Oahu 4—*Plantago princeps*—b, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Plantago princeps* var. *longibracteata.* This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Plantago princeps* var. *longibracteata* include, but are not limited to, sides of waterfalls or wet rock faces. This unit is geographically separated from other critical habitat designated elsewhere on Oahu and on Kauai, Molokai, and Maui in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Plantago princeps*—b

This unit is critical habitat for *Plantago princeps* var. *longibracteata* and is 52 ha (131 ac) on State (Mokuleia Forest Reserve and Pahole Natural Area Preserve) lands. There are no named natural features in this unit. The unit, in combination with Oahu 4—*Plantago princeps*—a, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Plantago princeps* var. *longibracteata* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Plantago princeps* var. *longibracteata* include, but are not limited to, sides of waterfalls or wet rock faces. This unit is geographically separated from other critical habitat designated elsewhere on Oahu and on Kauai, Molokai, and Maui in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Plantago princeps*—c

This unit is critical habitat for *Plantago princeps* var. *longibracteata* and is 63 ha (157 ac) on private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Plantago princeps* var. *longibracteata* and is currently occupied by 8 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Plantago princeps* var. *longibracteata* include, but are not limited to, sides of waterfalls or wet rock faces. This unit is

geographically separated from other critical habitat designated elsewhere on Oahu and on Kauai, Molokai, and Maui in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Plantago princeps*—d

This unit is critical habitat for *Plantago princeps* var. *princeps* and is 992 ha (2,450 ac) on Federal (Oahu Forest National Wildlife Refuge), State (Ewa Forest Reserve, Waiahole Forest Reserve), and private lands, containing Eleao Summit and Kipapa Trail. The unit, in combination with Oahu 20—*Plantago princeps*—e, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Plantago princeps* var. *princeps* and is currently occupied by 2 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Plantago princeps* var. *princeps* include, but are not limited to, slopes or ledges in *Metrosideros polymorpha* lowland mesic forests or shrublands. This unit is geographically separated from other critical habitat designated elsewhere on Oahu and on Kauai, Molokai, and Maui in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Plantago princeps*—e

This unit is critical habitat for *Plantago princeps* var. princeps and is 297 ha (729 ac) on State (Waiahole Forest Reserve) and private lands, containing Nanaikaalaea Summit, Ulimakoli Summit, and Waiahole Ditch Tunnel. The unit, in combination with Oahu 20—*Plantago princeps*—d, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Plantago princeps* var. *princeps* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Plantago princeps* var. *princeps* include, but are not limited to, slopes or ledges in *Metrosideros polymorpha* lowland mesic forests or shrublands. This unit is geographically separated from other critical habitat designated elsewhere on Oahu and on Kauai, Molokai, and Maui in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Platanthera holochila*—a

This unit is critical habitat for *Platanthera holochila* and is 35 ha (86 ac) on private lands in the Koolau Mountains. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Platanthera holochila* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Platanthera holochila* include, but are not limited to, *Metrosideros polymorpha-Dicranopteris linearis* wet forest or *Metrosideros polymorpha* mixed shrubland. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Platanthera holochila*—b

This unit is critical habitat for *Platanthera holochila* and is 165 ha (407 ac) on Federal (Oahu Forest National Wildlife Refuge) and State (Ewa Forest Reserve and Keaiwa Heiau State Park) lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Platanthera holochila* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Platanthera holochila* include, but are not limited to, *Metrosideros polymorpha-Dicranopteris linearis* wet forest or *Metrosideros polymorpha* mixed shrubland. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Pteris lidgatei*—a

This unit is critical habitat for *Pteris lidgatei* and is 1,233 ha (3,044 ac) on State (Hauula Forest Reserve, Sacred Falls State Park and Kaipapau Forest Reserve) and private lands, containing the Castle Trail, Sacred Falls, and the Koolau Summit Trail. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Pteris lidgatei* and is occupied by 2 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Pteris lidgatei* include, but are not limited to, steep stream banks or cliffs in wet *Metrosideros polymorpha-Dicranopteris linearis* forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Pteris lidgatei*—b

This unit is critical habitat for *Pteris lidgatei* and is 289 ha (711 ac) on State (Kahana Valley State Park) and private lands, containing Puu Kaaumakua. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Pteris lidgatei* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Pteris lidgatei* include, but are not limited to, steep stream banks or cliffs in wet *Metrosideros polymorpha-Dicranopteris linearis* forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Molokai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Pteris lidgatei*—c

This unit is critical habitat for *Pteris lidgatei* and is 844 ha (2,084 ac) on State (Ewa and Waiahole Forest Reserves) and private lands, containing Eleao and Nanaikaalaea Summits. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Pteris lidgatei* and is occupied by 4 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Pteris lidgatei* include, but are not limited to, steep stream banks or cliffs in wet *Metrosideros polymorpha-Dicranopteris linearis* forest. This unit is

geographically separated from critical habitat designated elsewhere on Oahu and on Molokai and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—Sanicula mariversa—a

This unit is critical habitat for *Sanicula mariversa* and is 7 ha (17 ac) on State (Makua Keauu Forest Reserve) lands. There are no named natural features in this unit. The unit, in combination with Oahu 6—*Sanicula mariversa*—d, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Sanicula mariversa* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Sanicula mariversa* include, but are not limited to, well-drained, dry slopes or rock faces in mesic shrublands or open grassy areas. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other five units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Sanicula mariversa*—b

This unit is critical habitat for *Sanicula mariversa* and is 6 ha (15 ac) on State (Kaala NAR) lands, containing Kamaohanui Summit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Sanicula mariversa* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Sanicula mariversa* include, but are not limited to, well-drained, dry slopes or rock faces in mesic shrublands or open grassy areas. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other five units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Sanicula mariversa*—c

This unit is critical habitat for *Sanicula mariversa* and is 25 ha (61 ac) on State (Waianae Kai Forest Reserve) lands, containing Puu Kawiwi and Puu Kepauala. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Sanicula mariversa* and is occupied by 2 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Sanicula mariversa* include, but are not limited to, well-drained, dry slopes or rock faces in mesic shrublands or open grassy areas. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other five units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 6—*Sanicula mariversa*—d

This unit is critical habitat for *Sanicula mariversa* and is 3 ha (8 ac) on State (Makua Keauu Forest Reserve) lands. There are no named natural features in this unit. The unit, in combination with Oahu 6—*Sanicula mariversa*—a, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Sanicula mariversa* and is occupied by 30 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Sanicula mariversa* include, but are not limited to, well-drained, dry slopes or rock faces in mesic shrublands or open grassy areas. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other five units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Sanicula mariversa*—e

This unit is critical habitat for *Sanicula mariversa* and is 14 ha (34 ac) on private (Honouliui Preserve) lands, containing Puu Hapapa. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Sanicula mariversa* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Sanicula mariversa* include, but are not limited to, well-drained, dry slopes or rock faces in mesic shrublands or open grassy areas. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other five units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Sanicula mariversa*—f

This unit is critical habitat for *Sanicula mariversa* and is 39 ha (95 ac) on State and private (Honouliui Preserve) lands, containing Puu Kanehoa and Puu Kaua. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Sanicula mariversa* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Sanicula mariversa* include, but are not limited to, well-drained, dry slopes or rock faces in mesic shrublands or open grassy areas. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other five units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Sanicula purpurea*—a

This unit is critical habitat for *Sanicula purpurea* and is 704 ha (1,739 ac) on Federal (Oahu Forest National Wildlife Refuge), State (Hauula Forest Reserve, Sacred Falls State Park, Kaipapau Forest Reserve, Kahana Valley State Park, Ewa Forest Reserve, Waiahole Forest Reserve), and private lands, containing Eleao Summit, Puu Kaaumakua, Puu Kahuauli, Puu

Keahiakahoe, Puu Pauao and Koolau Summit Trail. The unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Sanicula purpurea* and is occupied by 6 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Sanicula purpurea* include, but are not limited to, open *Metrosideros polymorpha* mixed montane bogs or windswept shrublands within the cloud zone. This unit is geographically separated from critical habitat designated on Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 3—*Schiedea hookeri*—a

This unit is critical habitat for *Schiedea hookeri* and is 22 ha (56 ac) on State (Kaena Point State Park and Kuaokala Forest Reserve) lands. No named natural features are found within this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Schiedea hookeri* is occupied by 10 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Schiedea hookeri* include, but are not limited to, slopes, cliffs or cliff bases, rock walls, or ledges in diverse mesic or dry lowland forest, often with *Diospyros hillebrandii, Diospyros sandwicensis,* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Schiedea hookeri*—b

This unit is critical habitat for *Schiedea hookeri* and is 710 ha (1,755 ac) on State (Mokuleia Forest Reserve and Pahole and Kaala NARs) lands, containing Dupont Trail. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Schiedea hookeri* and is occupied by 3 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Schiedea hookeri* include, but are not limited to, slopes, cliffs or cliff bases, rock walls, or ledges in diverse mesic or dry lowland forest, often with *Diospyros hillebrandii, Diospyros sandwicensis,* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Schiedea hookeri*—c

This unit is critical habitat for *Schiedea hookeri* and is 248 ha (612 ac) on State (Waianae Kai Forest Reserve) lands, containing Kamaileunu Ridge and Puu Kawiwi. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Schiedea hookeri* and is occupied by 57 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present populations, which are currently considered nonviable. The habitat features contained in this unit that are essential to *Schiedea hookeri* include, but are not limited to, slopes, cliffs or cliff bases, rock walls, or ledges in diverse mesic or dry lowland forest, often with *Diospyros hillebrandii, Diospyros sandwicensis,* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Schiedea hookeri*—d

This unit is critical habitat for *Schiedea hookeri* and is 31 ha (78 ac) on State (Waianae Kai Forest Reserve) lands. No named natural features are found within this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Schiedea hookeri* and is occupied by 50 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Schiedea hookeri* include, but are not limited to, slopes, cliffs or cliff bases, rock walls, or ledges in diverse mesic or dry lowland forest, often with *Diospyros hillebrandii, Diospyros sandwicensis,* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Schiedea hookeri*—e

This unit is critical habitat for *Schiedea hookeri* and is 14 ha (34 ac) on Federal lands (Lualualei Naval Reservation). There are no named natural features in this unit. The unit, in combination with Oahu 15—*Schiedea hookeri*—f, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Schiedea hookeri* and is occupied by 10 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Schiedea hookeri* include, but are not limited to, slopes, cliffs or cliff bases, rock walls, or ledges in diverse mesic or dry lowland forest, often with *Diospyros hillebrandii, Diospyros sandwicensis,* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Schiedea hookeri*—f

This unit is critical habitat for *Schiedea hookeri* and is 10 ha (25 ac) on private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit, in combination with Oahu 15—*Schiedea hookeri*—e, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Schiedea hookeri* and is occupied by at 63 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Schiedea hookeri* include, but are not limited to, slopes, cliffs or cliff bases, rock walls, or ledges in diverse mesic or dry lowland forest, often with *Diospyros hillebrandii, Diospyros sandwicensis,* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all

recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Schiedea hookeri*—g

This unit is critical habitat for *Schiedea hookeri* and is 83 ha (204 ac) on Federal (Lualualei Naval Reservation), State, and private lands, containing Puu Kaua. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Schiedea hookeri* and is occupied by 42 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Schiedea hookeri* include, but are not limited to, slopes, cliffs or cliff bases, rock walls, or ledges in diverse mesic or dry lowland forest, often with *Diospyros hillebrandii, Diospyros sandwicensis,* or *Metrosideros polymorpha.* This unit is geographically separated from critical habitat designated elsewhere on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Schiedea kaalae*—a

This unit is critical habitat for *Schiedea kaalae* and is 426 ha (1,051 ac) on State (Pahole NAR and Mokuleia Forest Reserve) lands. There are no named natural features in this unit. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Schiedea kaalae* and is occupied by 2 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered to be nonviable. The habitat features contained in this unit that are essential to *Schiedea kaalae* include, but are not limited to, steep slopes, cliffs, stream banks, or deep shade in diverse mesic or wet forests. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Schiedea kaalae*—b

This unit is critical habitat for *Schiedea kaalae* and is 134 ha (331 ac) on private (Honouliuli Preserve) lands, containing Puu Kanehoa. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Schiedea kaalae* and is occupied by 8 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered to be nonviable. The habitat features contained in this unit that are essential to *Schiedea kaalae* include, but are not limited to, steep slopes, cliffs, stream banks, or deep shade in diverse mesic or wet forests. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Schiedea kaalae*—c

This unit is critical habitat for *Schiedea kaalae* and is 22 ha (53 ac) on private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Schiedea kaalae* and is occupied by 13 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered to be nonviable. The habitat features contained in this unit that are essential to *Schiedea kaalae* include, but are not limited to, steep slopes, cliffs, stream banks, or deep shade in diverse mesic or wet forests. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Schiedea kaalae*—d

This unit is critical habitat for *Schiedea kaalae* and is 39 ha (97 ac) on private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Schiedea kaalae* and is occupied by one individual. This unit is essential to the species' conservation because it supports occupied habitat that is important for the expansion of the present population, which is currently considered to be nonviable. The habitat features contained in this unit that are essential to *Schiedea kaalae* include, but are not limited to, steep slopes, cliffs, stream banks, or deep shade in diverse mesic or wet forests. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Schiedea kaalae*—e

This unit is critical habitat for *Schiedea kaalae* and is 379 ha (934 ac) on State (Hanuula Forest Reserve, Sacred Falls State Park and Kaipapau Forest Reserve) and private lands, containing Sacred Falls. The unit provides habitat for 3 populations of 300 mature, reproducing individuals of the short-lived perennial *Schiedea kaalae* and is occupied by 15 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered to be nonviable. The habitat features contained in this unit that are essential to *Schiedea kaalae* include, but are not limited to, steep slopes, cliffs, stream banks, or deep shade in diverse mesic or wet forests. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 21—*Schiedea kaalae*—f

This unit is critical habitat for *Schiedea kaalae* and is 105 ha (206 ac) on State (Kahana Valley State Park) and private lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Schiedea kaalae* and is occupied by one individual. This unit is essential to the species' conservation because it supports occupied habitat that is important for the expansion of the present population, which is currently considered to be nonviable. The habitat features contained in this unit that are essential to *Schiedea kaalae* include, but are not limited to, steep slopes, cliffs, stream banks, or deep shade in diverse mesic or wet forests. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 1—*Schiedea kealiae*—a

This unit is critical habitat for *Schiedea kealiae* and is 193 ha (477 ac) on State (Kaena Point State Park and

Kuaokala Forest Reserve) and private lands, containing Alei Pali, Haili Gulch, Mahoe Pali, Manini Pali, Nihoa Gulch, Peacock Flat Trail, Puu Pueo, and Uluhulu Gulch. The unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Schiedea kealiae* and is occupied by 320 individuals. This unit is essential to the species' conservation because it supports occupied habitat that is important for the establishment of additional populations. The habitat features contained in this unit that are essential to *Schiedea kealiae* include, but are not limited to, steep slopes and cliff faces in dry remnant *Erythrina sandwicensis* forest. We do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species.

Oahu 4—*Schiedea nuttallii*—a

This unit is critical habitat for *Schiedea nuttallii* and is 527 ha (1,304 ac) on State (Mokuleia Forest Reserve and Pahole and Kaala NARs) lands. There are no named natural features in this unit. The unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Schiedea nuttallii* and is occupied by 370 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population. The habitat features contained in this unit that are essential to *Schiedea nuttallii* include, but are not limited to, rock walls, forested slopes, or steep walls in *Acacia koa-Metrosideros polymorpha* lowland mesic forest or *Metrosideros polymorpha-Dodonaea viscosa* forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Molokai in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Schiedea nuttallii*—b

This unit is critical habitat for *Schiedea nuttallii* and is 141 ha (347 ac) on State and private (Honouliuli Preserve) lands, containing Puu Kanehoa. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Schiedea nuttallii* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Schiedea nuttallii* include, but are not limited to, rock walls, forested slopes, or steep walls in *Acacia koa-Metrosideros polymorpha* lowland mesic forest or *Metrosideros polymorpha-Dodonaea viscosa* forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Molokai in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Schiedea nuttallii*—c

This unit is critical habitat for *Schiedea nuttallii* and is 41 ha (102 ac) on private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Schiedea nuttallii* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Schiedea nuttallii* include, but are not limited to, rock walls, forested slopes, or steep walls in *Acacia koa-Metrosideros polymorpha* lowland mesic forest or *Metrosideros polymorpha-Dodonaea viscosa* forest. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai and Molokai in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 1—*Sesbania tomentosa*—a

This unit is critical habitat for *Sesbania tomentosa* and is 101 ha (250 ac) on Federal, State (Kaena Point State Park and Kaena Point NAR), and private lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Sesbania tomentosa* and is occupied by 53 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Sesbania tomentosa* include, but are not limited to, cliff faces, broken basalt, or sand dunes with rock outcrops in *Scaevola sericea* coastal dry shrubland or *Sporobolus virginicus* mixed grasslands. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai, Molokai, Maui, and the Northwestern Hawaiian Island in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 18—*Sesbania tomentosa*—b

This unit is critical habitat for *Sesbania tomentosa* and is 5 ha (12 ac) on State (Mokualula State Seabird Sanctuary) lands that contain Mokualula Island. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Sesbania tomentosa* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Sesbania tomentosa* include, but are not limited to, cliff faces, broken basalt, or sand dunes with rock outcrops in *Scaevola sericea* coastal dry shrubland or *Sporobolus virginicus* mixed grasslands. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai, Molokai, Maui, and the Northwestern Hawaiian Island in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Silene lanceolata*—a

This unit is critical habitat for *Silene lanceolata* and is 113 ha (281 ac) on State (Waianae Kai Forest Reserve) lands, containing Puu Kawiwi. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Silene lanceolata* and is occupied by 12 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered to be not viable. The habitat features contained in this unit that are essential to *Silene lanceolata* include, but are not limited to, cliff faces or ledges of gullies in dry to mesic shrubland or cliff communities. This unit is geographically separated from critical habitat designated on Molokai in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Silene perlmanii*—a

This unit is critical habitat for *Silene perlmanii* and is 65 ha (162 ac) on Federal (Lualualei Naval Reservation) and State lands, containing Puu Kawiwi. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-

lived perennial *Silene perlmanii* and is occupied by at 12 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Silene perlmanii* include, but are not limited to, steep rocky slopes in *Acacia koa-Metrosideros polymorpha* lowland mesic forest. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other three units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Silene perlmanii*—b

This unit is critical habitat for *Silene perlmanii* and is 5 ha (12 ac) on private (Honouluili Preserve) lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Silene perlmanii* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Silene perlmanii* include, but are not limited to, steep rocky slopes in *Acacia koa-Metrosideros polymorpha* lowland mesic forest. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other three units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Silene perlmanii*—c

This unit is critical habitat for *Silene perlmanii* and is 49 ha (124 ac) on State and private lands in the Waianae Mountains. There are no named natural features in this unit. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Silene perlmanii* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Silene perlmanii* include, but are not limited to, steep rocky slopes in *Acacia koa-Metrosideros polymorpha* lowland mesic forest. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other three units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 15—*Silene perlmanii*—d

This unit is critical habitat for *Silene perlmanii* and is 52 ha (130 ac) on private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Silene perlmanii* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Silene perlmanii* include, but are not limited to, steep rocky slopes in *Acacia koa-Metrosideros polymorpha* lowland mesic forest. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other three units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Solanum sandwicense*—a

This unit is critical habitat for *Solanum sandwicense* and is 104 ha (258 ac) on State (Pahole NAR and Mokuleia Forest Reseve) lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Solanum sandwicense* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Solanum sandwicense* include, but are not limited to, talus slopes or streambeds in open, sunny areas. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Solanum sandwicense*—b

This unit is critical habitat for *Solanum sandwicense* and is 146 ha (361 ac) on State and private (Honouliuli Preserve) lands, containing Puu Kanehoa. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Solanum sandwicense* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Solanum sandwicense* include, but are not limited to, talus slopes or streambeds in open, sunny areas. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Solanum sandwicense*—c

This unit is critical habitat for *Solanum sandwicense* and is 78 ha (192 ac) on State and private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Solanum sandwicense* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Solanum sandwicense* include, but are not limited to, talus slopes or streambeds in open, sunny areas. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 5—*Spermolepis hawaiiensis*—a

This unit is critical habitat for *Spermolepis hawaiiensis* and is 21 ha (53 ac) on State and private lands, containing Kaneana Cave. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Spermolepis hawaiiensis* and is occupied by 32 individuals. This unit is essential to the

species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Spermolepis hawaiiensis* include, but are not limited to, steep or vertical cliffs or the base of cliffs or ridges in coastal dry cliff vegetation. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai, Molokai, and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 31—*Spermolepis hawaiiensis*—b

This unit is critical habitat for *Spermolepis hawaiiensis* and is 116 ha (286 ac) on State (Diamond Head State Park) lands, containing Kuilei Cliffs. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Spermolepis hawaiiensis* and is occupied by 10 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Spermolepis hawaiiensis* include, but are not limited to, steep or vertical cliffs or the base of cliffs or ridges in coastal dry cliff vegetation. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Kauai, Molokai, and Maui for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Stenogyne kanehoana*—a

This unit is critical habitat for *Stenogyne kanehoana* and is 140 ha (347 ac) on Federal (Lualualei Naval Reservation), State, and private lands (Honouliuli Preserve), containing Puu Hapapa and Puu Kanehoa. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Stenogyne kanehoana* and is occupied by 6 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Stenogyne kanehoana* include, but are not limited to, lowland mesic forest. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other unit designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. In addition, this unit is geographically separated from Army lands at Schofield Barracks that provide habitat for two populations of this species.

Oahu 15—*Stenogyne kanehoana*—b

This unit is critical habitat for *Stenogyne kanehoana* and is 43 ha (107 ac) on State and private (Honouliuli Preserve) lands, containing the Palikea Summit and the Laikea Trail. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Stenogyne kanehoana* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Stenogyne kanehoana* include, but are not limited to, lowland mesic forest. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other unit designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event. In addition, this unit is geographically separated from Army lands at Schofield Barracks that provide habitat for two populations of this species.

Oahu 4—*Tetramolopium filiforme*—a

This unit is critical habitat for *Tetramolopium filiforme* and is 111 ha (273 ac) on State (Waianae Kai Forest Reserve) lands, containing Puu Kawiwi. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Tetramolopium filiforme* and is occupied by one individual. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present populations, which is currently considered nonviable, and the establishment of one additional population. The habitat features contained in this unit that are essential to *Tetramolopium filiforme* include, but are not limited to, dry cliff faces or ridges in dry or mesic forests. We do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species. However, this unit is geographically separated from Army lands at Makua and Schofield that provide habitat for four populations of this species, in order to avoid all populations being destroyed by one naturally occurring catastrophic event (see ''*Analysis of Impacts Under Section 4(b)(2): Other Impacts*'').

Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—a

This unit is critical habitat for *Tetramolopium lepidotum* ssp. *lepidotum* and is 167 ha (413 ac) on State (Kaala NAR, Mokuleia Forest Reserve) lands, containing Kamaohanui Summit. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Tetramolopium lepidotum* ssp. *lepidotum* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Tetramolopium lepidotum* ssp. *lepidotum* include, but are not limited to, grassy ridgetops, slopes, or cliffs in windblown dry forests. This unit is geographically separated from the other five units designated as critical habitat on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—b

This unit is critical habitat for *Tetramolopium lepidotum* ssp. *lepidotum* and is 23 ha (56 ac) on State (Waianae Kai Forest Reserve) lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Tetramolopium lepidotum* ssp. *lepidotum* and is occupied by 8 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Tetramolopium lepidotum* ssp. *lepidotum* include, but are not limited to, grassy ridgetops, slopes, or cliffs in windblown dry forests. This unit is geographically separated from the other five units designated as critical habitat on Oahu for this species in order

to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—c

This unit is critical habitat for *Tetramolopium lepidotum* ssp. *lepidotum* and is 11 ha (28 ac) on Federal lands (Lualualei Naval Reservation), containing Puu Hapapa. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Tetramolopium lepidotum* ssp. *lepidotum* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Tetramolopium lepidotum* ssp. *lepidotum* include, but are not limited to, grassy ridgetops, slopes, or cliffs in windblown dry forests. This unit is geographically separated from the other five units designated as critical habitat on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—d

This unit is critical habitat for *Tetramolopium lepidotum* ssp. *lepidotum* and is 94 ha (233 ac) on Federal (Lualualei Naval Reservation), State, and private (Honouliuli Preserve) lands, containing Puu Kanehoa. The unit, in combination with Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—e, provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Tetramolopium lepidotum* ssp. *lepidotum* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Tetramolopium lepidotum* ssp. *lepidotum* include, but are not limited to, grassy ridgetops, slopes, or cliffs in windblown dry forests. This unit is geographically separated from the other five units designated as critical habitat on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—e

This unit is critical habitat for *Tetramolopium lepidotum* ssp. *lepidotum* and is 1 ha (3 ac) on State and private (Honouliuli Preserve) lands. There are no named natural features in this unit. The unit, in combination with Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—d, provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Tetramolopium lepidotum* ssp. *lepidotum*. It is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Tetramolopium lepidotum* ssp. *lepidotum* include, but are not limited to, grassy ridgetops, slopes, or cliffs in windblown dry forests. This unit is geographically separated from the other five units designated as critical habitat on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—f

This unit is critical habitat for *Tetramolopium lepidotum* ssp. *lepidotum* and is 259 ha (641 ac) on Federal (Lualualei Naval Reservation), State, and private lands, containing Palikea Summit. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Tetramolopium lepidotum* ssp. *lepidotum* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Tetramolopium lepidotum* ssp. *lepidotum* include, but are not limited to, grassy ridgetops, slopes, or cliffs in windblown dry forests. This unit is geographically separated from the other five units designated as critical habitat on Oahu for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Tetraplasandra gymnocarpa*—a

This unit is critical habitat for *Tetraplasandra gymnocarpa* and is 457 ha (1,129 ac) on State (Sacred Falls State Park, Hauula Forest Reserve, and Kaipapau Forest Reserve) and private lands, containing the Koolau Summit Trail. The unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Tetraplasandra gymnocarpa* and is occupied by 24 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Tetraplasandra gymnocarpa* include, but are not limited to, windswept summit ridges, slopes, or gullies in wet or sometimes mesic lowland forests or shrublands. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Tetraplasandra gymnocarpa*—b

This unit is critical habitat for *Tetraplasandra gymnocarpa* and is 235 ha (581 ac) on State (Kahana Valley State Park), and private lands, containing Puu Kaaumakua. The unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Tetraplasandra gymnocarpa* and is occupied by 5 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Tetraplasandra gymnocarpa* include, but are not limited to, windswept summit ridges, slopes, or gullies in wet or sometimes mesic lowland forests or shrublands. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Tetraplasandra gymnocarpa*—c

This unit is critical habitat for *Tetraplasandra gymnocarpa* and is 411 ha (1,018 ac) on State (Waiahole Forest Reserve and Ewa Forest Reserve) and private lands, containing Eleao Summit. The unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Tetraplasandra gymnocarpa* and is occupied by 2 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently

considered nonviable. The habitat features contained in this unit that are essential to *Tetraplasandra gymnocarpa* include, but are not limited to, windswept summit ridges, slopes, or gullies in wet or sometimes mesic lowland forests or shrublands. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Tetraplasandra gymnocarpa*—d

This unit is critical habitat for *Tetraplasandra gymnocarpa* and is 362 ha (894 ac) on Federal, State (Waiahole Forest Reserve and Kaneohe Forest Reserve), and private lands, containing Puu Kahualuli and Puu Keahiakahoe. The unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Tetraplasandra gymnocarpa* and is occupied by 28 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Tetraplasandra gymnocarpa* include, but are not limited to, windswept summit ridges, slopes, or gullies in wet or sometimes mesic lowland forests or shrublands. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 35—*Tetraplasandra gymnocarpa*—e

This unit is critical habitat for *Tetraplasandra gymnocarpa* and is 152 ha (377 ac) on State (Honolulu Watershed Forest Reserve) lands, containing Konahuanui Summit. The unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Tetraplasandra gymnocarpa* and is occupied by 5 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Tetraplasandra gymnocarpa* include, but are not limited to, windswept summit ridges, slopes, or gullies in wet or sometimes mesic lowland forests or shrublands. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 35—*Tetraplasnadra gymnocarpa*—f

This unit is critical habitat for *Tetraplasandra gymnocarpa* and is 213 ha (528 ac) on State (Honolulu Watershed Forest Reserve) and private lands. There are no named natural features in this unit. The unit provides habitat for one population of 100 mature, reproducing individuals of the long-lived perennial *Tetraplasandra gymnocarpa* and is occupied by 15 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Tetraplasandra gymnocarpa* include, but are not limited to, windswept summit ridges, slopes, or gullies in wet or sometimes mesic lowland forests or shrublands. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Trematolobelia singularis*—a

This unit is critical habitat for *Trematolobelia singularis* and is 86 ha (219 ac) on Federal, State (Waiahole Forest Reserve and Ewa Forest Reserve), and private lands, containing Eleao Summit. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Trematolobelia singularis* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Trematolobelia singularis* include, but are not limited to, steep, windswept cliff faces or slopes in *Metrosideros polymorpha-Dicranopteris linearis* lowland wet shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other four units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 20—*Trematolobelia singularis*—b

This unit is critical habitat for *Trematolobelia singularis* and is 10 ha (26 ac) on Federal, State, and private lands, containing Puu Keahiakahoe. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Trematolobelia singularis* and is occupied by 50 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Trematolobelia singularis* include, but are not limited to, steep, windswept cliff faces or slopes in *Metrosideros polymorpha-Dicranopteris linearis* lowland wet shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other four units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 34—*Trematolobelia singularis*—c

This unit is critical habitat for *Trematolobelia singularis* and is 2 ha (5 ac) on State (Honolulu Watershed Forest Reserve) and private lands, containing Kainawaaunui Summit, Mount Olympus, Palikea Summit, and Puu Lanipo. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Trematolobelia singularis* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Trematolobelia singularis* include, but are not limited to, steep, windswept cliff faces or slopes in *Metrosideros polymorpha-Dicranopteris linearis* lowland wet shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other four units designated as critical habitat for this island-endemic species to avoid all recovery populations from being

destroyed by one naturally occurring catastrophic event.

Oahu 35—*Trematolobelia singularis*—d

This unit is critical habitat for *Trematolobelia singularis* and is 13 ha (33 ac) on State lands, containing Puu Lanihuli. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Trematolobelia singularis* and is occupied by 100 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Trematolobelia singularis* include, but are not limited to, steep, windswept cliff faces or slopes in *Metrosideros polymorpha-Dicranopteris linearis* lowland wet shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other four units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 35—*Trematolobelia singularis*—e

This unit is critical habitat for *Trematolobelia singularis* and is 26 ha (64 ac) on State (Honolulu Watershed Forest Reserve) and private lands, containing Konahuanui Summit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Trematolobelia singularis* and is occupied by 15 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Trematolobelia singularis* include, but are not limited to, steep, windswept cliff faces or slopes in *Metrosideros polymorpha-Dicranopteris linearis* lowland wet shrubland. Although we do not believe that enough habitat currently exists to reach the recovery goal of 8 to 10 populations for this species, this unit is geographically separated from the other four units designated as critical habitat for this island-endemic species to avoid all recovery populations from being destroyed by one naturally occurring catastrophic event.

Oahu 4—*Urera kaalae*—a

This unit is critical habitat for *Urera kaalae* and is 53 ha (133 ac) on State (Waianae Kai Forest Reserve) lands. There are no named natural features in this unit. The unit, in combination with Oahu 4—*Urera kaalae*—b, provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Urera kaalae* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Urera kaalae* include, but are not limited to, slopes or gulches in diverse mesic forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Urera kaalae*—b

This unit is critical habitat for *Urera kaalae* and is 17 ha (43 ac) on State (Honolulu Watershed Forest Reserve) lands. There are no named natural features in this unit. The unit, in combination with Oahu 4—*Urera kaalae*—a, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Urera kaalae* and is occupied by 3 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Urera kaalae* include, but are not limited to, slopes or gulches in diverse mesic forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Urera kaalae*—c

This unit is critical habitat for *Urera kaalae* and is 224 ha (555 ac) on Federal (Lualualei Naval Reservation) and private (Honouliuli Preserve) lands, containing Puu Hapapa and Puu Kanehoa. The unit provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Urera kaalae* and is occupied by 4 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Urera kaalae* include, but are not limited to, slopes or gulches in diverse mesic forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Urera kaalae*—d

This unit is critical habitat for *Urera kaalae* and is 35 ha (87 ac) on private (Honoliuli Preserve) lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Urera kaalae* and is occupied by 7 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Urera kaalae* include, but are not limited to, slopes or gulches in diverse mesic forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Urera kaalae*—e

This unit is critical habitat for *Urera kaalae* and is 51 ha (125 ac) on Federal (Lualualei Naval Reservation) and State lands. There are no named natural features in this unit. The unit, in combination with Oahu 15—*Urera kaalae*—f, provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Urera kaalae* and is occupied by 6 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Urera kaalae* include, but are not limited to, slopes or gulches in diverse mesic forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being

destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Urera kaalae*—f

This unit is critical habitat for *Urera kaalae* and is 82 ha (202 ac) on State and private (Honouliuli Preserve) lands, containing Palikea Summit. The unit, in combination with Oahu 15—*Urera kaalae*—e, provides habitat for 2 populations of 300 mature, reproducing individuals of the short-lived perennial *Urera kaalae* and is occupied by 31 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Urera kaalae* include, but are not limited to, slopes or gulches in diverse mesic forest. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 1—*Vigna o-wahuensis*—a

This unit is critical habitat for *Vigna o-wahuensis* and is 180 ha (447 ac) on State (Kaena Point State Park) lands, containing Alau Gulch, Alei Pali, Nihoa Gulch, Puu Pueo, and Uluhulu Gulch. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Vigna o-wahuensis* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Vigna o-wahuensis* include, but are not limited to, open dry fossil reef, with shrubs or grasses or fairly steep slopes. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui and Kahoolawe for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 24—*Vigna o-wahuensis*—b

This unit is critical habitat for *Vigna o-wahuensis* and is 4 ha (12 ac) on State (Mokulua Island State Seabird Sactuary) lands, containing the Mokulua Islands. The unit, in combination with Oahu 25—*Vigna o-wahuensis*—c, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Vigna o-wahuensis* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Vigna o-wahuensis* include, but are not limited to, open dry fossil reef with shrubs or grasses or fairly steep slopes. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui and Kahoolawe for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 25—*Vigna o-wahuensis*—c

This unit is critical habitat for *Vigna o-wahuensis* and is 4 ha (9 ac) on State (Mokulua Island State Seabird Sactuary) lands, containing the Mokulua Islands. The unit, in combination with Oahu 24—*Vigna o-wahuensis*—b, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Vigna o-wahuensis* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Vigna o-wahuensis* include, but are not limited to, open dry fossil reef with shrubs or grasses or fairly steep slopes. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui and Kahoolawe for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 26—*Vigna o-wahuensis*—d

This unit is critical habitat for *Vigna o-wahuensis* and is 26 ha (63 ac) on State (Manana Island State Seabird Sanctuary) lands, containing Manana Island. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Vigna o-wahuensis* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Vigna o-wahuensis* include, but are not limited to, open dry fossil reef with shrubs or grasses or fairly steep slopes. This unit is geographically separated from critical habitat designated elsewhere on Oahu and on Maui and Kahoolawe for this species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—a

This unit is critical habitat for *Viola chamissoniana* ssp. *chamissoniana* and is 199 ha (491 ac) on State (Kaala NAR and Mokuleia Forest Reserve) lands. There are no named natural features in this unit. The unit provides habitat for 4 populations of 300 mature, reproducing individuals of the short-lived perennial *Viola chamissoniana* ssp. *chamissoniana* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Viola chamissoniana* ssp. *chamissoniana* include, but are not limited to, dry cliffs, rocky ledges, or steep slopes in mesic shrubland or cliff vegetation. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—b

This unit is critical habitat for *Viola chamissoniana* ssp. *chamissoniana* and is 10 ha (25 ac) on State (Waianae Kai Forest Reserve) lands. There are no named natural features in this unit. The unit, in combination with Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—c, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Viola chamissoniana* ssp. *chamissoniana* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Viola chamissoniana* ssp. *chamissoniana* include, but are not limited to, dry cliffs, rocky ledges, or steep slopes in mesic shrubland or cliff vegetation. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—c

This unit is critical habitat for *Viola chamissoniana* ssp. *chamissoniana* and

is 22 ha (55 ac) on State (Waianae Kai Forest Reserve) lands, containing Puu Kawiwi. The unit, in combination with Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—b, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Viola chamissoniana* ssp. *chamissoniana* and is occupied by 5 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Viola chamissoniana* ssp. *chamissoniana* include, but are not limited to, dry cliffs, rocky ledges, or steep slopes in mesic shrubland or cliff vegetation. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 10—*Viola chamissoniana* ssp. *chamissoniana*—d

This unit is critical habitat for *Viola chamissoniana* ssp. *chamissoniana* and is 6 ha (15 ac) on Federal lands (Lualualei Naval Reservation). There are no named natural features in this unit. The unit, in combination with Oahu 15—*Viola chamissoniana* ssp. *chamissoniana*—e, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Viola chamissoniana* ssp. *chamissoniana* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Viola chamissoniana* ssp. *chamissoniana* include, but are not limited to, dry cliffs, rocky ledges, or steep slopes in mesic shrubland or cliff vegetation. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Viola chamissoniana* ssp. *chamissoniana*—e

This unit is critical habitat for *Viola chamissoniana* ssp. *chamissoniana* and is 13 ha (31 ac) on Federal lands (Lualualei Naval Reservation). There are no named natural features in this unit. The unit, in combination with Oahu 10—*Viola chamissoniana* ssp. *chamissoniana*—d, provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Viola chamissoniana* ssp. *chamissoniana* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Viola chamissoniana* ssp. *chamissoniana* include, but are not limited to, dry cliffs, rocky ledges, or steep slopes in mesic shrubland or cliff vegetation. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 15—*Viola chamissoniana* ssp. *chamissoniana*—f

This unit is critical habitat for *Viola chamissoniana* ssp. *chamissoniana* and is 29 ha (72 ac) on Federal (Lualualei Naval Reservation) and private lands. There are no named natural features in this unit. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Viola chamissoniana* ssp. *chamissoniana* and is occupied by 3 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Viola chamissoniana* ssp. *chamissoniana* include, but are not limited to, dry cliffs, rocky ledges, or steep slopes in mesic shrubland or cliff vegetation. This unit is geographically separated from the other five units designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 20—*Viola oahuensis*—a

This unit is critical habitat for *Viola oahuensis* and is 903 ha (2,232 ac) on Federal (Oahu Forest National Wildlife Refuge), State (Hauula Forest Reserve, Sacred Falls State Park, Kaipapau Forest Reserve, Kahana Valley State Park, Ewa Forest Reserve, and Waiahole Forest Reserve), and private lands, containing Eleao Summit, Puu Kahuauli, Puu Keahiakahoe, Puu Pauao, and the Koolau Summit Trail. The unit provides habitat for 6 populations of 300 mature, reproducing individuals of the short-lived perennial *Viola oahuensis* and is occupied by 67 individuals. This unit is essential to the species' conservation because it supports an extant colony and includes habitat that is necessary for the expansion of the present population, which is currently considered nonviable. The habitat features contained in this unit that are essential to *Viola oahuensis* include, but are not limited to, exposed, windswept ridges of moderate to steep slope in wet *Metrosideros polymorpha-Dicranopteris linearis* shrublands or *Metrosideros polymorpha* mixed montane bogs in the cloud zone. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

Oahu 35—*Viola oahuensis*—b

This unit is critical habitat for *Viola oahuensis* and is 74 ha (186 ac) on State (Honolulu Watershed Forest Reserve) lands, containing Konahuanui Summit and Mount Olympus. The unit provides habitat for one population of 300 mature, reproducing individuals of the short-lived perennial *Viola oahuensis* and is currently unoccupied. This unit is essential to the species' conservation because it supports habitat that is necessary for the establishment of additional populations on Oahu in order to reach recovery goals. The habitat features contained in this unit that are essential to *Viola oahuensis* include, but are not limited to, exposed, windswept ridges of moderate to steep slope in wet *Metrosideros polymorpha-Dicranopteris linearis* shrublands or *Metrosideros polymorpha* mixed montane bogs in the cloud zone. This unit is geographically separated from the other unit designated as critical habitat for this island-endemic species in order to avoid all recovery populations being destroyed by one naturally-occurring catastrophic event.

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. 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 affected by the designation of critical habitat when their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding.

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to evaluate their actions with respect to any species that is listed as endangered or threatened and with respect to its critical habitat, if any is designated. If a Federal action may affect a listed species or its critical habitat, the responsible Federal action agency must enter into consultation with us. Through this consultation, the action agency would ensure that the permitted actions do not destroy or adversely modify critical habitat. 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 destruction or adverse modification of proposed critical habitat. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate formal 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. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Activities on Federal lands that may affect critical habitat of one or more of the 99 plant species from Oahu 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) will also continue to be subject to the section 7 consultation process. Federal actions not affecting critical habitat and actions on non-Federal lands that are not federally funded, authorized, or permitted do not require section 7 consultation.

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

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

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

If you have questions regarding whether specific activities will likely constitute adverse modification of critical habitat, contact the Field Supervisor, Pacific Islands Ecological Services Field Office (see **ADDRESSES** section). Requests for copies of the regulations on listed plants and animals, and inquiries about prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Branch of Endangered Species/Permits, 911 N.E. 11th Ave., Portland, 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 is of 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 considered to be 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 99 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 with a telephone contact. We also met with staff from the Oahu District DOFAW office to discuss management activities they are conducting on Oahu.

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 carry 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 their 1998 report to us (''Habitat Essential to the Recovery of Hawaiian Plants''). As summarized in this report, recovery goals for endangered Hawaiian plant species cannot be achieved without the effective control of 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 99 species (Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997, 1998a, 1998b, 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 99 species of plants are found on Federal, State, and private lands on the island of Oahu. Information received in response to our public notices; meetings with Oahu District DOFAW staff; the May 28, 2002, proposal; public comment periods; and the November 19, 2002, public hearing; 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.

The following discussion analyzes current management plans that provide a conservation benefit to the species on lands under U.S. Army jurisdiction to assess whether they meet the Service's requirements for adequate management or protection.

The Sikes Act Improvements Act of 1997 (Sikes Act) requires each military installation that includes land and water suitable for the conservation and management of natural resources to complete, by November 17, 2001, an 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. We consult with the military on the development and implementation of INRMPs for installations with listed species. 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.

Lands Under U.S. Army Jurisdiction

The Army has six installations under its jurisdiction on Oahu: Dillingham Military Reservation (DMR), Kawailoa Training Area (KLOA), Kahuku Training Area (KTA), Makua Military Reservation (MMR), Schofield Barracks Military Reservation (SBMR), and Schofield Barracks East Range (SBER). All of these lands are administered by the Army Garrison, Hawaii, for various types of routine military training. The Army has completed an INRMP (Army 2002), an Ecosystem Management Plan (Army 1998), and an Endangered Species Management Plan (Research Corporation of Hawaii (RCUH) 1998) for all of the Oahu training areas. These plans encompass management actions that will benefit all 76 listed plant species for which critical habitat has been proposed on these Army lands. They have a completed Wildland Fire Management Plan (WFMP) for MMR (Army 2000) and a draft plan which includes the other five installations (Army 2003). The goal of the WFMP is to reduce the threat of wildfire which adversely affects threatened and endangered species on all six installations. The Army also provides monthly and annual summary reports (Col. W.E. Ryan III, Army, *in litt.* 2000–2002; Col. F.A. Quintana, Army, *in litt.* 2002–2003) regarding the natural resources management projects performed under the Ecosystems Management Program for all six installations (RCUH 1998, 1999, 2000, 2001 and 2002). These reports provide information on management actions which have been implemented and which of these have proven beneficial to populations of listed species.

The INRMP describes specific actions for each installation, including anticipated implementation schedules. It includes hundreds of ongoing and proposed actions within the time frame of the INRMP designed to address the variety of threats faced by these plant species at appropriate scales: Species-specific, small areas, watersheds, and installation-wide. Examples of management activities directed towards the conservation of listed plants and their habitat include: (1) Field surveys to identify new populations of threatened and endangered plant species in previously unsurveyed areas and areas of suitable habitat; (2) development of a web-based system for a rare plant database; (3) establishment of a GIS database to store data to be used to monitor threatened and endangered plant species; (4) maintenance a GIS database updated with results of field surveys; (5) determining effects of military actions on threatened and endangered plants species through monitoring known populations of threatened and endangered plant species; (6) evaluation and determination of plant propagation needs and storage facilities; (7) identification of research needs regarding pollination biology and establishment of a GIS database to store data to be used to monitor threatened and endangered plant species; (8) propagation and outplanting of threatened and endangered plant species; and (9) creation of a full-time horticulturist position to identify and implement management actions for threatened and endangered plant species (Army 2002).

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 transects; (2) development and establishment of a GIS database to maintain these transect data; (3) implementation of ungulate control measures as necessary in areas where there are populations or occurrences of threatened and endangered species; (4) evaluation of ungulate control efforts to determine if permanent management units are required; and (5) monitoring and maintenance of existing fenced units. In addition, management actions for control of nonnative plant species include: (1) The control and eradication of nonnative incipient plant species, particularly in areas where threatened and endangered species occur; (2) control of widespread nonnative plant species where they threaten native plant communities; and (3) establishment of a GIS database for nonnative plant location data, and updating nonnative plant location maps to track and prioritize control efforts (Army 2002).

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 are important in providing a conservation benefit to the species, therefore, the plan provides a conservation benefit to the species.

In terms of providing assurances that the management plant will be implemented, the INRMP provides implementation schedules and identifies funding needs for each installation through the year 2006. Examples of those programs identified for funding include the Endangered Species Management, Biodiversity and Ecosystem Integrity, Watershed Management, Conservation Education and Outreach, and Pest Management. 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).

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 their existing INRMP to include additional monitoring of federally listed plants and their habitat at all of their Oahu installations to determine the success of identified management activities. 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.

As all three criteria above have been met, the Service has determined that lands on the island of Oahu 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 Oahu 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 (50 CFR section 424.14(g)). Although these areas are removed from the final critical habitat designation, the number of populations that habitat on these installations 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 recent decisions in the *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 26, 2002 (67 FR 78763). Following the close of the comment period, 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. Together, the draft economic analysis and the addendum constitute our final economic analysis.

Our economic analysis evaluated the potential direct and indirect economic impacts associated with the proposed critical habitat designation for the 99 plant species from the island of Oahu 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).

The analysis in the DEA incorporated two baselines: one that addressed the impact of the proposed critical habitat designation that may be attributable coextensively to the listing of the species, and one that addressed the incremental impact of the proposed designation.

The Addendum utilizes only the first of the two baselines. 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.

The final economic analysis estimates that, over the next 10 years, the designation (co-extensive with the listing in some instances) may result in potential direct economic effects from implementation of section 7 ranging from approximately $8.3 million to $20.3 million in quantifiable costs. This is an increase from the range of $1.1 to $2.4 million in the draft economic analysis. The increase is primarily due to revised estimates associated with section 7 consultations on Army lands. All other direct costs stay the same or decrease, due primarily to the exclusion of proposed units Oahu C, Oahu M, Oahu P, and Oahu V from final designation and the significant reduction in size to proposed units Oahu A, Oahu G, Oahu L, and Oahu W 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 Army lands that were proposed as critical habitat but have been removed from the final designation. Therefore, the direct cost of designating critical habitat for these 99 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 99 plant species on Oahu, the reported costs are often unquantifiable and discussed in qualitative terms. In general, most of the potential indirect effects are thought to have a low probability of occurrence. The final economic analysis concludes the probability that some land within the Urban and Agricultural Districts would be redistricted to Conservation is considered moderate to high. However,

the analysis concludes it is unlikely that all lands within the Urban and Agricultural Districts would be redistricted to Conservation. In addition, such redistricting is not expected to have a significant economic impact because the land most likely converted to the Conservation District are those with a high value for conservation and low economic value (*i.e.,* not suitable for development). The final economic analysis also discusses 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.

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).

Other than the Army lands discussed below, no critical habitat units in the proposed rule were excluded or modified due to a determination that the benefits of excluding the lands, taking into account the economic and other relevant impacts, exceeded the benefits of specifying them as critical habitat.

Other Impacts

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 Final Integrated Natural Resources Management Plan (INRMP) for Oahu Training Areas (Department of the Army 2002) for the plant species addressed in this proposal which are found on Army lands, in accordance with section 3(5)(A)(i) of the Act, we have not included the Army's Dillingham Military Reservation (DMR), Kawailoa Training Area (KLOA), Kahuku Training Area (KTA), Makua Military Reservation (MMR), Schofield Barracks Military Reservation (SBMR), and Schofield Barracks East Range (SBER), in this final designation of critical habitat. However, to the extent that special management considerations and protection may be required for these areas and they, therefore, would meet the definition of critical habitat according to section 3(5)(A)(i), they are 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 76 species listed above at DMR, KLOA, KTA, MMR, SBMR, and SBER are relatively low and outweighed by the benefits of excluding these areas 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 Oahu and otherwise adversely impact national security.

The Army's DMR, KLOA, KTA, MMR, SBMR, and SBER are occupied habitat for 53 species and unoccupied habitat for 23 species, as referenced above. A total of 10,905 hectares (26,946 acres) are excluded from final critical habitat; of this total, 6,208 hectares (15,340 acres) are considered occupied by one or more listed species, while 4,697 hectares (11,606 acres) are considered unoccupied. The unoccupied habitat is located in the northern portion of the Koolau Mountains.

According to our published recovery plans, recovery of these 76 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 due to natural disaster or biological threats (Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997, 1998a, 1998b, 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 lands on Oahu as part of the implementation of the INRMP for Oahu Training Areas. 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 lands compared to the likely positive and negative impacts of a critical habitat exclusion of those lands. 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

The six Army Oahu installations contain habitat essential to the conservation of the 76 species listed above. The primary regulatory benefit provided by a critical habitat designation on Army lands 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. Most of the Army areas are occupied by listed species and thus section 7 consultation would already be required. However, since areas without listed species present or without a critical habitat designation do not always receive section 7 evaluation (*e.g.*, see 50 CFR 402.12, biological assessments are based on a list of species present in the action area), a critical habitat designation in unoccupied areas may provide additional regulatory benefits.

The net benefit of this aspect of critical habitat, however, 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 the six Oahu installations, 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, etc.) 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 Oahu Training Areas 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 these Army lands is the education of the Army and the general public concerning the conservation value of these lands. 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 lands from final critical habitat, the Service considered whether critical habitat designation would affect Army's military mission on its Oahu installations and adversely impact national security.

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 and thus national security. 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 25th Infantry Division (Light) based on Oahu has recently been selected to participate in the experimental ''Transformation'' of its force to a lighter, rapid response force known as a Stryker Brigade Combat Team.

The Army has stated that a final critical habitat designation may lead to disruption to 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 of excluding the Army's Oahu training areas from critical habitat due to adverse impacts to national security and other relevant factors, as set forth above, outweigh the benefits of including these lands in critical habitat for the 76 species listed above. We acknowledge that the benefits for either inclusion or exclusion of Army lands appear to be relatively limited. Therefore, we have carefully weighed the relative benefits of each option.

Although these areas within Army lands are removed from the final critical habitat designation, the Service still considers them essential to the conservation of these species. The number of populations that 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 Oahu Training Areas consistent with the conservation goals for these species.

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

For both the 44 endemic and the 32 multi-island species, it is the Service's conclusion that the Army's mission and management plans (*e.g.*, INRMP) will provide more net conservation benefits than would be provided if these areas were designated as critical habitat. These management plans, which are described above, will provide tangible proactive conservation benefits that will reduce the likelihood of extinction for the listed plants in these areas of Oahu and increase their likelihood of recovery. Further, the majority of these areas are already occupied by 53 of the 76 species and thereby benefit from the section 7 protections of the Act. The Army has agreed to coordinate with the Service on any actions that may adversely affect habitat in remaining unoccupied areas that are essential to the conservation of these species. 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 Oahu for all 44 of the endemic species, and critical habitat has been designated elsewhere on Oahu, and/or designated or proposed on other islands, for the remaining 32 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.

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 76 species.

Lands Under U.S. Navy Jurisdiction

The U.S. Navy (Navy) manages several areas which contain proposed critical habitat: Naval Magazine Pearl Harbor Lualualei Branch and Naval Computer and Telecommunication Area Master Station Pacific Transmitting Facility at Lualualei. The following discussion explains why portions of these Navy areas are included in final critical habitat.

The U.S. Navy owns or leases much of Lualualei Valley, which is operated as a naval magazine and transmitting facility. One listed species, *Marsilea villosa*, occurs on land at the Naval Computer and Telecommunications

Area Master Station Pacific Radio Transmitting Facility at Lualualei. The Navy regularly mows this area, which benefits the species by keeping the grasses from taking over the habitat (HINHP Database 2001; Navy 2001a; Navy 2001c). Twenty-three species, *Abutilon sandwicense, Alectryon macrococcus, Bonamia menziesii, Chamaesyce kuwaleana, Diellia falcata, Flueggea neowawraea, Hedyotis parvula, Lepidium arbuscula, Lipochaeta lobata, Lipochaeta tenuifolia, Lobelia niihauensis, Marsilea villosa, Melicope saint-johnii, Neraudia angulata, Nototrichium humile, Phyllostegia hirsuta, Plantago princeps, Sanicula mariversa, Schiedea hookeri, Tetramolopium filiforme, Tetramolopium lepidotum, Urera kaalae,* and *Viola chamissoniana* ssp. *chamissoniana,* are reported from lands at the Naval Magazine Pearl Harbor Lualualei Branch (HINHP Database 2001; Navy 2001b; Navy 2001d). One fenced exclosure at the Halona management area has been erected to protect *Abutilon sandwicense* from feral ungulates, and another exclosure at Puu Hapapa protects *Abutilon sandwicense, Bonamia menziesii, Fleuggea neowawraea, Lipochaeta lobata* var. *leptophylla,* and *Nototrichium humile* from browsing by feral ungulates. Other management actions include some monitoring of rare plants, surveying for rare plants, and controlling some invasive plants in rare plant habitats (The Traverse Group 1988; Navy 1997, 2001a, 2001b; Navy 2001c; Navy 2001d).

The Service conducted an analysis for U.S. Navy lands similar to that described above for Army lands. We were not able to exclude Navy lands from final critical habitat for the following reasons:

- The Navy's INRMP fails to address 17 of the 20 listed species for which critical habitat has been proposed on Navy lands. Therefore, absent explicit beneficial management plans for these species, and absent a reasonable likelihood that such plans for these species will be funded and implemented in the future, the Service cannot identify compelling conservation benefits that temper the regulatory benefits of a critical habitat designation on these Navy lands.
- Since the time critical habitat was first proposed on Navy lands, the Service has worked closely with Navy staff to scientifically refine the proposed critical habitat. The changes from the proposed critical habitat to final critical habitat reflect our attempt to ensure that we have included on those lands that contain features essential to the species or, if unoccupied, are themselves essential to the conservation of the species. In doing so, we have also been able to minimize the potential for negative impacts to military activities. Therefore, at this time we cannot identify any relevant negative impacts to the Navy's military mission as a consequence of this critical habitat designation.

In conclusion, the Service believes that it is necessary to include these Navy lands in final critical habitat when the above factors are considered. The Navy is an important partner of the Service and, as described above, is carrying out some conservation activities on Oahu for some of these listed plant species. The current Navy management practices for the areas that are designated as critical habitat, including mowing and fire suppression, are consistent with the conservation of the listed plants and maintenance of their habitat. For example, Navy mowing has benefitted listed species by keeping grasses from taking over their habitat. Similarly, Navy fire management practices, such as restricting access, can further the conservation of listed plants. Although some areas on Navy lands are included in the final critical habitat designation, the Service will consider amending this critical habitat designation if new information becomes available regarding potential impacts to military readiness, or if there is a change in Navy INRMP planning and implementation that was not previously considered and that addresses the conservation needs of these species. For one listed species, *Marsilea villosa,* occurs on land at the Naval Computer and Telecommunications Area Master Station Pacific Radio Transmitting Facility at Lualualei. The Navy regularly mows this area, which benefits the species by keeping the grasses from taking over the habitat (HINHP Database 2001; Navy 2001a; Navy 2001c).

Taxonomic Changes

At the time we listed *Hibiscus brackenridgei, Phyllostegia parviflora,* and *Mariscus pennatiformis,* 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 listings for these three species, we became aware of new taxonomic treatments for these species. Also, the recently published book *Hawaii's Ferns and Fern Allies* (Palmer 2003) has changed the family name for *Ctenitis squamigera* (from Aspleniaceae to Dryopteridaceae). Due to the court-ordered deadlines, we are required to publish this final rule to designate critical habitat on Oahu before we can prepare and publish a notice of taxonomic changes for these four species. We will prepare a taxonomic change notice for these four species after we have published the final critical habitat designations on Oahu.

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 99 Oahu 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.

Federal courts and Congress have indicated that an RFA/SBREFA analysis may be limited to entities directly subject to the requirements of the regulation (Service 2002). As such, entities not directly regulated by the listing or critical habitat designation are not considered in this section of the analysis.

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. Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. The RFA/SBREFA defines ''small governmental jurisdiction'' as the government of a city, county, town, school district, or special district with a population of less than 50,000. By this definition, Honolulu County is not a small governmental jurisdiction because its population was 876,156 in 2000. Although certain State agencies, such as DLNR, Department of Agriculture (DOA), and Department of Transportation (DOT), may be affected by the critical habitat designation, State governments are not considered small governments, for the purposes of the RFA. To determine if potential economic impacts to these small entities are significant, we consider the types of activities that might trigger regulatory impacts under this rule as well as the types of project modifications that may result. In general, the term ''significant economic impact'' is meant to apply to a typical small business firm's business operations.

To determine if the rule would affect a substantial number of small 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, *etc.*). We apply the ''substantial number'' test individually to each industry to determine if certification is appropriate. 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.,* 249 U.S. App. D.C. 64, 773 F.2d 327 (1985) and *American Trucking Associations, Inc.* v. *U.S. E.P.A.,* 175 F.3d 1027, 336 U.S.App.D.C. 16 (D.C.Cir., May 14, 1999)).

The primary projects and activities that might be affected by the designation that could affect small entities include ranching operations and conservation projects. Based on our draft economic analysis and addendum, there were 100 cattle livestock operations in Honolulu County in 2000. The combined cattle sales of all of these operations in 2000 was about $556,000 (State Department of Agriculture 2002). Since this implies average annual cattle sales per business of $9,267, it is likely that all or almost all of the Honolulu County cattle operations meet the definition of a small business (annual sales less than $750,000). Thus, our draft economic analysis concluded that the proposed critical habitat designation might affect a half dozen out of 100 (or 12 percent) of the small businesses in the cattle industry in Honolulu County.

The actual impacts of the final rule will be even smaller. The final rule designates less land used for ranching as critical habitat. In turn, both the number of affected ranches and the number of Section 7 consultations involving ranching will be lower. As discussed in the addendum, the final designation could have a negative impact on about three ranches (about three percent of the total ranches on Oahu). These estimates were based on the proposed designations. However, this final rule designates 22,767 hectares (56,258 acres) less than had been proposed, or a 49 percent reduction.

These conclusions are supported by the history of consultations on Oahu. Since these 99 plant species were listed (between 1991 and 1996), we have conducted 2 formal consultations and 24 informal consultations, in addition to consultations on Federal grants to State wildlife programs that do not affect small entities. The two formal consultations were conducted on behalf of the Army, for review of the ''Biological Assessment for Programmatic Section 7 Consultation on Routine Military Training at Makua Military Reservation, and Makua Endangered Species Mitigation Plan.'' Thirty-nine of the 99 species, *Alectryon macrococcus, Abutilon sandwicense, Alsinidendron obovatum, Bonamia menziesii, Cenchrus agrimonioides, Chamaesyce celastroides* var. *kaenana, Chamesyce herbstii, Colubrina oppositifolia, Ctenitis squamigera, Cyanea grimesiana* ssp. *grimesiana, Cyanea longiflora, Cyanea superba, Cyrtandra dentata, Delissea subcordata, Diellia falcata, Dubautia herbstobatae, Euphorbia haeleeleana, Flueggea neowawraea, Hedyotis degeneri, Hedyotis parvula, Hesperomannia arbuscula, Hibiscus brackenridgei, Lepidium arbuscula, Lipochaeta tenuifolia, Lobelia niihauensis, Lobelia oahuensis, Neraudia angulata, Nototrichium humile, Peucedanum sandwicense, Phyllostegia kaalaensis, Plantago princeps, Sanicula mariversa, Schiedea hookeri, Schiedea kaalae, Schiedea nuttallii, Silene lanceolata, Spermolepis hawaiiensis, Tetramolopium filiforme,* and *Viola chamissoniana* ssp. *chamissoniana,* were reported from the action area. We conducted 24 informal consultations with the Army, U.S. Air Force, Navy, FAA, Department of Transportation, U.S. Coast Guard, Department of Land and Natural Resources Division of State Parks, Hawaii Army National Guard, U.S. Department of Agriculture's Animal and Plant Health Inspection Service, and U.S. Department of Energy.

None of these consultations affected or concerned small entities. We have determined that the State of Hawaii and Honolulu County are not small entities. The Army, Navy, NRCS, Corps, FCC, Department of Transportation, Environmental Protection Agency, FAA, FEMA, Dole Food Company, local television stations, and cellular, paging, and wireless services are not small entities. In 21 of the 24 informal consultations, we concurred with each agency's determination that the project, as proposed, was not likely to adversely affect listed species. We initiated formal consultation for the remaining three. For both formal consultations, we found that routine military training at Makua Military Reservation, which included an indepth list of conservation measures the Army would carry out in the action area, was not likely to jeopardize listed species.

For these reasons, we are certifying that the designation of critical habitat

for *Abutilon sandwicense, Adenophorus periens, Alectryon macrococcus, Alsinidendron obovatum, Alsinidendron trinerve, Bonamia menziesii, Cenchrus agrimonioides, Centaurium sebaeoides, Chamaesyce celastroides* var. *kaenana, Chamaesyce deppeana, Chamaesyce herbstii, Chamaesyce kuwaleana, Chamaesyce rockii, Colubrina oppositifolia, Ctenitis squamigera, Cyanea acuminata, Cyanea crispa, Cyanea grimesiana* ssp. *grimesiana, Cyanea grimesiana* ssp. *obatae, Cyanea humboltiana, Cyanea koolauensis, Cyanea longiflora, Cyanea pinnatifida, Cyanea st.-johnii, Cyanea superba, Cyanea truncata, Cyperus trachysanthos, Cyrtandra dentata, Cyrtandra polyantha, Cyrtandra subumbellata, Cyrtandra viridiflora, Delissea subcordata, Diellia erecta, Diellia falcata, Diellia unisora, Diplazium molokaiense, Dubautia herbstobatae, Eragrostis fosbergii, Eugenia koolauensis, Euphorbia haeleeleana, Flueggea neowawraea, Gardenia mannii, Gouania meyenii, Gouania vitifolia, Hedyotis coriacea, Hedyotis degeneri, Hedyotis parvula, Hesperomannia arborescens, Hesperomannia arbuscula, Hibiscus brackenridgei, Isodendrion laurifolium, Isodendrion longifolium, Isodendrion pyrifolium, Labordia cyrtandrae, Lepidium arbuscula, Lipochaeta lobata* var. *leptophylla, Lipochaeta tenuifolia, Lobelia gaudichaudii* ssp. *koolauensis, Lobelia monostachya, Lobelia niihauensis, Lobelia oahuensis, Lysimachia filifolia, Mariscus pennatiformis, Marsilea villosa, Melicope lydgatei, Melicope pallida, Melicope saint-johnii, Myrsine juddii, Neraudia angulata, Nototrichium humile, Peucedanum sandwicense, Phlegmariurus nutans, Phyllostegia hirsuta, Phyllostegia kaalaensis, Phyllostegia mollis, Phyllostegia parviflora, Plantago princeps, Platanthera holochila, Pteris lidgatei, Sanicula mariversa, Sanicula purpurea, Schiedea hookeri, Schiedea kaalae, Schiedea kealiae, Schiedea nuttallii, Sesbania tomentosa, Silene lanceolata, Silene perlmanii, Solanum sandwicense, Spermolepis hawaiiensis, Stenogyne kanehoana, Tetramolopium filiforme, Tetramolopium lepidotum* ssp. *lepidotum, Tetraplasandra gymnocarpa, Trematolobelia singularis, Urera kaalae, Vigna o-wahuensis, Viola chamissoniana* ssp. *chamissoniana,* and *Viola oahuensis* 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 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. This rule is not a significant regulatory action under Executive Order 12866, and 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 99 plant species 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) For the reasons described in our economic analysis, this rule will not produce a Federal mandate on State or local governments or the private sector that may result in the expenditure of $100 million or greater in any year. Therefore, a statement pursuant to 2 U.S.C. 1532 is not required.

(b) This rule will not ''significantly or uniquely'' affect small governments, so a Small Government Agency Plan is not required. Small governments will not be directly 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.

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 99 species from Oahu 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 effect and does not impose substantial direct compliance costs on State and local governments. In addition, this regulation is required by statute. *See* 16 U.S.C. 1533(a)(3). Therefore, a Federalism assessment is not required.

This rule imposes no regulatory requirements unless an agency is seeking Federal funding or authorization. In addition, for the reasons contained in the economic analysis, this rule will not have substantial direct compliance costs on State and local governments.

In fact, 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. Nevertheless, keeping with Department of the Interior policy, we requested information from appropriate State and local officials in Hawaii.

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 99 plant species from Oahu.

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).

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 99 plant species. Therefore, designation of critical habitat for these 99 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 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 *Abutilon sandwicense, Alectryon macrococcus, Alsinidendron obovatum, Alsinidendron trinerve, Bonamia menziesii, Cenchrus agrimonioides, Centaurium sebaeoides, Chamaesyce celastroides* var. *kaenana, Chamaesyce deppeana, Chamaesyce herbstii, Chamaesyce kuwaleana, Chamaesyce rockii, Colubrina oppositifolia, Cyanea acuminata, Cyanea crispa, Cyanea grimesiana* ssp. *grimesiana, Cyanea grimesiana* ssp. *obatae, Cyanea humboltiana, Cyanea koolauensis, Cyanea longiflora, Cyanea pinnatifida, Cyanea st.-johnii, Cyanea superba, Cyanea truncata, Cyperus trachysanthos, Cyrtandra dentata, Cyrtandra polyantha, Cyrtandra subumbellata, Cyrtandra viridiflora, Delissea subcordata, Dubautia herbstobatae, Eragrostis fosbergii, Eugenia koolauensis, Euphorbia haeleeleana, Flueggea neowawraea, Gardenia mannii, Gouania meyenii, Gouania vitifolia, Hedyotis coriacea, Hedyotis degeneri, Hedyotis parvula, Hesperomannia arborescens, Hesperomannia arbuscula, Hibiscus brackenridgei, Isodendrion laurifolium, Isodendrion longifolium, Isodendrion pyrifolium, Labordia cyrtandrae, Lepidium arbuscula, Lipochaeta lobata* var. *leptophylla, Lipochaeta tenuifolia, Lobelia gaudichaudii* ssp. *koolauensis, Lobelia monostachya, Lobelia niihauensis, Lobelia oahuensis, Lysimachia filifolia, Mariscus pennatiformis, Melicope lydgatei, Melicope pallida, Melicope saint-johnii, Myrsine juddii, Neraudia angulata, Nototrichium humile, Peucedanum sandwicense, Phyllostegia hirsuta, Phyllostegia kaalaensis, Phyllostegia mollis, Phyllostegia parviflora, Plantago princeps, Platanthera holochila, Sanicula mariversa, Sanicula purpurea, Schiedea hookeri, Schiedea kaalae, Schiedea kealiae, Schiedea nuttallii, Sesbania tomentosa, Silene lanceolata, Silene perlmanii, Solanum sandwicense, Spermolepis hawaiiensis, Stenogyne kanehoana, Tetramolopium filiforme, Tetramolopium lepidotum* ssp. *lepidotum, Tetraplasandra gymnocarpa, Trematolobelia singularis, Urera kaalae, Vigna o-wahuensis, Viola chamissoniana* ssp. *chamissoniana,* and *Viola oahuensis* to read as follows; and

■ b. Under the table's heading FERNS AND ALLIES, by revising the entries for *Adenophorus periens, Ctenitis squamigera, Diellia erecta, Diellia falcata, Diellia unisora, Diplazium molokaiense, Marsilea villosa, Phlegmariurus nutans,* and *Pteris lidgatei* 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							
*	*	*	*		*	*	
Abutilon sandwicense.	None	U.S.A. (HI)	Malvaceae	E	448	17.99(i)	NA
*	*	*	*		*	*	
Alectryon macrococcus.	Mahoe	U.S.A. (HI)	Sapindaceae	E	467	17.99(a)(1), (c), (e)(1), and (i).	NA
*	*	*	*		*	*	
Alsinidendron obovatum.	None	U.S.A. (HI)	Caryophyllaceae	E	448	17.99(i)	NA

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
Alsinidendron trinerve.	None	U.S.A. (HI)	Caryophyllaceae	E	448	17.99(i)	NA
*	*	*	*	*		*	
Bonamia menziesii	None	U.S.A. (HI)	Convolvulaceae	E	559	17.99(a)(1), (e)(1), and (i).	NA
*	*	*	*	*		*	
Cenchrus agrimonioides.	Kamanomano	U.S.A. (HI)	Poaceae	E	592	17.99(e)(1) and (i).	NA
*	*	*	*	*		*	
Centaurium sebaeoides.	Awiwi	U.S.A. (HI)	Gentianaceae	E	448	17.99(a)(1), (c), (e)(1), and (i).	NA
*	*	*	*	*		*	
Chamaesyce celastroides var. *kaenana*.	Akoko	U.S.A. (HI)	Euphorbiaceae	E	448	17.99(i)	NA
*	*	*	*	*		*	
Chamaesyce deppeana.	Akoko	U.S.A. (HI)	Euphorbiaceae	E	536	17.99(i)	NA
*	*	*	*	*		*	
Chamaesyce herbstii	Akoko	U.S.A. (HI)	Euphorbiaceae	E	591	17.99(i)	NA
*	*	*	*	*		*	
Chamaesyce kuwaleana.	Akoko	U.S.A. (HI)	Euphorbiaceae	E	448	17.99(i)	NA
Chamaesyce rockii	Akoko	U.S.A. (HI)	Euphorbiaceae	E	591	17.99(i)	NA
*	*	*	*	*		*	
Colubrina oppositifolia.	Kauila	U.S.A. (HI)	Rhamnaceae	E	532	17.99(e)(1) and (i).	NA
*	*	*	*	*		*	
Cyanea acuminata	HaHa	U.S.A. (HI)	Campanulaceae	E	591	17.99(i)	NA
*	*	*	*	*		*	
Cyanea (=*Rollandia*) *crispa*.	None	U.S.A. (HI)	Campanulaceae	E	536	17.99(i)	NA
*	*	*	*	*		*	
Cyanea grimesiana ssp. *grimesiana*.	HaHa	U.S.A. (HI)	Campanulaceae	E	592	17.99(c), (e)(1), and (i).	NA
Cyanea grimesiana ssp. *obatae*.	HaHa	U.S.A. (HI)	Campanulaceae	E	541	17.99(i)	NA
*	*	*	*	*		*	
Cyanea humboltiana	HaHa	U.S.A. (HI)	Campanulaceae	E	591	17.99(i)	NA
Cyanea koolauensis	HaHa	U.S.A. (HI)	Campanulaceae	E	591	17.99(i)	NA
*	*	*	*	*		*	
Cyanea longiflora	HaHa	U.S.A (HI)	Campanulaceae	E	591	17.99(i)	NA
*	*	*	*	*		*	
Cyanea pinnatifida	HaHa	U.S.A. (HI)	Campanulaceae	E	448	17.99(i)	NA
*	*	*	*	*		*	
Cyanea st.-johnii	HaHa	U.S.A. (HI)	Campanulaceae	E	591	17.99(i)	NA
*	*	*	*	*		*	
Cyanea superba	None	U.S.A. (HI)	Campanulaceae	E	434	17.99(i)	NA
Cyanea truncata	Haha	U.S.A. (HI)	Campanulaceae	E	536	17.99(i)	NA
*	*	*	*	*	*		*
Cyperus trachysanthos.	Puukaa	U.S.A. (HI)	Cyperaceae	E	592	17.99(a)(1) and (i).	NA

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
*	*	*	*	*	*		*
Cyrtandra dentata	Haiwale	U.S.A. (HI)	Gesneriaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Cyrtandra polyantha	Haiwale	U.S.A. (HI)	Gesneriaceae	E	536	17.99(i)	NA
Cyrtandra subumbellata.	Haiwale	U.S.A. (HI)	Gesneriaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Cyrtandra viridiflora	Haiwale	U.S.A. (HI)	Gesneriaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Delissea subcordata	Oha	U.S.A. (HI)	Campanulaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Dubautia herbstobatae.	Naenae	U.S.A. (HI)	Asteraceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Eragrostis fosbergii	Fosberg's love grass.	U.S.A. (HI)	Poaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Eugenia koolauensis	Nioi	U.S.A. (HI)	Myrtaceae	E	536	17.99(c) and (i).	NA
*	*	*	*	*	*		*
Euphorbia haeleeleana.	Akoko	U.S.A. (HI)	Euphorbiaceae	E	592	17.99(a)(1) and (i).	NA
*	*	*	*	*	*		*
Flueggea neowawraea.	Mehamehame	U.S.A. (HI)	Euphorbiaceae	E	559	17.99(a)(1), (c), (e)(1), and (i).	NA
*	*	*	*	*	*		*
Gardenia mannii	Nanu	U.S.A. (HI)	Rubiaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Gouania meyenii	None	U.S.A. (HI)	Rhamnaceae	E	448	17.99(a)(1) and (i).	NA
Gouania vitifolia	None	U.S.A. (HI)	Rhamnaceae	E	541	17.99(e)(1) and (i).	NA
*	*	*	*	*	*		*
Hedyotis coriacea	Kioele	U.S.A. (HI)	Rubiaceae	E	467	17.99(e)(1) and (i).	NA
Hedyotis degeneri	None	U.S.A. (HI)	Rubiaceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Hedyotis parvula	None	U.S.A. (HI)	Rubiaceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Hesperomannia arborescens.	None	U.S.A. (HI)	Asteraceae	E	536	17.99(c) and (i).	NA
Hesperomannia arbuscula.	None	U.S.A. (HI)	Asteraceae	E	448	17.99(e)(1) and (i).	NA
*	*	*	*	*	*		*
Hibiscus brackenridgei.	Mao hau hele	U.S.A. (HI)	Malvaceae	E	559	17.99(c), (e)(1), and (i).	NA
*	*	*	*	*	*		*
Isodendrion laurifolium.	Aupaka	U.S.A. (HI)	Violaceae	E	592	17.99(a)(1) and (i).	NA
Isodendrion longifolium.	Aupaka	U.S.A. (HI)	Violaceae	T	592	17.99(a)(1) and (i).	NA
Isodendrion pyrifolium.	Wahine noho kula	U.S.A. (HI)	Violaceae	E	532	17.99(c), (e)(1), and (i).	NA

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
*	*	*	*	*	*		*
Labordia cyrtandrae	Kamakahala	U.S.A. (HI)	Loganiaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Lepidium arbuscula	Anaunau	U.S.A. (HI)	Brassicaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Lipochaeta lobata var. *leptophylla*.	Nehe	U.S.A. (HI)	Asteraceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Lipochaeta tenuifolia	Nehe	U.S.A. (HI)	Asteraceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Lobelia gaudichaudii ssp. *koolauensis*.	None	U.S.A. (HI)	Campanulaceae	E	591	17.99(i)	NA
Lobelia monostachya	None	U.S.A. (HI)	Campanulaceae	E	591	17.99(i)	NA
Lobelia niihauensis	None	U.S.A. (HI)	Campanulaceae	E	448	17.99(i)	NA
Lobelia oahuensis	None	U.S.A. (HI)	Campanulaceae	E	536	17.99(i)	NA
*	*	*	*	*	*		*
Lysimachia filifolia	None	U.S.A. (HI)	Primulaceae	E	530	17.99(a)(1) and (i).	NA
*	*	*	*	*	*		*
Mariscus pennatiformis.	None	U.S.A. (HI)	Cyperaceae	E	559	17.99(a)(1), (e)(1), (g), and (i).	NA
*	*	*	*	*	*		*
Melicope lydgatei	Alani	U.S.A. (HI)	Rutaceae	E	536	17.99(i)	NA
*	*	*	*	*	*		*
Melicope pallida	Alani	U.S.A. (HI)	Rutaceae	E	530	17.99(a)(1) and (i).	NA
*	*	*	*	*	*		*
Melicope saint-johnii	Alani	U.S.A. (HI)	Rutaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Myrsine juddii	Kolea	U.S.A. (HI)	Myrsinaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Neraudia angulata	None	U.S.A. (HI)	Urticaceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Nototrichium humile	Kului	U.S.A. (HI)	Amaranthaceae	E	448	17.99(e)(1) and (i).	NA
*	*	*	*	*	*		*
Peucedanum sandwicense.	Makou	U.S.A. (HI)	Apiaceae	T	530	17.99(a)(1), (c), (e)(1), and (i).	NA
*	*	*	*	*	*		*
Phyllostegia hirsuta	None	U.S.A. (HI)	Lamiaceae	E	591	17.99(i)	NA
Phyllostegia kaalaensis.	None	U.S.A. (HI)	Lamiaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Phyllostegia mollis	None	U.S.A. (HI)	Lamiaceae	E	448	17.99(e)(1) and (i).	NA
Phyllostegia parviflora.	None	U.S.A. (HI)	Lamiaceae	E	592	17.99(i)	NA
*	*	*	*	*	*		*
Plantago princeps	Laukahi kuahiwi	U.S.A. (HI)	Plantaginaceae	E	559	17.99(a)(1), (c), (e)(1), and (i).	NA

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
Platanthera holochila	None	U.S.A. (HI)	Orchidaceae	E	592	17.99(a)(1), (e)(1), and (i).	NA
*	*	*	*	*	*		*
Sanicula mariversa	None	U.S.A. (HI)	Apiaceae	E	448	17.99(i)	NA
Sanicula purpurea	None	U.S.A. (HI)	Apiaceae	E	592	17.99(e)(1) and (i).	NA
*	*	*	*	*	*		*
Schiedea hookeri	None	U.S.A. (HI)	Caryophyllaceae	E	592	17.99(i)	NA
Schiedea kaalae	None	U.S.A. (HI)	Caryophyllaceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Schiedea kealiae	Maolioli	U.S.A. (HI)	Caryophyllaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Schiedea nuttallii	None	U.S.A. (HI)	Caryophyllaceae	E	592	17.99(a)(1), (c), and (i).	NA
*	*	*	*	*	*		*
Sesbania tomentosa	Ohai	U.S.A. (HI)	Fabaceae	E	559	17.99(a)(1), (c), (e)(1), (g), and (i).	NA
*	*	*	*	*	*		*
Silene lanceolata	None	U.S.A. (HI)	Caryophyllaceae	E	480	17.99(c) and (i).	NA
Silene perlmanii	None	U.S.A. (HI)	Caryophyllaceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Solanum sandwicense.	Aiakeakua, popolo	U.S.A. (HI)	Solanaceae	E	530	17.99(a)(1) and (i).	NA
*	*	*	*	*	*		*
Spermolepis hawaiiensis.	None	U.S.A. (HI)	Apiaceae	E	559	17.99(a)(1), (c), (e)(1), and (i).	NA
*	*	*	*	*	*		*
Stenogyne kanehoana.	None	U.S.A. (HI)	Lamiaceae	E	466	17.99(i)	NA
*	*	*	*	*	*		*
Tetramolopium filiforme.	None	U.S.A. (HI)	Asteraceae	E	448	17.99(i)	NA
Tetramolopium lepidotum ssp. *lepidotum*.	None	U.S.A. (HI)	Asteraceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Tetraplasandra gymnocarpa.	Oheohe	U.S.A. (HI)	Araliaceae	E	536	17.99(i)	NA
*	*	*	*	*	*		*
Trematolobelia singularis.	None	U.S.A. (HI)	Campanulaceae	E	591	17.99(i)	NA
*	*	*	*	*	*		*
Urera kaalae	Opuhe	U.S.A. (HI)	Urticaceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Vigna o-wahuensis	None	U.S.A. (HI)	Fabaceae	E	559	17.99(e)(1) and (i).	NA
Viola chamissoniana ssp. *chamissoniana*.	Pamakani	U.S.A. (HI)	Violaceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Viola oahuensis	None	U.S.A. (HI)	Violaceae	E	591	17.99(i)	NA

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
*	*	*	*	*	*		*
FERNS AND ALLIES							
Adenophorus periens	Pendent kihi fern	U.S.A. (HI)	Grammitidaceae	E	559	17.99(a)(1), (c), and (i).	NA
*	*	*	*	*	*		*
Ctenitis squamigera	Pauoa	U.S.A. (HI)	Aspleniaceae	E	553	17.99(a)(1), (c), (e)(1), and (i).	NA
*	*	*	*	*	*		*
Diellia erecta	Asplenium-leaved diellia.	U.S.A. (HI)	Aspleniaceae	E	559	17.99(a)(1), (c), (e)(1), and (i).	NA
Diellia falcata	None	U.S.A. (HI)	Aspleniaceae	E	448	17.99(i)	NA
*	*	*	*	*	*		*
Diellia unisora	None	U.S.A. (HI)	Aspleniaceae	E	541	17.99(i)	NA
Diplazium molokaiense.	None	U.S.A. (HI)	Aspleniaceae	E	553	17.99(a)(1), (c), (e)(1), and (i).	NA
*	*	*	*	*	*		*
Marsilea villosa	Ihiihi	U.S.A. (HI)	Marsileaceae	E	474	17.99(i)	NA
Phlegmariurus nutans.	Wawaeiole	U.S.A. (HI)	Lycopodiaceae	E	536	17.99(a)(1) and (i).	NA
*	*	*	*	*	*		*
Pteris lidgatei	None	U.S.A. (HI)	Adiantaceae	E	553	17.99(c), (e)(1), and (i).	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 (i) and (j) to read as follows.

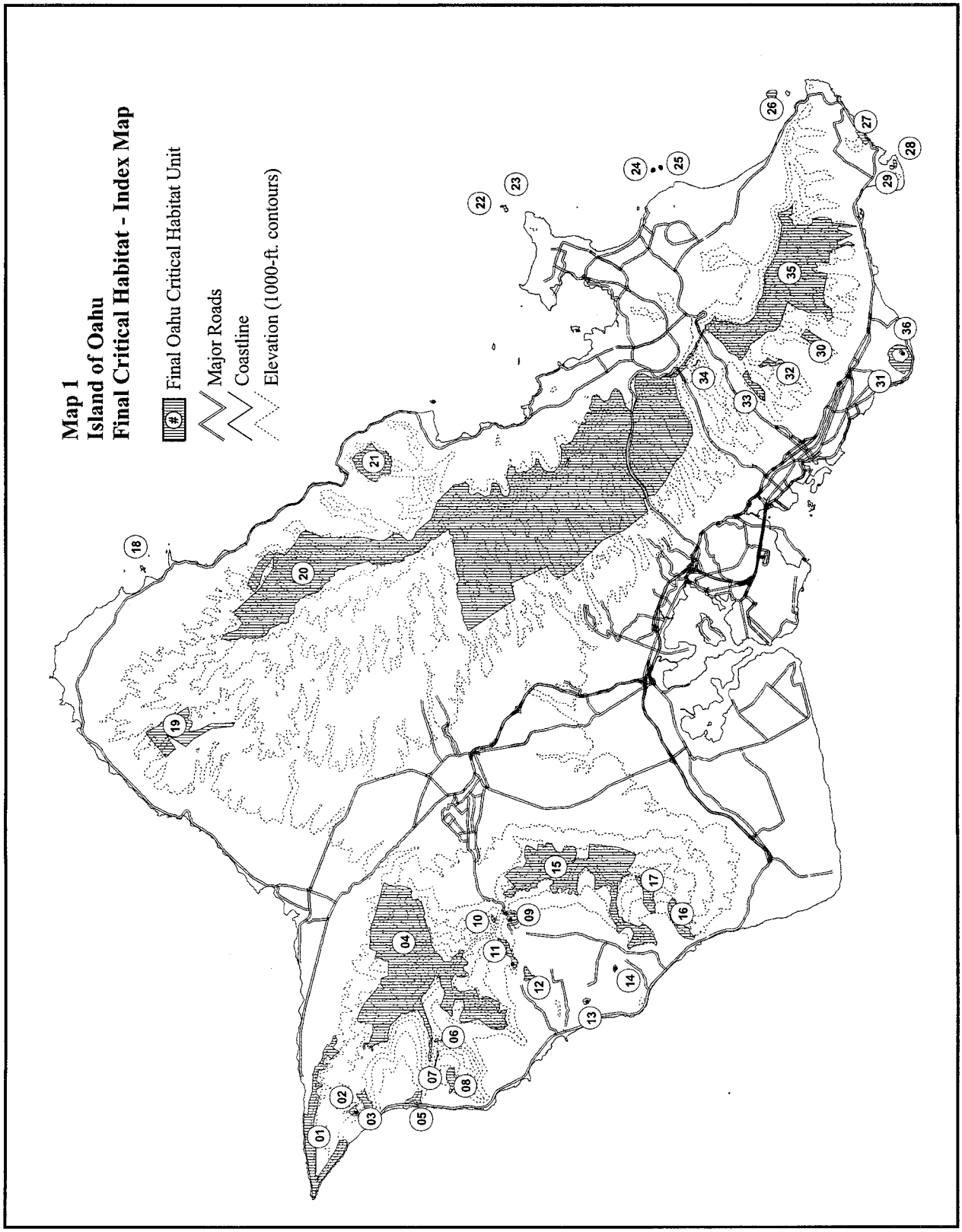
§ 17.99 Critical habitat; plants on the islands of Kauai, Niihau, Molokai, Maui, Kahoolawe, and Oahu, HI, and on the Northwest Hawaiian Islands.

* * * * *

(i) *Maps and critical habitat unit descriptions for the island of Oahu, HI.* The following paragraphs contain the legal descriptions of the critical habitat units designated for the Hawaiian island of Oahu. Existing manmade features and structures within the boundaries of the mapped units, 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 equipment towers and associated structures, electrical power transmission and distribution lines, 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 one or more of the primary constituent elements described for each species in paragraph (j) of this section and therefore are not included in the critical habitat designations. Critical habitat units are described below. Coordinates in UTM Zone 4 with units in meters using North American Datum of 1983 (NAD83). The following map shows the general locations of the 317 critical habitat units designated on the island of Oahu.

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

BILLING CODE 4310–55–U

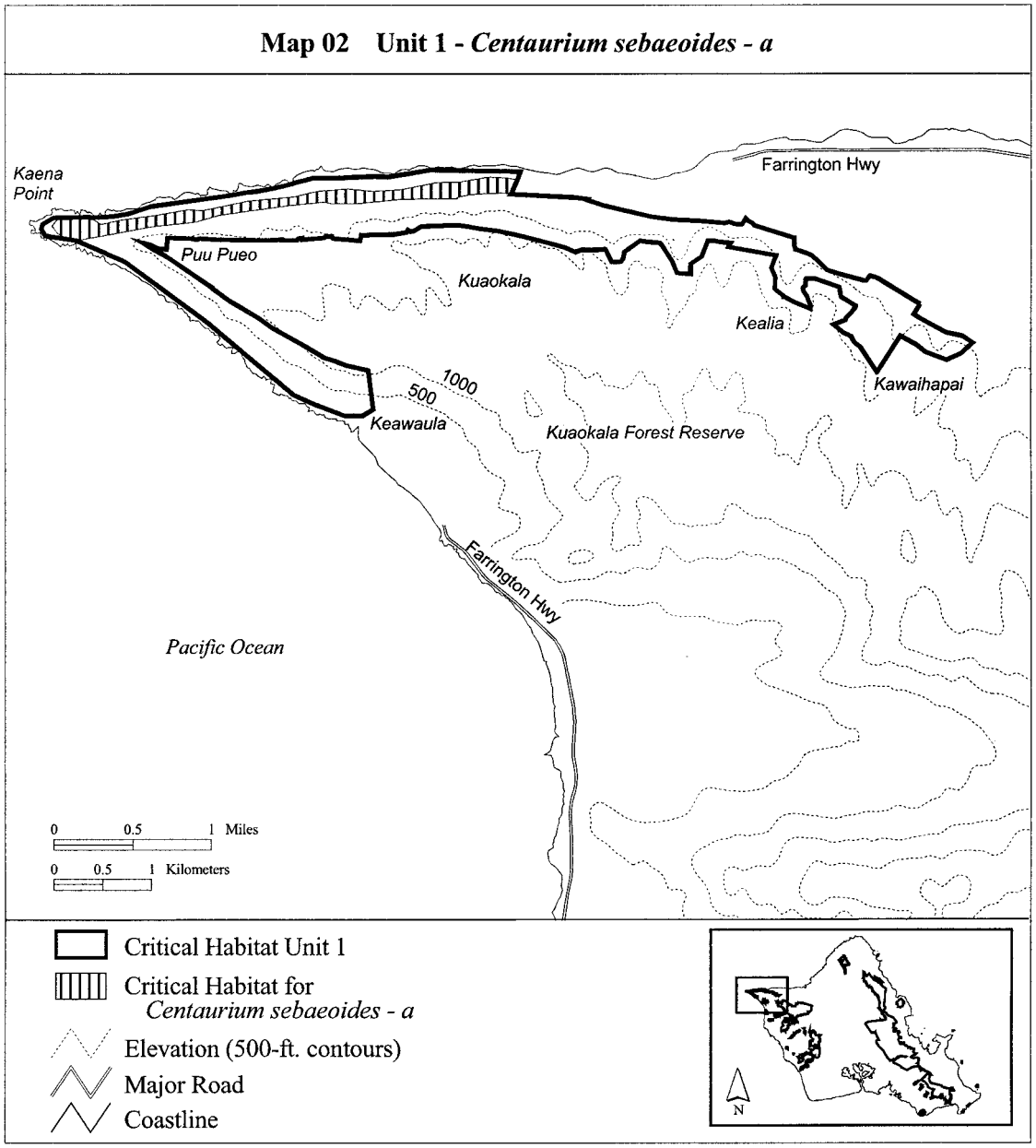


(2) Oahu 1—*Centaurium sebaeoides*—a (61 ha; 151 ac)

(i) Unit consists of the following 41 boundary points: Start at 575051, 2385984; 575168, 2385907; 575381, 2385957; 575728, 2386002; 576060, 2386059; 576211, 2386052; 576675, 2386146; 577140, 2386190; 577385, 2386247; 577692, 2386272; 577943, 2386247; 578245, 2386266; 578596, 2386335; 578835, 2386341; 579136, 2386391; 579331, 2386379; 579418, 2386363; 579365, 2386234; 579326, 2386224; 579284, 2386229; 579083,

2386225; 578934, 2386215; 578812, 2386182; 578812, 2386173; 578242, 2386164; 577779, 2386117; 577527, 2386117; 577448, 2386136; 577102, 2386103; 576728, 2386052; 576378, 2386005; 576135, 2385935; 575699, 2385884; 575419, 2385832; 575157, 2385789; 574970, 2385752; 574806, 2385766; 574722, 2385822; 574666, 2385892; 574727, 2385962; 574813, 2385980; return to starting point.

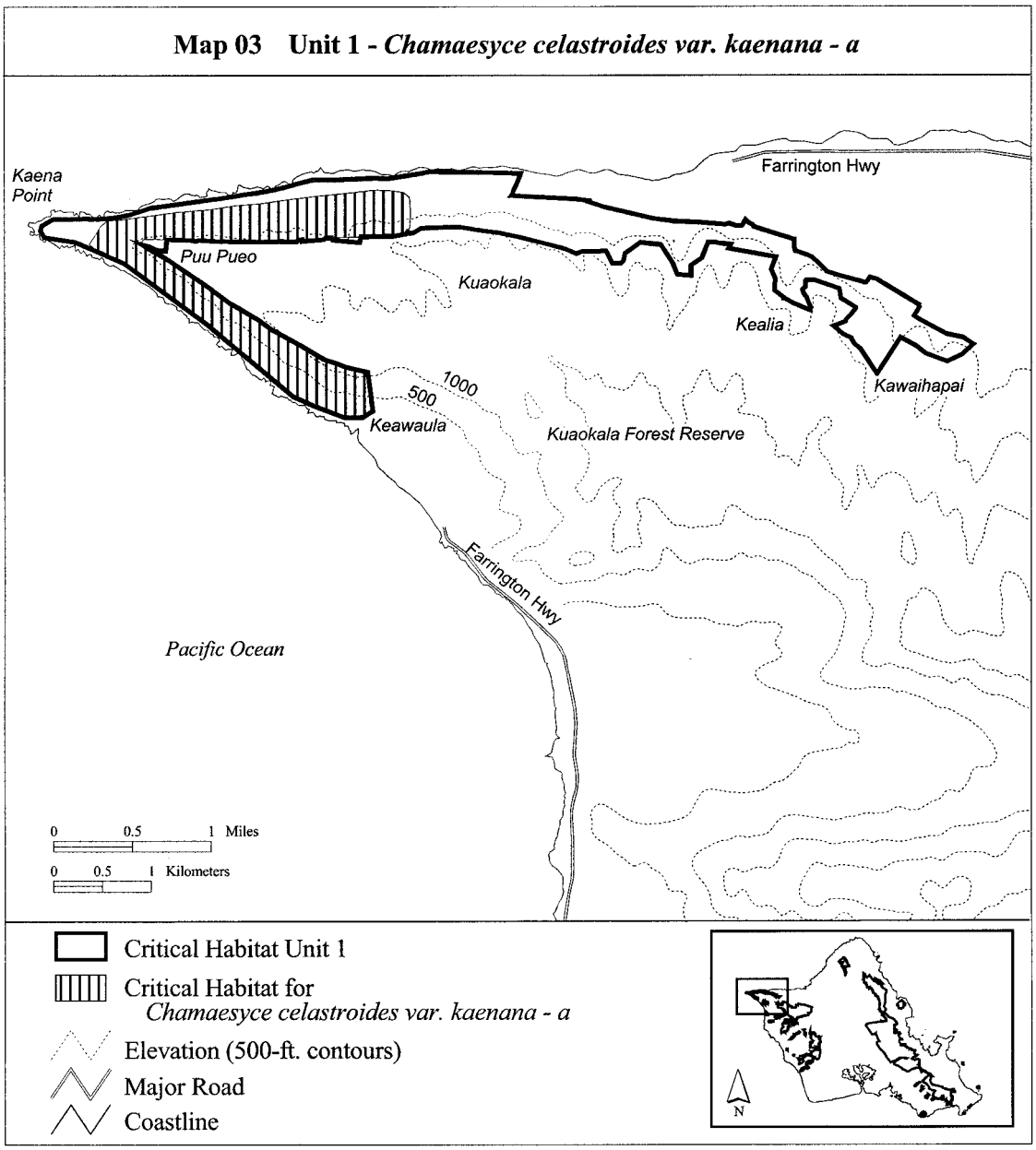
(ii) **Note:** Map 2 follows:



(3) Oahu 1—*Chamaesyce celastroides* var. *kaenana*—a (231 ha; 571 ac)

(i) Unit consists of the following 51 boundary points: Start at 576308, 2385257; 576310, 2385255; 576482, 2385122; 576596, 2385060; 576780, 2384950; 576915, 2384849; 577201, 2384696; 577456, 2384543; 577457, 2384543; 577566, 2384511; 577687, 2384461; 577875, 2384421; 577897, 2384415; 577947, 2384017; 577842, 2383950; 577659, 2383950; 577365, 2384061; 577132, 2384164; 576278, 2384884; 575413, 2385523; 575412, 2385523; 575247, 2385596; 575153, 2385648; 575059, 2385726; 575131, 2385837; 575170, 2385898; 575237, 2385959; 575392, 2385976; 575949, 2386049; 576293, 2386077; 576565, 2386121; 576787, 2386138; 577037, 2386171; 577343, 2386210; 577704, 2386249; 577970, 2386277; 578126, 2386271; 578265, 2386255; 578320, 2386199; 578331, 2386071; 578326, 2385899; 578293, 2385827; 578155, 2385804; 577627, 2385796; 576867, 2385746; 576360, 2385755; 575731, 2385777; 575614, 2385777; 575581, 2385727; 575692, 2385660; 575835, 2385580; return to starting point.

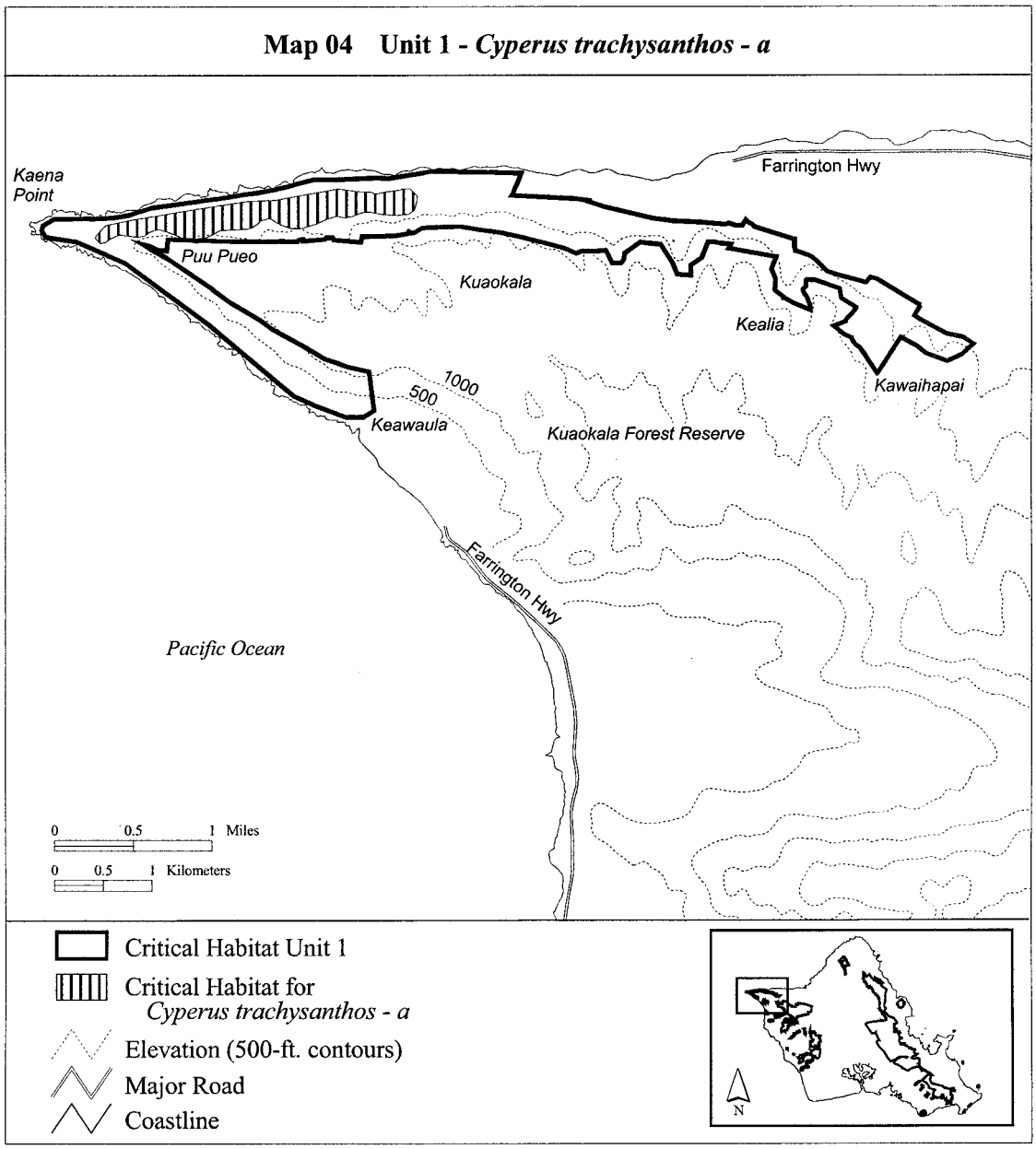
(ii) **Note:** Map 3 follows:



(4) Oahu 1—*Cyperus trachysanthos*—a (78 ha; 193 ac)

(i) Unit consists of the following 56 boundary points: Start at 575111, 2385777; 575104, 2385794; 575138, 2385842; 575212, 2385916; 575474, 2385967; 576015, 2386059; 576440, 2386124; 576662, 2386160; 576954, 2386170; 577298, 2386235; 577591, 2386291; 577777, 2386257; 577916, 2386253; 577974, 2386238; 578056, 2386253; 578228, 2386278; 578229, 2386286; 578316, 2386286; 578383, 2386219; 578383, 2386161; 578364, 2386074; 578302, 2386026; 578206, 2386022; 578205, 2386017; 578022, 2386026; 577902, 2386050; 577835, 2386045; 577738, 2386012; 577652, 2385993; 577570, 2386007; 577469, 2385973; 577363, 2385930; 577204, 2385882; 577112, 2385882; 577002, 2385920; 576891, 2385983; 576804, 2385964; 576771, 2385935; 576703, 2385887; 576650, 2385877; 576501, 2385867; 576385, 2385863; 576313, 2385824; 576241, 2385790; 576150, 2385752; 575996, 2385786; 575866, 2385838; 575754, 2385872; 575672, 2385853; 575619, 2385810; 575547, 2385795; 575451, 2385805; 575349, 2385818; 575268, 2385780; 575215, 2385741; 575157, 2385730; return to starting point.

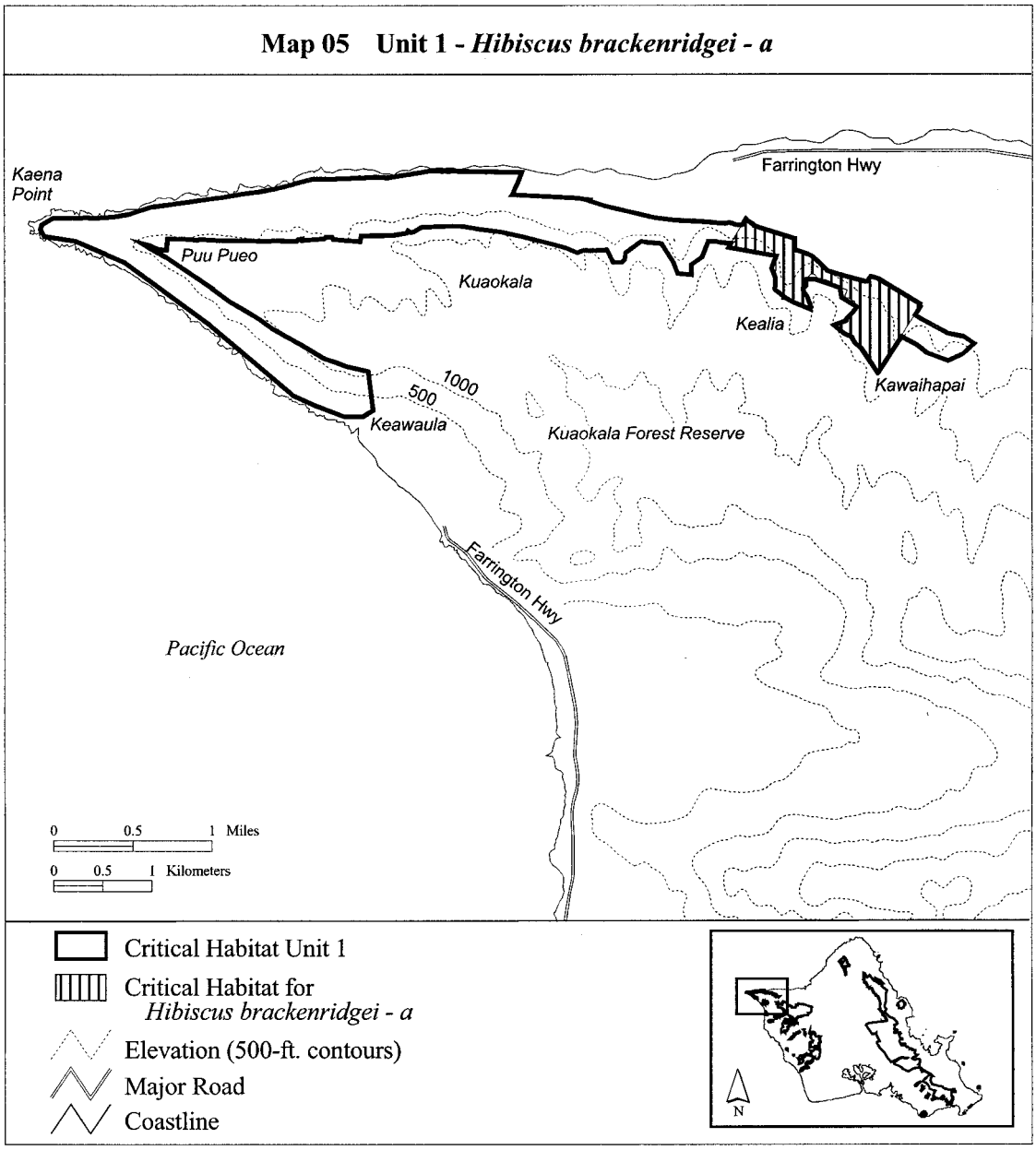
(ii) **Note:** Map 4 follows:



(5) Oahu 1—*Hibiscus brackenridgei*—a (78 ha; 193 ac)

(i) Unit consists of the following 89 boundary points: Start at 582235, 2385764; 582235, 2385703; 582245, 2385655; 582239, 2385640; 582361, 2385607; 582365, 2385614; 582376, 2385611; 582406, 2385591; 582466, 2385542; 582534, 2385473; 582530, 2385467; 582583, 2385397; 582622, 2385387; 582697, 2385368; 582698, 2385368; 582771, 2385349; 582837, 2385333; 582969, 2385301; 583028, 2385287; 583040, 2385330; 583050, 2385369; 583082, 2385357; 583521, 2385089; 583077, 2384390; 582908, 2384650; 582852, 2384698; 582818, 2384756; 582818, 2384757; 582738, 2384795; 582634, 2384882; 582757, 2384928; 582765, 2384950; 582790, 2384982; 582816, 2385003; 582835, 2385024; 582849, 2385043; 582861, 2385069; 582859, 2385082; 582842, 2385102; 582842, 2385127; 582830, 2385134; 582818, 2385138; 582801, 2385156; 582777, 2385158; 582758, 2385154; 582747, 2385186; 582750, 2385199; 582765, 2385221; 582764, 2385241; 582725, 2385262; 582711, 2385280; 582648, 2385284; 582600, 2385323; 582564, 2385342; 582544, 2385348; 582504, 2385341; 582466, 2385365; 582444, 2385398; 582407, 2385408; 582368, 2385363; 582325, 2385320; 582322, 2385255; 582331, 2385214; 582361, 2385178; 582377, 2385126; 582395, 2385086; 582398, 2385049; 582397, 2385046; 582219, 2385118; 582126, 2385175; 582038, 2385247; 582055, 2385587; 581567, 2385679; 581565, 2385680; 581743, 2385970; 581764, 2385946; 581812, 2385925; 581815, 2385913; 581815, 2385912; 581825, 2385902; 581826, 2385901; 581834, 2385899; 581833, 2385898; 581835, 2385886; 581903, 2385869; 581908, 2385875; 582076, 2385822; 582074, 2385807; 582080, 2385801; return to starting point.

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

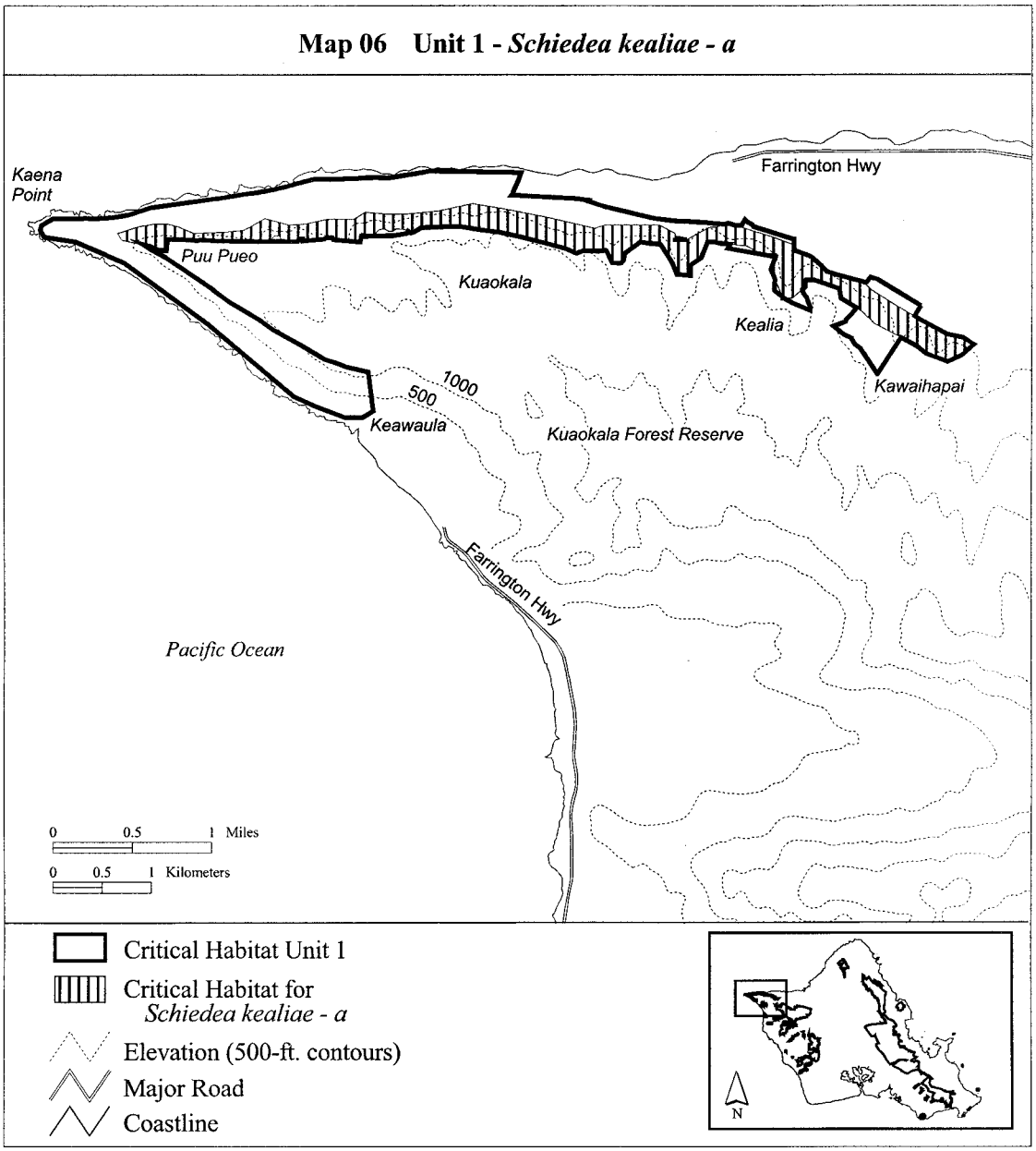


(6) Oahu 1—*Schiedea kealiae*—a (193 ha; 477 ac)

(i) Area consists of the following 138 boundary points: Start at 582365, 2385614; 582376, 2385611; 582406, 2385591; 582466, 2385542; 582534, 2385473; 582530, 2385467; 582583, 2385397; 582622, 2385387; 582697, 2385368; 582698, 2385368; 582771, 2385349; 582837, 2385333; 582969, 2385301; 582970, 2385301; 583021, 2385255; 583270, 2385092; 583519, 2384945; 583786, 2384799; 583958, 2384765; 584061, 2384696; 583941, 2384592; 583795, 2384523; 583571, 2384600; 583476, 2384678; 583287, 2384782; 583055, 2384902; 582917, 2385040; 582711, 2385169; 582694, 2385264; 582444, 2385350; 582350, 2385350; 582350, 2385281; 582221, 2385169; 582126, 2385169; 582040, 2385367; 582003, 2385463; 582059, 2385623; 581885, 2385625; 581766, 2385701; 581470, 2385733; 581363, 2385753; 581292, 2385582; 581180, 2385504; 581180, 2385401; 581043, 2385410; 580993, 2385527; 580876, 2385719; 580742, 2385732; 580671, 2385739; 580587, 2385684; 580505, 2385625; 580495, 2385553; 580475, 2385529; 580380, 2385529; 580313, 2385654; 580235, 2385648; 580148, 2385650; 580071, 2385650; 580011, 2385624; 579890, 2385675; 579718, 2385727; 579460, 2385787; 579228, 2385839; 579039, 2385865; 578841, 2385899; 578703, 2385899; 578439, 2385890; 578359, 2385838; 578331, 2385837; 578270, 2385867; 578185, 2385874; 578150, 2385855; 578104, 2385853; 578068, 2385878; 578011, 2385870; 577970, 2385822; 577909, 2385815; 577831, 2385831; 577818, 2385744; 577543, 2385765; 577529, 2385794; 577493, 2385800; 577450, 2385768; 577228, 2385755; 577224, 2385793; 577196, 2385796; 577178, 2385750; 577021, 2385746; 576991, 2385803; 576939, 2385805; 576897, 2385750; 576337, 2385757; 576119, 2385765; 575852, 2385776; 575844, 2385705; 575830, 2385704; 575829, 2385702; 575833, 2385655; 575753, 2385658; 575667, 2385701; 575384, 2385766; 575344, 2385828; 575555, 2385899; 575712, 2385925; 575847, 2385925; 575972, 2385894; 576115,

2385830; 576442, 2385848; 576631, 2385865; 576837, 2385977; 577095, 2385916; 577259, 2385925; 577482, 2385977; 577757, 2385977; 577869, 2386045; 578093, 2386028; 578291, 2386028; 578609, 2386054; 578961, 2386131; 579314, 2386071; 579727, 2385994; 580200, 2385882; 580303, 2385916; 580578, 2385916; 580862, 2385916; 581025, 2385831; 581025, 2385763; 581146, 2385763; 581266, 2385831; 581387, 2385892; 581447, 2385892; 581571, 2385935; 582039, 2385788; 582235, 2385711; 582235, 2385703; 582245, 2385655; 582239, 2385640; 582361, 2385607; return to starting point.

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

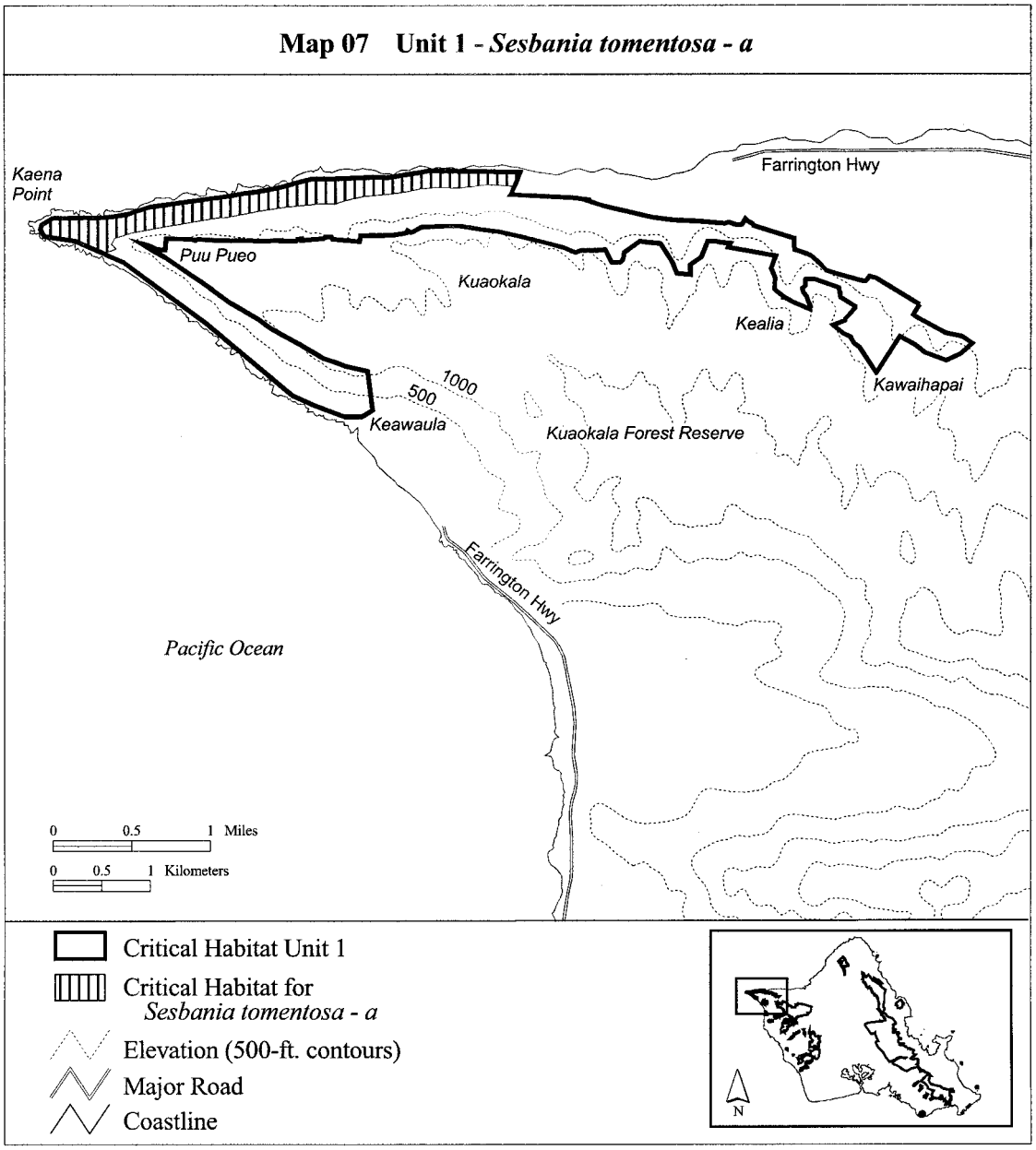


(7) Oahu 1—*Sesbania tomentosa*—a (101 ha; 250 ac)

(i) Unit consists of the following 70 boundary points: Start at 574558, 2385864; 574569, 2385910; 574683, 2385977; 574741, 2385979; 574788, 2385979; 574998, 2385979; 575206, 2385987; 575263, 2385988; 575282, 2385993; 575451, 2386022; 575668, 2386087; 575699, 2386094; 576319, 2386183; 576376, 2386186; 576495, 2386204; 576637, 2386230; 576767, 2386248; 576923, 2386277; 576926, 2386277; 576928, 2386275; 576929, 2386275; 576980, 2386288; 577035, 2386298; 577098, 2386318; 577139, 2386329; 577140, 2386329; 577141, 2386331; 577151, 2386335; 577321, 2386378; 577336, 2386381; 577539, 2386380; 577539, 2386381; 577540, 2386381; 577540, 2386382; 577979, 2386400; 578097, 2386392; 578439, 2386448; 578534, 2386462; 579452, 2386445; 579394, 2386306; 579354, 2386308; 579179, 2386315; 579092, 2386315; 578836, 2386286; 578783, 2386286; 578606, 2386293; 578434, 2386274; 578294, 2386249; 578107, 2386224; 577860, 2386199; 577676, 2386162; 577589, 2386131; 577590, 2386124; 577571, 2386125; 577561, 2386121; 577561, 2386125; 577412, 2386128; 577050, 2386092; 576800,

2386052; 576463, 2385983; 576365, 2385980; 575843, 2385893; 575502, 2385827; 575324, 2385776; 575292, 2385710; 575339, 2385664; 575295, 2385646; 575203, 2385616; 574908, 2385748; 574601, 2385795; return to starting point.

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

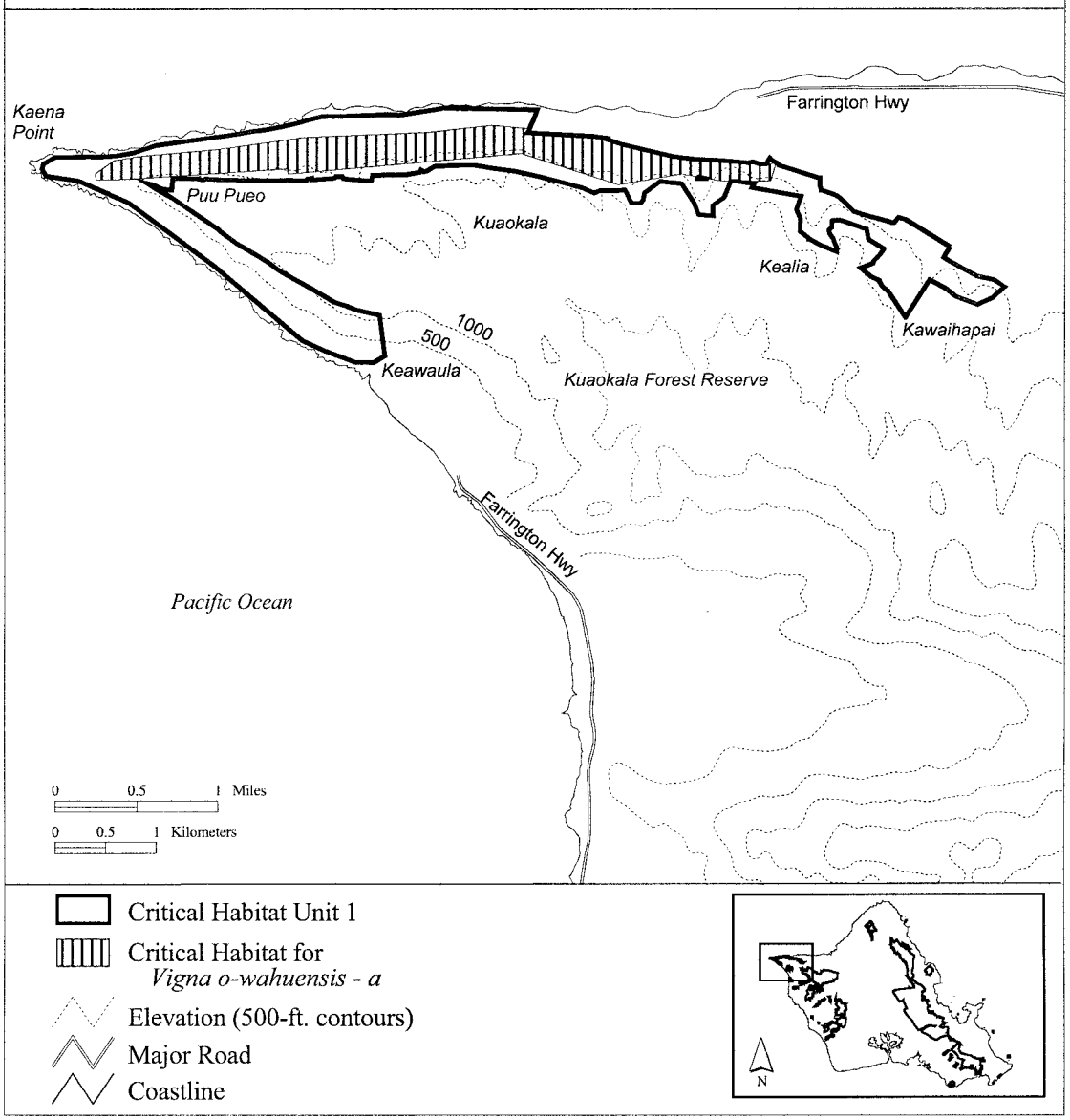


(8) Oahu 1—*Vigna o-wahuensis*—a (181 ha; 448 ac)

(i) Unit consists of the following 31 boundary points: Start at 575092, 2385751; 575081, 2385809; 575265, 2385942; 575531, 2385987; 576306, 2386058; 577144, 2386172; 578381, 2386223; 579003, 2386292; 579376, 2386260; 579359, 2386220; 579359, 2386219; 579360, 2386219; 579360, 2386218; 579361, 2386218; 580020, 2386181; 580139, 2386165; 580137, 2386157; 580278, 2386108; 580792, 2385988; 581014, 2385956; 581268, 2385944; 581636, 2385913; 581801, 2385913; 581750, 2385741; 581268, 2385741; 580873, 2385809; 580253, 2385706; 579290, 2386015; 576993, 2385810; 576984, 2385861; 575400, 2385757; return to starting point.

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

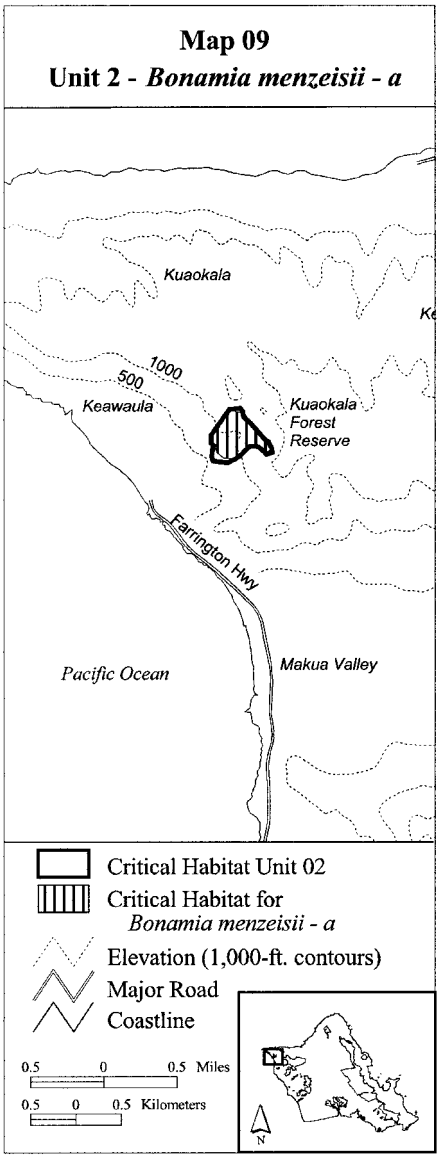
Map 08 Unit 1 - *Vigna o-wahuensis - a*



(9) Oahu 2—*Bonamia menziesii*—a (21 ha; 51 ac)

(i) Unit consists of the following 21 boundary points: Start at 579334, 2383456; 579333, 2383554; 579526, 2383824; 579661, 2383800; 579690, 2383768; 579693, 2383749; 579693, 2383748; 579792, 2383655; 579844, 2383597; 579988, 2383419; 579988, 2383385; 579968, 2383366; 579925, 2383371; 579833, 2383424; 579771, 2383438; 579703, 2383400; 579670, 2383342; 579588, 2383284; 579477, 2383294; 579395, 2383356; 579367, 2383424; return to starting point.

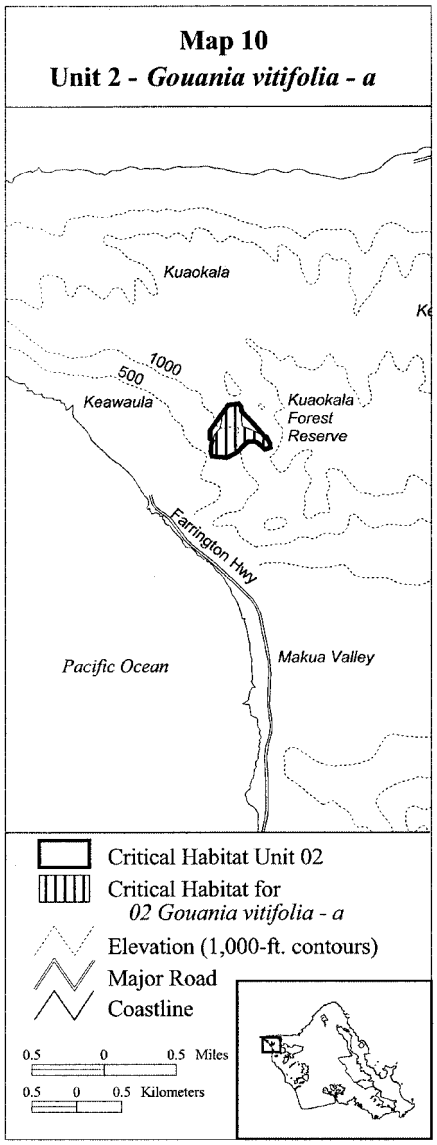
(ii) **Note:** Map 9 follows:



(10) Oahu 2—*Gouania vitifolia*—a (20 ha; 49 ac)

(i) Unit consists of the following 29 boundary points: Start at 579610, 2383845; 579650, 2383848; 579684, 2383810; 579684, 2383807; 579684, 2383736; 579684, 2383672; 579693, 2383598; 579800, 2383560; 579963, 2383474; 580001, 2383409; 580006, 2383353; 579941, 2383336; 579898, 2383379; 579842, 2383422; 579760, 2383426; 579704, 2383375; 579649, 2383319; 579580, 2383271; 579515, 2383241; 579352, 2383263; 579339, 2383310; 579343, 2383379; 579383, 2383499; 579443, 2383573; 579460, 2383641; 579469, 2383702; 579482, 2383736; 579503, 2383795; 579534, 2383838; return to starting point.

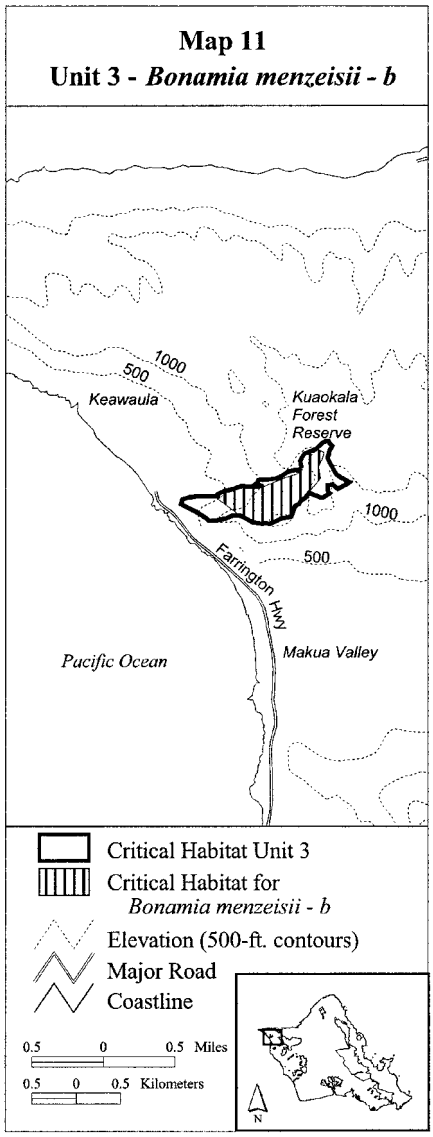
(ii) **Note:** Map 10 follows:



(11) Oahu 3—*Bonamia menziesii*—b (42 ha; 104 ac)

(i) Unit consists of the following 35 boundary points: Start at 579371, 2382797; 579436, 2382825; 579544, 2382850; 579623, 2382881; 579630, 2382883; 579645, 2382884; 579886, 2382879; 580161, 2382995; 580267, 2383024; 580298, 2383084; 580303, 2383086; 580304, 2383086; 580304, 2383087; 580304, 2383088; 580303, 2383095; 580306, 2383101; 580290, 2383172; 580359, 2383241; 580504, 2383303; 580566, 2383265; 580542, 2383178; 580504, 2383106; 580523, 2382971; 580393, 2382812; 580344, 2382744; 580214, 2382657; 580200, 2382575; 580137, 2382527; 580079, 2382532; 579993, 2382474; 579872, 2382460; 579769, 2382469; 579763, 2382471; 579592, 2382571; 579366, 2382744; return to starting point.

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

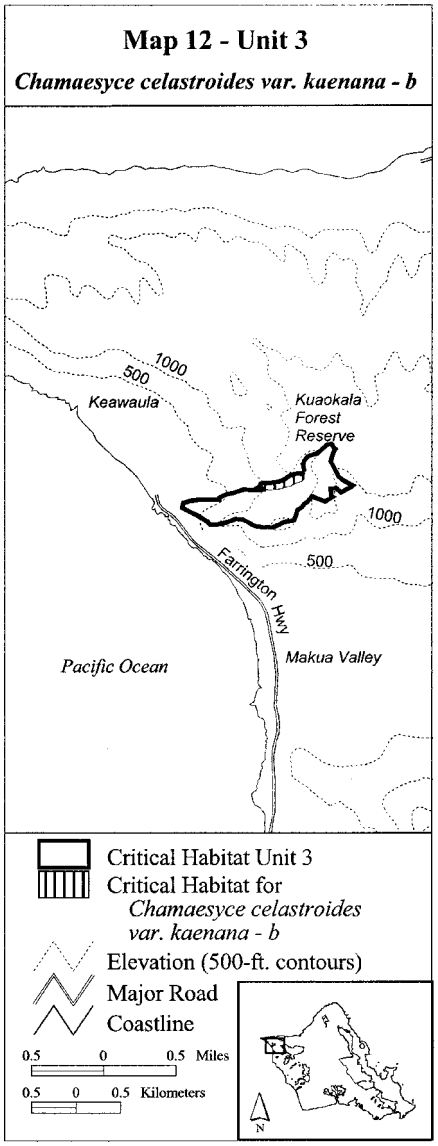


(12) Oahu 3—*Chamaesyce celastroides* var. *kaenana*—b (4 ha; 11 ac)

(i) Unit consists of the following 20 boundary points: Start at 579828, 2382953; 579860, 2382962; 579931, 2382959; 580028, 2382975; 580069, 2382994; 580111, 2383020; 580161, 2383047; 580238, 2383068; 580259, 2383068; 580304, 2383043; 580308,

2383004; 580285, 2382981; 580243, 2382969; 580166, 2382930; 580057, 2382895; 579931, 2382878; 579857, 2382888; 579796, 2382907; 579815, 2382923; 579823, 2382946; return to starting point.

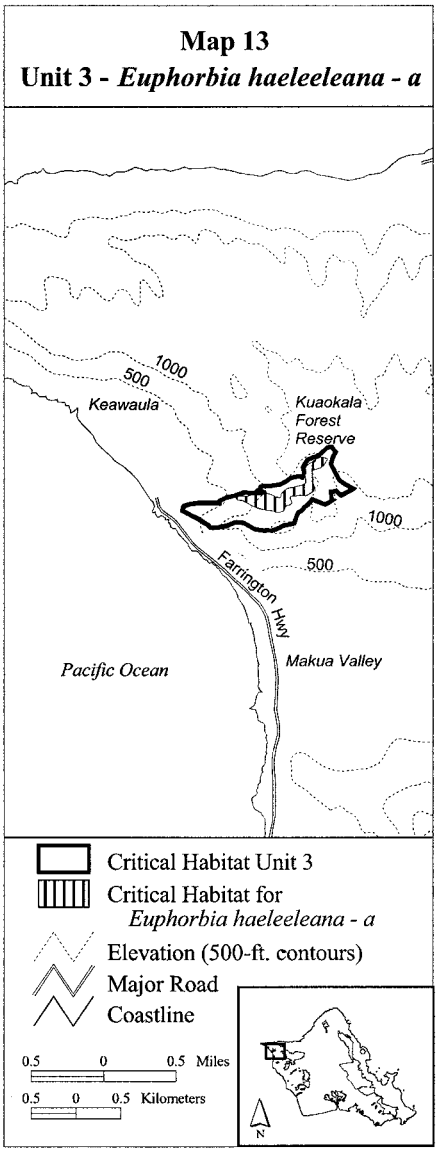
(ii) **Note:** Map 12 follows:



(13) Oahu 3—*Euphorbia haeleeleana*—a (15 ha; 37 ac)

(i) Unit consists of the following 67 boundary points: Start at 580326, 2382991; 580322, 2383035; 580313, 2383069; 580310, 2383096; 580312, 2383132; 580323, 2383169; 580360, 2383211; 580417, 2383248; 580464, 2383276; 580516, 2383287; 580559, 2383266; 580564, 2383251; 580546, 2383221; 580522, 2383183; 580490, 2383164; 580454, 2383149; 580419, 2383145; 580393, 2383120; 580393, 2383077; 580406, 2383031; 580409, 2382985; 580422, 2382939; 580407, 2382899; 580365, 2382870; 580322, 2382845; 580267, 2382852; 580241, 2382852; 580202, 2382842; 580161, 2382847; 580152, 2382821; 580166, 2382787; 580174, 2382763; 580147, 2382744; 580118, 2382744; 580095, 2382727; 580073, 2382677; 580047, 2382666; 580005, 2382663; 579971, 2382672; 579925, 2382689; 579891, 2382690; 579846, 2382692; 579777, 2382718; 579718, 2382747; 579667, 2382769; 579623, 2382795; 579573, 2382802; 579548, 2382821; 579550, 2382828; 579557, 2382839; 579597, 2382844; 579681, 2382847; 579726, 2382858; 579772, 2382862; 579828, 2382868; 579872, 2382878; 579935, 2382868; 579964, 2382850; 580008, 2382836; 580034, 2382829; 580048, 2382839; 580053, 2382855; 580066, 2382884; 580094, 2382917; 580131, 2382934; 580231, 2382955; 580294, 2382975; return to starting point.

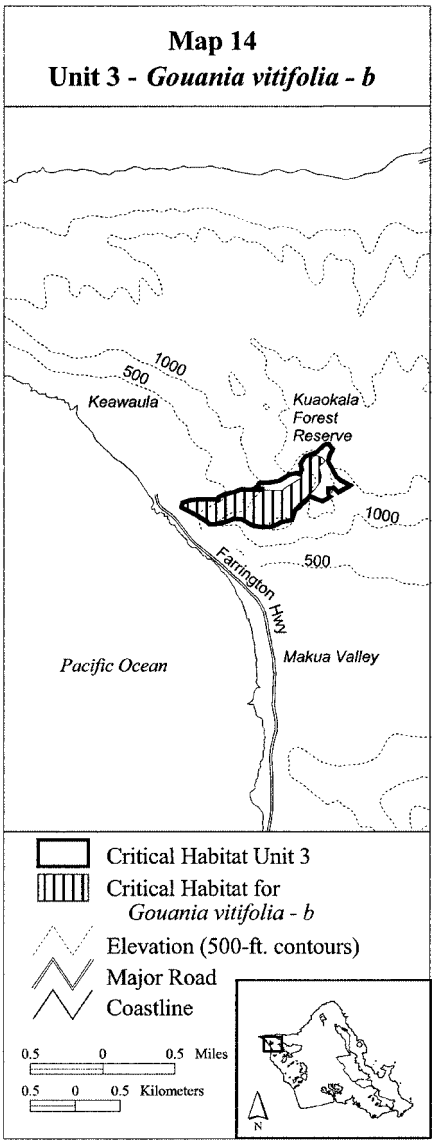
(ii) **Note:** Map 13 follows:



(14) Oahu 3—*Gouania vitifolia*—b (49 ha; 121 ac)

(i) Unit consists of the following 54 boundary points: Start at 580193, 2382540; 580147, 2382527; 580079, 2382519; 580044, 2382497; 579950, 2382459; 579881, 2382463; 579756, 2382502; 579653, 2382545; 579541, 2382553; 579451, 2382519; 579335, 2382489; 579270, 2382493; 579231, 2382532; 579115, 2382600; 579038, 2382639; 578960, 2382682; 578969, 2382730; 579038, 2382760; 579128, 2382773; 579253, 2382768; 579356, 2382768; 579455, 2382807; 579519, 2382828; 579614, 2382871; 579709, 2382871; 579859, 2382876; 580001, 2382871; 580083, 2382871; 580165, 2382927; 580298, 2383009; 580303, 2383086; 580304, 2383086; 580304, 2383087; 580304, 2383088; 580303, 2383094; 580307, 2383155; 580324, 2383211; 580371, 2383246; 580470, 2383263; 580526, 2383250; 580569, 2383211; 580500, 2383147; 580505, 2383104; 580526, 2383039; 580517, 2382970; 580453, 2382876; 580371, 2382811; 580302, 2382751; 580255, 2382708; 580229, 2382635; 580196, 2382544; 580195, 2382544; 580195, 2382543; 580194, 2382543; return to starting point.

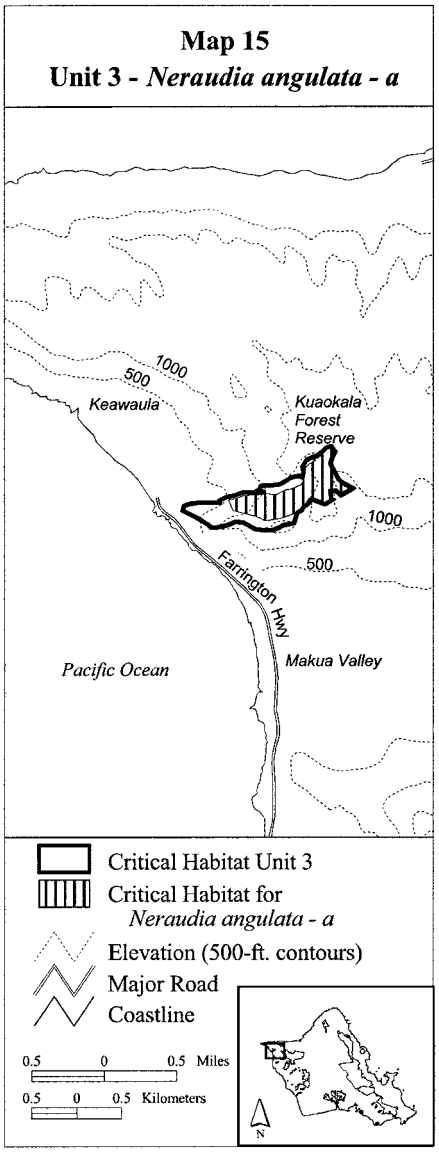
(ii) **Note:** Map 14 follows:



(15) Oahu 3—*Neraudia angulata*—a (39 ha; 98 ac)

(i) Unit consists of the following 52 boundary points: Start at 580537, 2382749; 580366, 2382818; 580282, 2382681; 580238, 2382660; 580091, 2382603; 580004, 2382584; 579879, 2382569; 579829, 2382591; 579784, 2382609; 579516, 2382681; 579463, 2382801; 579522, 2382810; 579632, 2382847; 579785, 2382860; 579904, 2382869; 579948, 2382857; 579998, 2382857; 580038, 2382875; 580110, 2382916; 580163, 2382925; 580204, 2382938; 580279, 2382972; 580314, 2383035; 580317, 2383119; 580317, 2383154; 580360, 2383194; 580401, 2383222; 580470, 2383301; 580555, 2383380; 580572, 2383390; 580608, 2383398; 580643, 2383357; 580653, 2383344; 580646, 2383327; 580623, 2383279; 580607, 2383228; 580600, 2383211; 580600, 2383210; 580600, 2383209; 580617, 2383205; 580695, 2383029; 580739, 2382994; 580852, 2382929; 580845, 2382924; 580718, 2382852; 580660, 2382901; 580632, 2382899; 580606, 2382898; 580606, 2382894; 580609, 2382810; 580623, 2382799; 580595, 2382784; return to starting point.

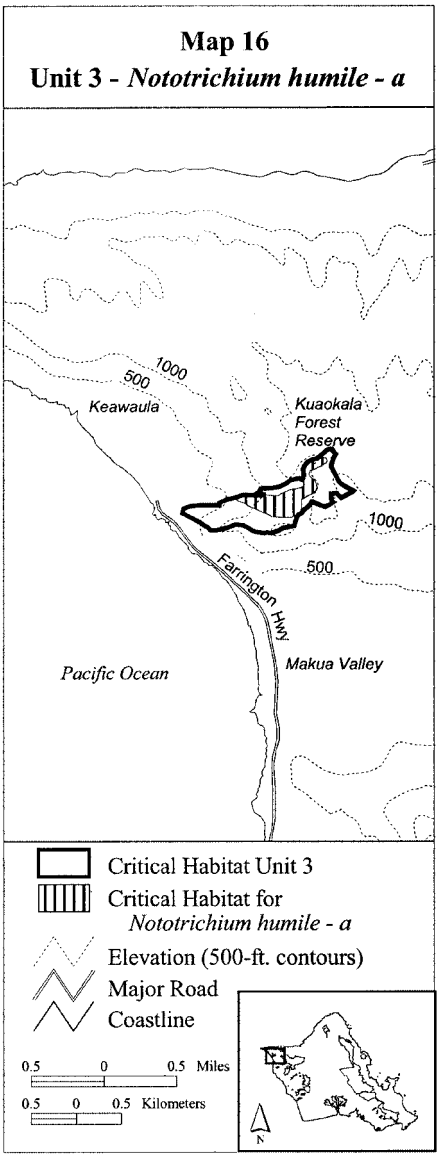
(ii) **Note:** Map 15 follows:



(16) Oahu 3—*Nototrichium humile*—a (21 ha; 51 ac)

(i) Unit consists of the following 58 boundary points: Start at 580322, 2383229; 580383, 2383263; 580458, 2383302; 580500, 2383306; 580555, 2383298; 580559, 2383275; 580557, 2383245; 580527, 2383226; 580494, 2383200; 580456, 2383192; 580423, 2383170; 580379, 2383157; 580361, 2383115; 580379, 2383082; 580427, 2383050; 580440, 2383016; 580448, 2382967; 580436, 2382930; 580411, 2382904; 580356, 2382875; 580328, 2382861; 580281, 2382833; 580277, 2382813; 580281, 2382750; 580265, 2382695; 580218, 2382650; 580160, 2382628; 580091, 2382628; 580010, 2382634; 579947, 2382642; 579922, 2382662; 579890, 2382677; 579853, 2382687; 579792, 2382717; 579691, 2382762; 579644, 2382794; 579561, 2382819; 579561, 2382843; 579581, 2382861; 579617, 2382879; 579628, 2382882; 579768, 2382880; 579863, 2382888; 579924, 2382880; 580020, 2382873; 580066, 2382904; 580174, 2382951; 580227, 2382953; 580281, 2382965; 580302, 2382995; 580302, 2383046; 580303, 2383086; 580304, 2383086; 580304, 2383087; 580304, 2383088; 580303, 2383093; 580304, 2383147; 580308, 2383210; return to starting point.

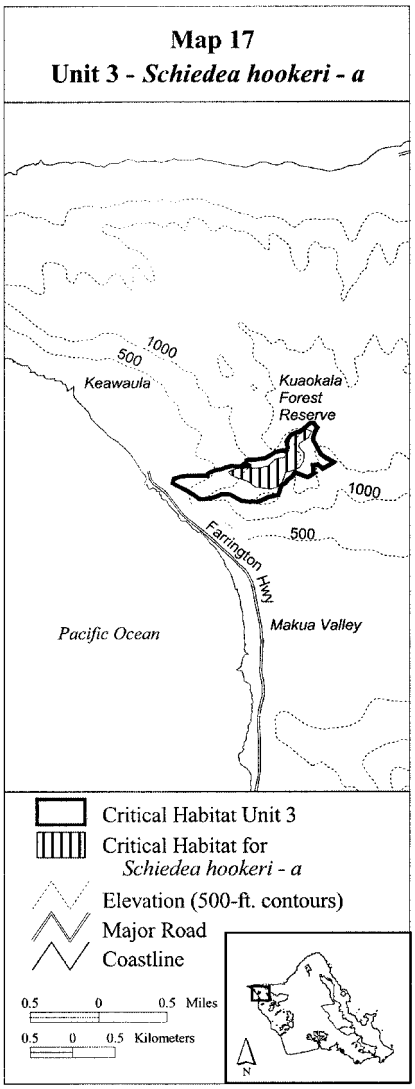
(ii) **Note:** Map 16 follows:



(17) Oahu 3—*Schiedea hookeri*—a (22 ha; 55 ac)

(i) Unit consists of the following 29 boundary points: Start at 580264, 2382989; 580304, 2383047; 580326, 2383118; 580326, 2383171; 580340, 2383251; 580415, 2383282; 580526, 2383322; 580592, 2383299; 580552, 2383224; 580446, 2383149; 580446, 2383104; 580499, 2383038; 580495, 2382994; 580495, 2382940; 580459, 2382870; 580397, 2382839; 580282, 2382808; 580247, 2382701; 580184, 2382630; 580100, 2382613; 579932, 2382639; 579843, 2382701; 579648, 2382772; 579613, 2382816; 579697, 2382852; 579839, 2382861; 579963, 2382861; 580074, 2382883; 580171, 2382971; return to starting point.

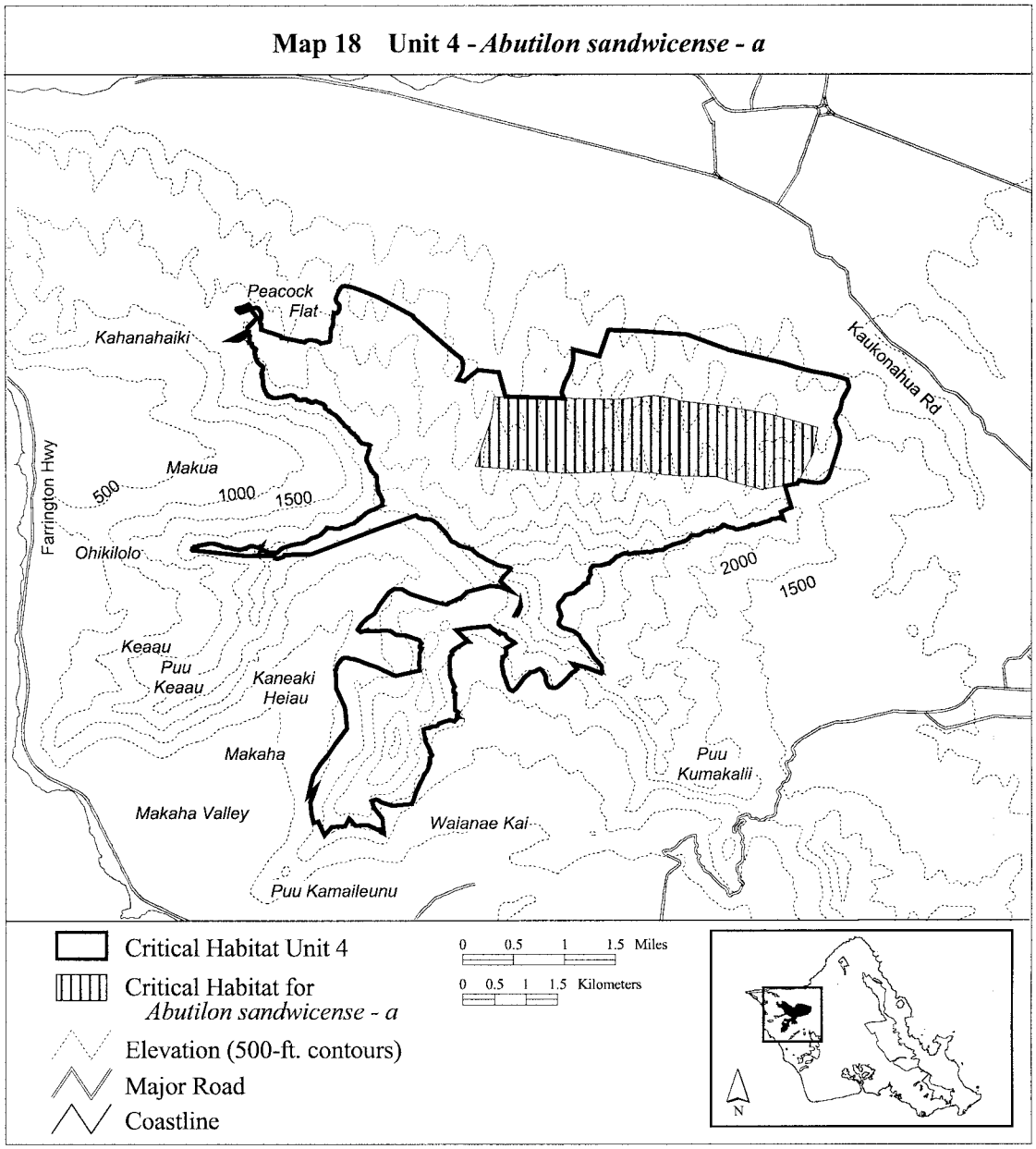
(ii) **Note:** Map 17 follows:



(18) Oahu 4—*Abutilon sandwicense*—a (617 ha; 1,492 ac)

(i) Unit consists of the following 25 boundary points: Start at 587021, 2380442; 587295, 2381250; 587320, 2381565; 589332, 2381513; 589879, 2381584; 590161, 2381525; 590284, 2381494; 590979, 2381406; 591581, 2381305; 591815, 2381256; 592481, 2381064; 592408, 2380627; 592166, 2380161; 591586, 2380069; 591071, 2380209; 590944, 2380253; 590851, 2380280; 590618, 2380280; 590310, 2380289; 590051, 2380311; 589743, 2380355; 589745, 2380336; 589576, 2380372; 588446, 2380333; 587034, 2380442; return to starting point.

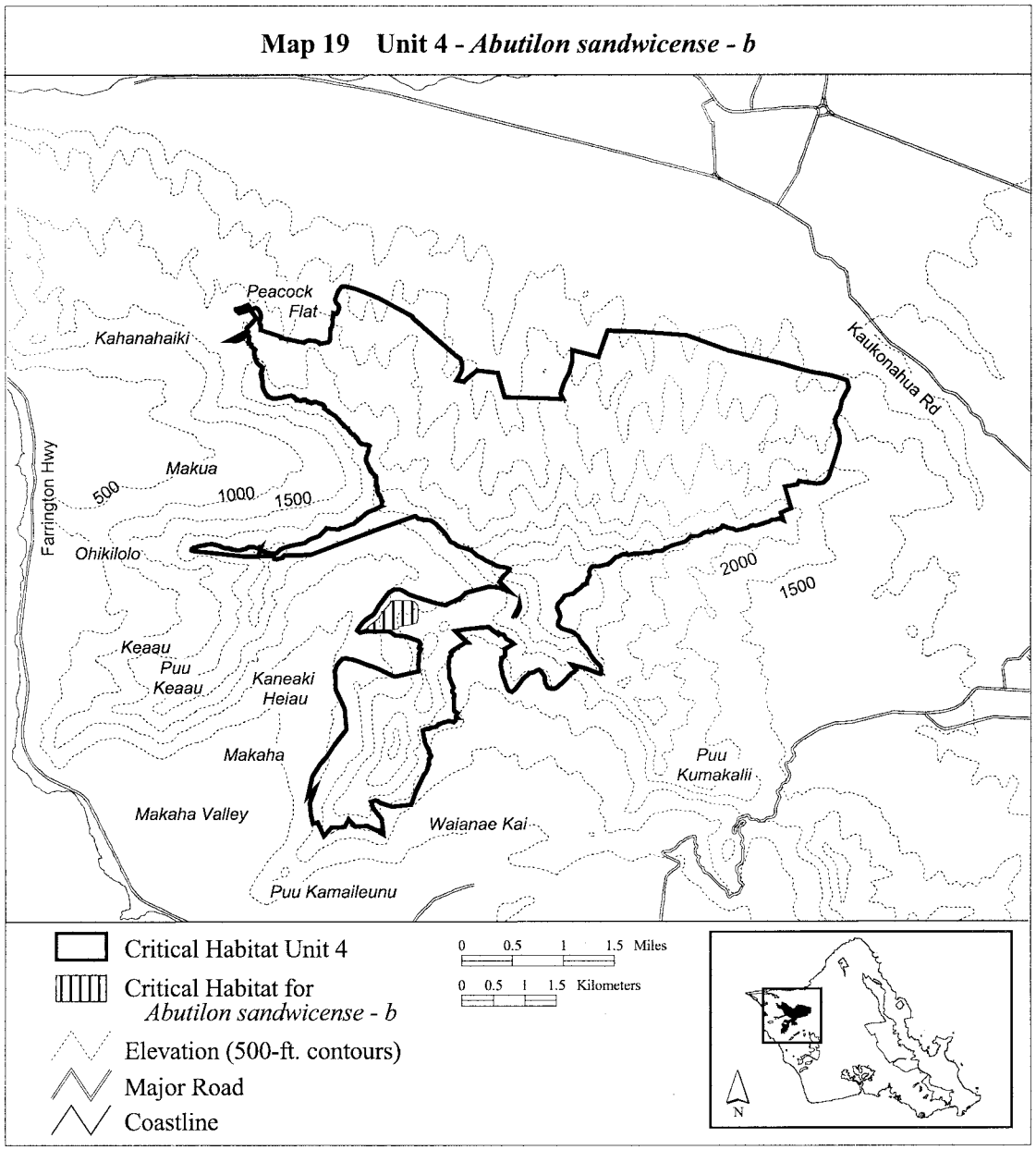
(ii) **Note:** Map 18 follows:



(19) Oahu 4—*Abutilon sandwicense*—b (26 ha; 65 ac)

(i) Unit consists of the following 21 boundary points: Start at 585770, 2377843; 585514, 2377812; 585309, 2377812; 585302, 2377855; 585352, 2377905; 585502, 2378018; 585513, 2378023; 585503, 2378027; 585585, 2378144; 585675, 2378254; 585726, 2378312; 585921, 2378312; 586058, 2378297; 586124, 2378234; 586128, 2378117; 586128, 2378007; 586101, 2377945; 586050, 2377925; 585968, 2377914; 585837, 2377895; 585819, 2377855; return to starting point.

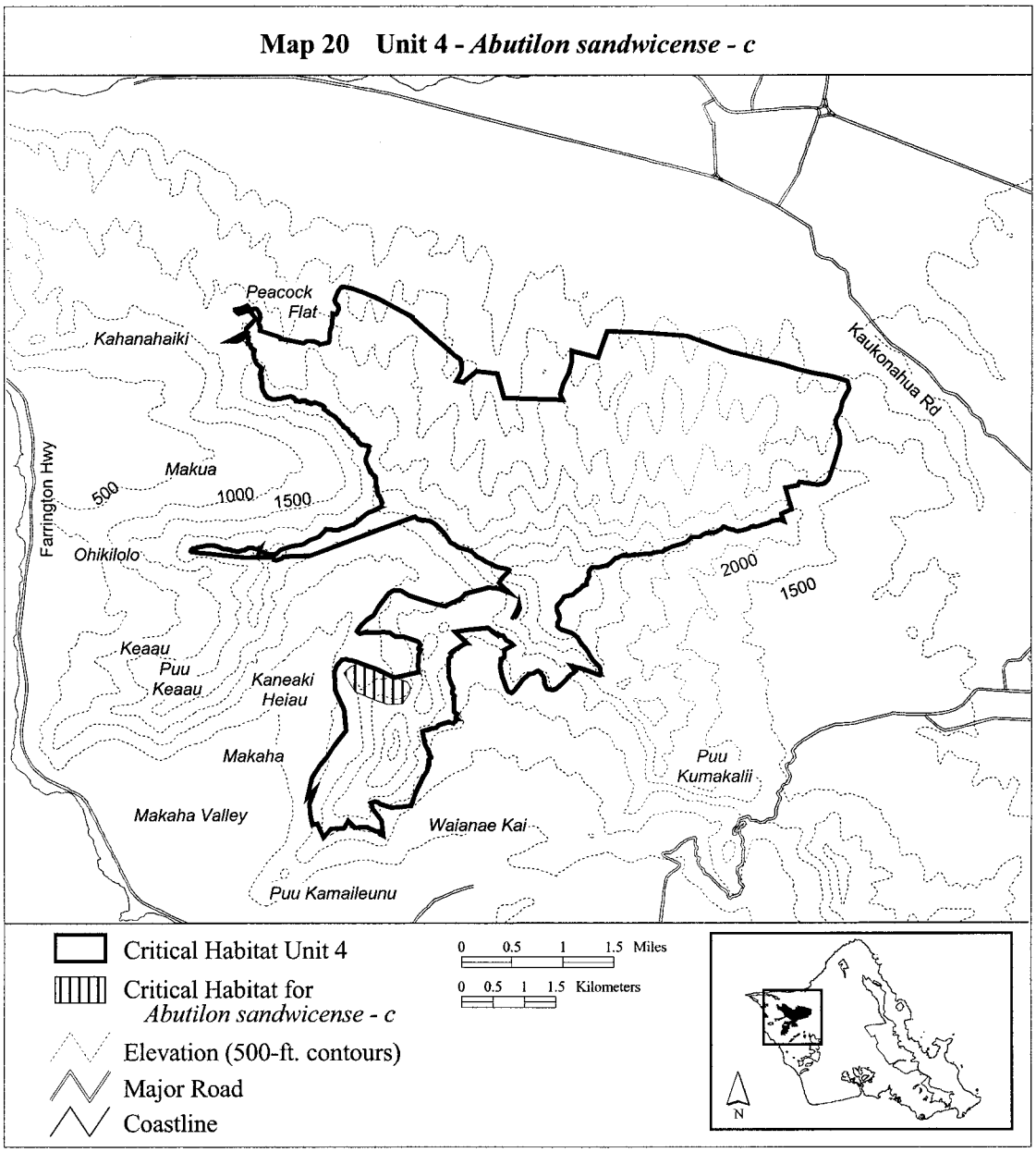
(ii) **Note:** Map 19 follows:



(20) Oahu 4—*Abutilon sandwicense*—c (41 ha; 102 ac)

(i) Unit consists of the following 13 boundary points: Start at 584947, 2377163; 585056, 2377267; 585189, 2377317; 585523, 2377179; 585815, 2377075; 585970, 2377021; 586011, 2376941; 586000, 2376834; 585894, 2376679; 585790, 2376674; 585652, 2376670; 585444, 2376741; 585135, 2376865; return to starting point.

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

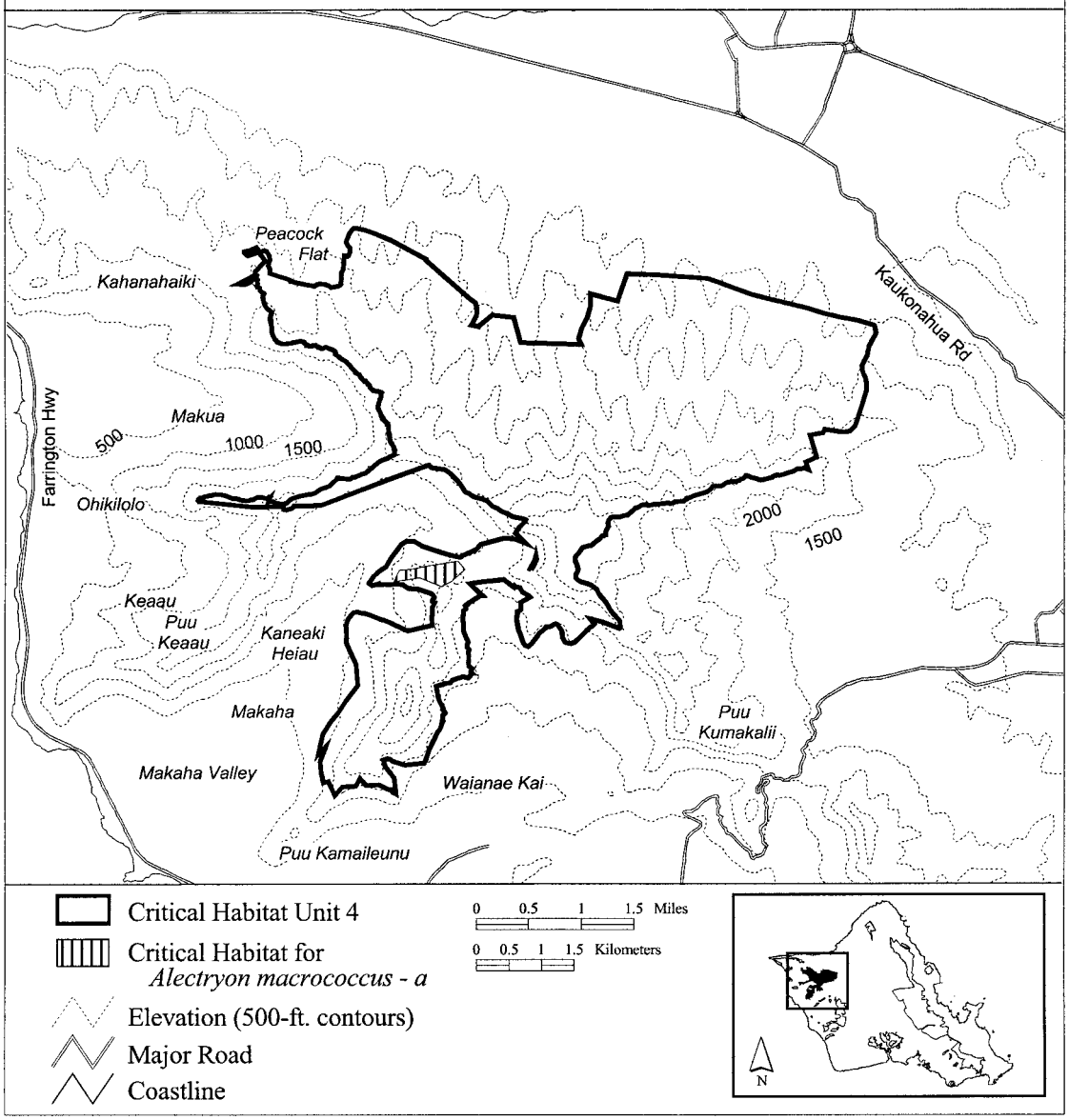


(21) Oahu 4—*Alectryon macrococcus*—a (23 ha; 58 ac)

(i) Unit consists of the following 11 boundary points: Start at 585550, 2377860; 585633, 2378026; 585845, 2378046; 586046, 2378091; 586234, 2378115; 586538, 2378174; 586652, 2378034; 586437, 2377855; 586289, 2377772; 585951, 2377906; 585637, 2377869; return to starting point.

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

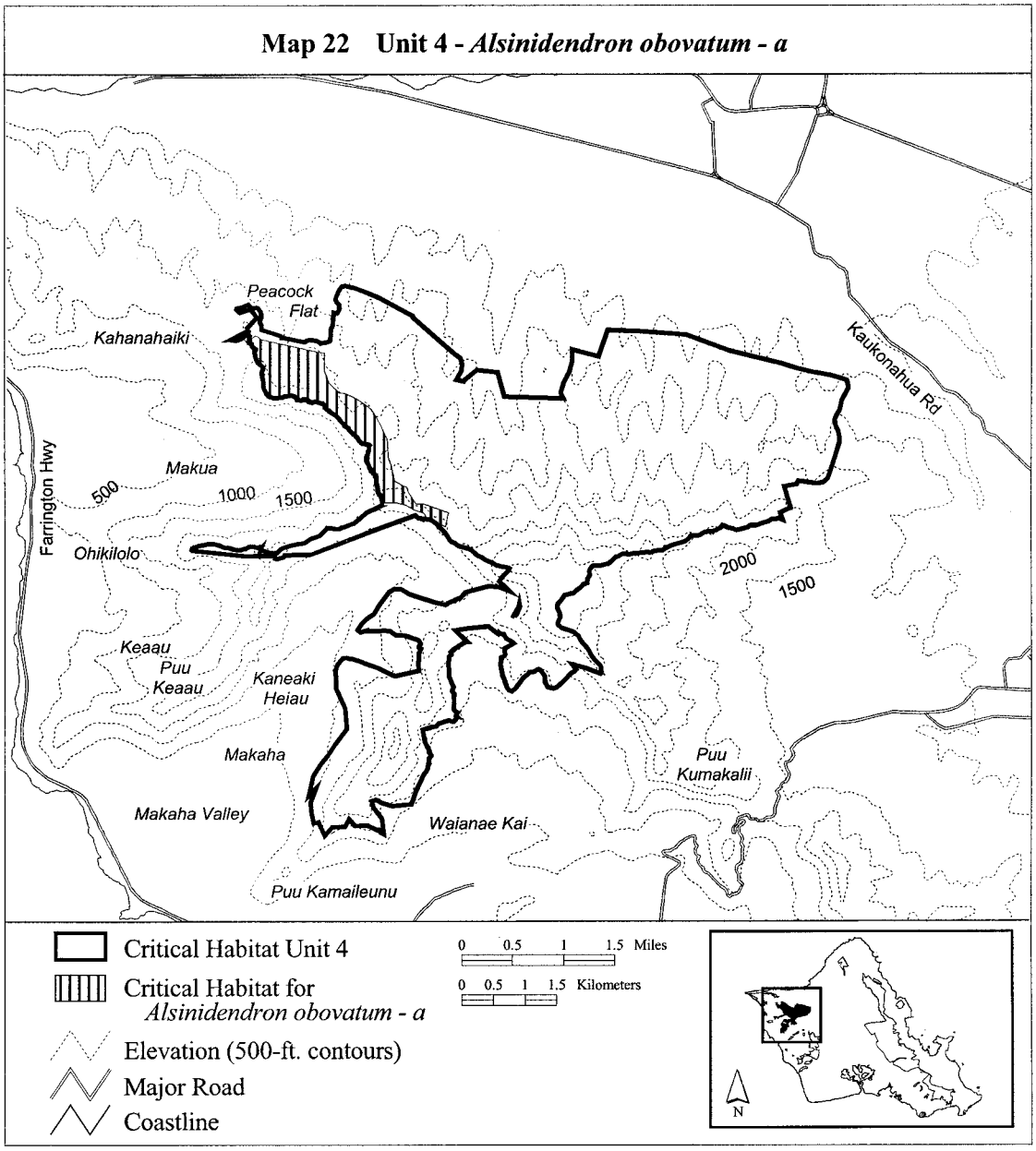
Map 21 Unit 4 - *Alectryon macrococcus - a*



(22) Oahu 4—*Alsinidendron obovatum*—a (176 ha; 435 ac)

(i) Unit consists of the following 74 boundary points: Start at 584301, 2381528; 584276, 2381533; 584200, 2381533; 584168, 2381552; 584167, 2381553; 584150, 2381572; 584130, 2381584; 584129, 2381584; 584104, 2381586; 584065, 2381583; 584024, 2381575; 583997, 2381574; 583936, 2381555; 583934, 2381555; 583897, 2381549; 583890, 2381547; 583758, 2381567; 583747, 2381571; 583744, 2381574; 583679, 2381692; 583645, 2381923; 583660, 2382029; 583547, 2382173; 583547, 2382317; 583445, 2382468; 583526, 2382533; 583573, 2382527; 583625, 2382480; 584375, 2382308; 584634, 2382266; 584637, 2381962; 584681, 2381851; 584707, 2381777; 584869, 2381626; 584974, 2381615; 585148, 2381528; 585352, 2381394; 585415, 2381313; 585514, 2381138; 585630, 2380889; 585648, 2380581; 585694, 2380470; 585751, 2380215; 585885, 2380133; 585885, 2380132; 585887, 2380133; 585949, 2380115; 585967, 2380042; 586095, 2379844; 586223, 2379842; 586612, 2379713; 586570, 2379480; 586280, 2379613; 586221, 2379703; 586082, 2379747; 585944, 2379824; 585787, 2379865; 585584, 2379862; 585528, 2379995; 585464, 2380301; 585339, 2380521; 585359, 2380809; 585275, 2380813; 585134, 2380949; 585024, 2381070; 584865, 2381245; 584659, 2381371; 584615, 2381487; 584427, 2381499; 584329, 2381521; 584325, 2381523; 584324, 2381523; 584310, 2381528; 584309, 2381528; return to starting point.

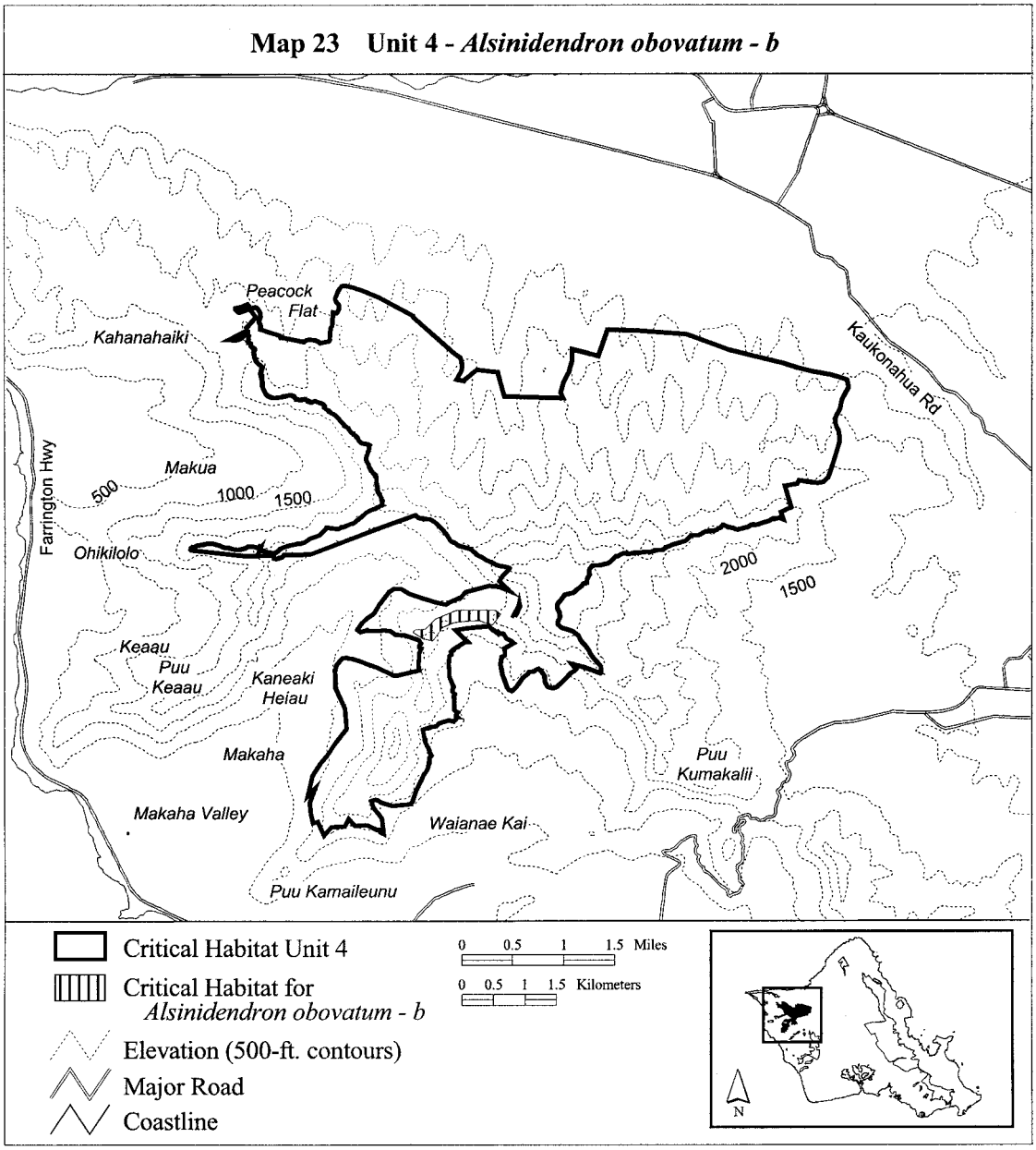
(ii) **Note:** Map 22 follows:



(23) Oahu 4—*Alsinidendron obovatum*—b (25 ha; 62 ac)

(i) Unit consists of the following 15 boundary points: Start at 587357, 2378140; 587448, 2378072; 587324, 2377899; 587184, 2377944; 587092, 2377970; 586908, 2377966; 586707, 2377940; 586523, 2377861; 586365, 2377651; 586207, 2377681; 586050, 2377786; 586076, 2377826; 586251, 2377839; 586413, 2378001; 586751, 2378133; return to starting point.

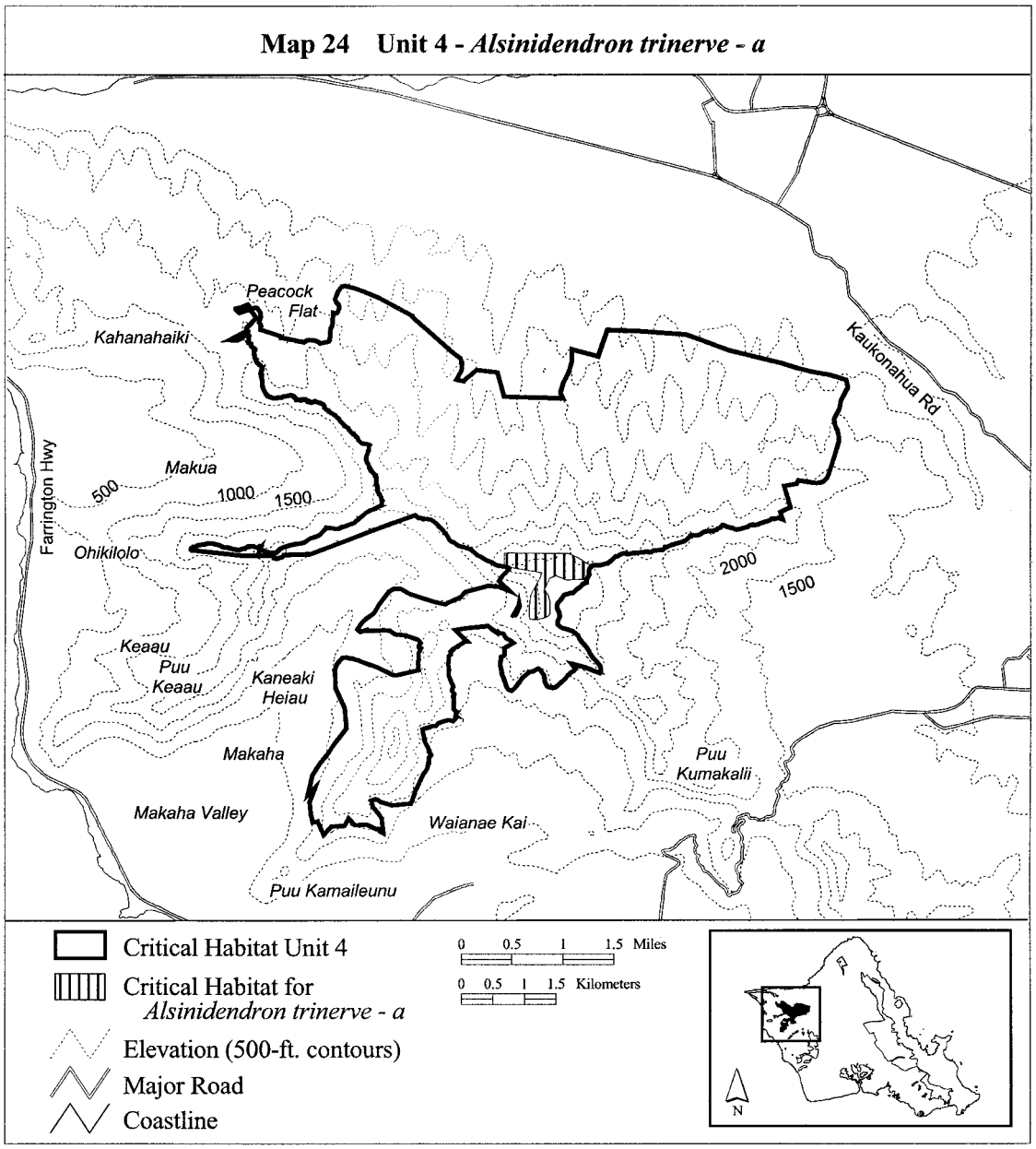
(ii) **Note:** Map 23 follows:



(24) Oahu 4—*Alsinidendron trinerve*—a (60 ha; 149 ac)

(i) Area consists of the following 40 boundary points: Start at 588752, 2378628; 588489, 2378617; 588334, 2378694; 588233, 2378647; 588153, 2378468; 588202, 2378374; 588233, 2378276; 588229, 2378073; 588222, 2378078; 588219, 2378044; 588144, 2378012; 588014, 2377985; 587916, 2377994; 587902, 2378173; 587902, 2378177; 587924, 2378356; 587992, 2378504; 588072, 2378629; 588108, 2378741; 587501, 2378835; 587501, 2379053; 588336, 2379045; 588528, 2379045; 588681, 2378969; 588828, 2378880; 588897, 2378847; 588887, 2378841; 588887, 2378840; 588862, 2378802; 588851, 2378772; 588851, 2378763; 588851, 2378746; 588855, 2378710; 588838, 2378677; 588825, 2378656; 588815, 2378615; 588815, 2378614; 588814, 2378597; 588767, 2378640; 588765, 2378640; return to starting point.

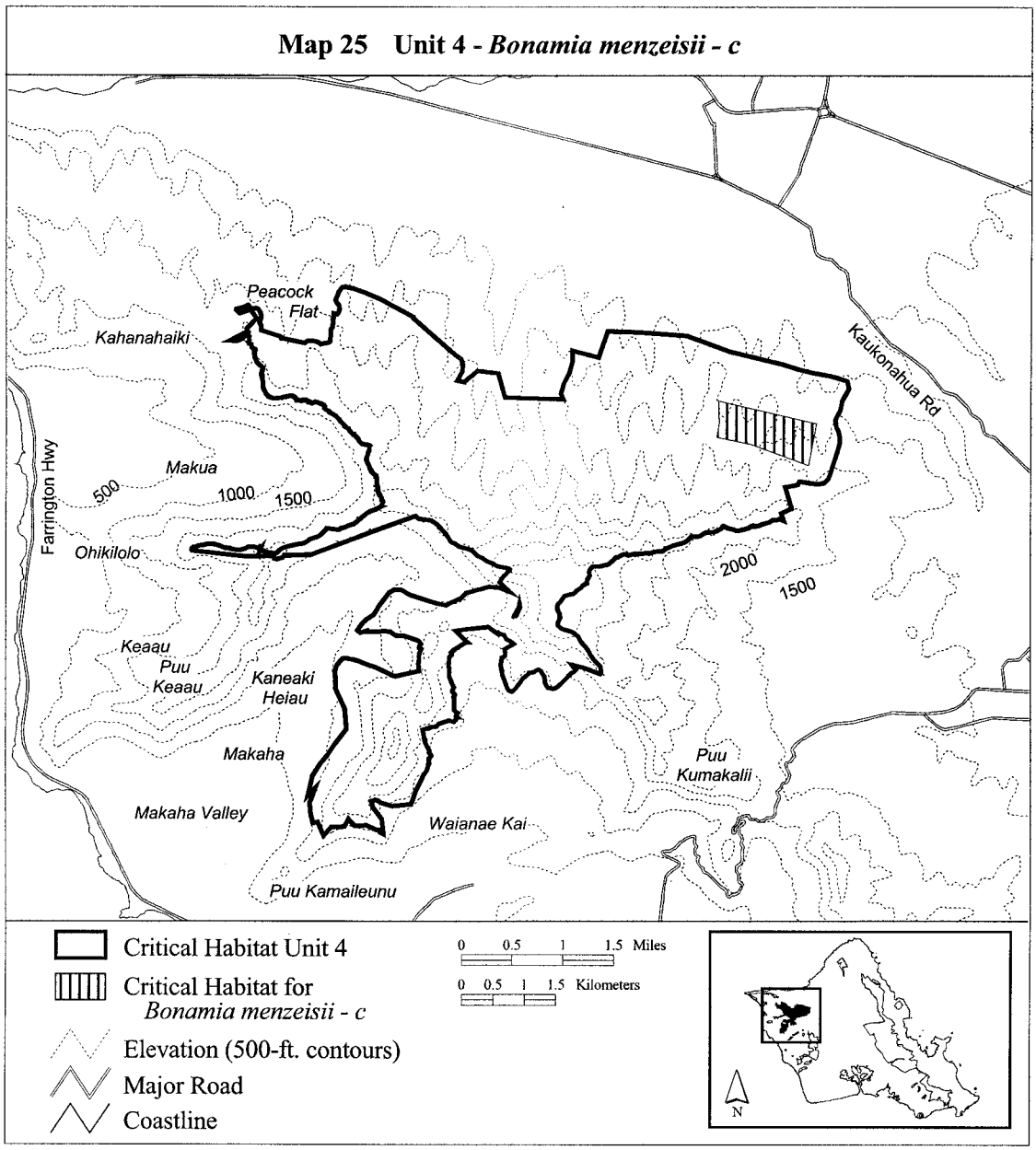
(ii) **Note:** Map 24 follows:



(25) Oahu 4—*Bonamia menziesii*—c (94 ha; 232 ac)

(i) Unit consists of the following 6 boundary points: Start at 592338, 2380469; 591431, 2380805; 590871, 2380923; 590910, 2381148; 590905, 2381506; 592466, 2381148; return to starting point.

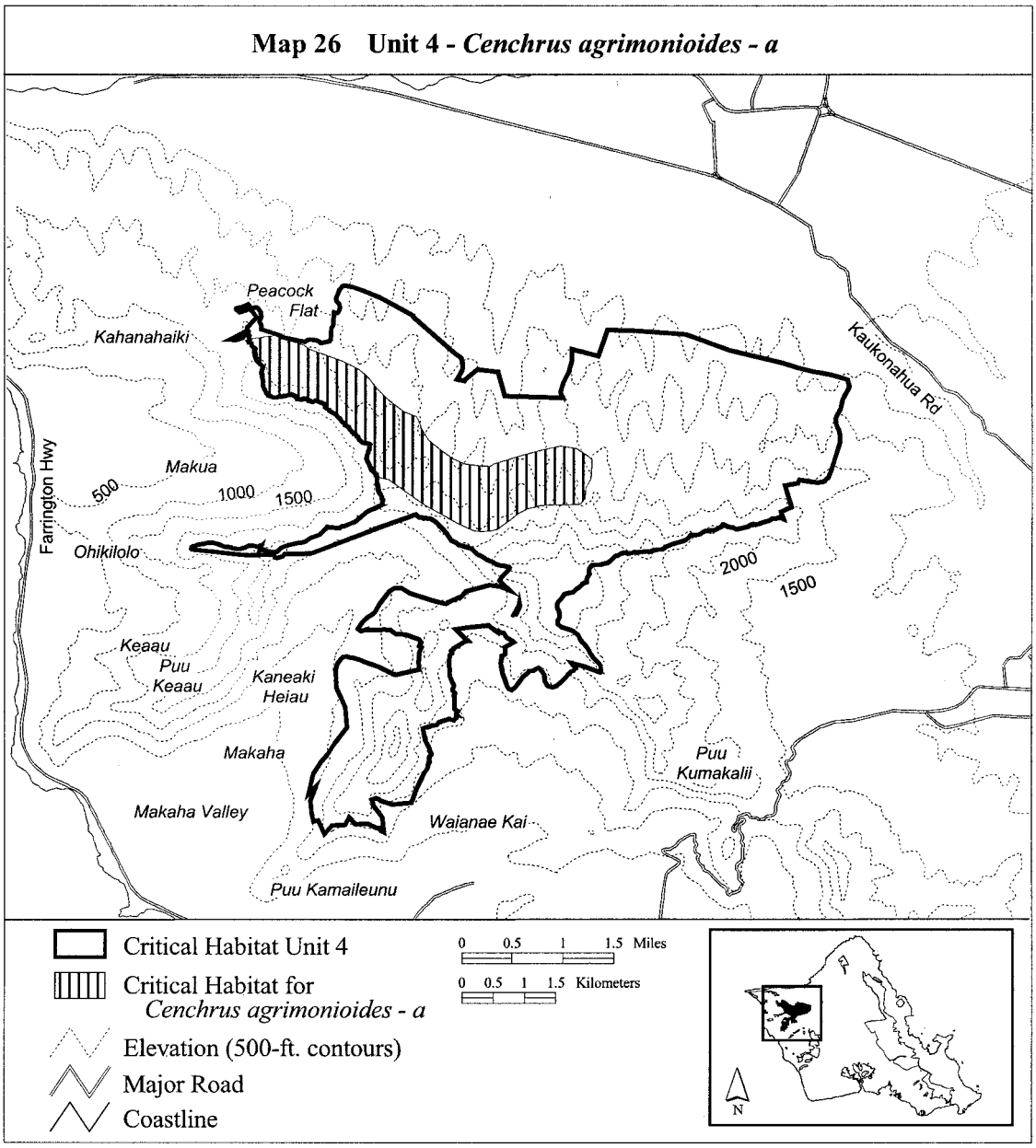
(ii) **Note:** Map 25 follows:



(26) Oahu 4—*Cenchrus agrimonioides*—a (529 ha; 1,306 ac)

(i) Unit consists of the following 80 boundary points: Start at 584380, 2381495; 584309, 2381544; 584196, 2381530; 584133, 2381606; 584005, 2381571; 583859, 2381553; 583750, 2381576; 583661, 2381729; 583665, 2382023; 583590, 2382108; 583548, 2382313; 583444, 2382478; 583845, 2382532; 583983, 2382483; 584310, 2382381; 584391, 2382319; 584901, 2382133; 585166, 2382001; 585317, 2381881; 585494, 2381655; 585649, 2381496; 585884, 2381318; 586097, 2381239; 586168, 2381079; 586162, 2381175; 586171, 2381058; 586289, 2380863; 586469, 2380706; 586684, 2380553; 586871, 2380472; 587093, 2380442; 587276, 2380438; 587334, 2380476; 587793, 2380622; 588077, 2380690; 588398, 2380767; 588651, 2380725; 588834, 2380606; 588896, 2380541; 588880, 2380231; 588800, 2380078; 588788, 2379921; 588712, 2379826; 588482, 2379822; 588260, 2379822; 588088, 2379810; 587881, 2379753; 587725, 2379680; 587593, 2379577; 587479, 2379489; 587406, 2379428; 587287, 2379401; 587130, 2379389; 587016, 2379397; 586817, 2379489; 586606, 2379600; 586605, 2379606; 586243, 2379810; 585639, 2380229; 585613, 2380224; 585480, 2380264; 585418, 2380357; 585368, 2380447; 585302, 2380567; 585354, 2380735; 585352, 2380808; 585224, 2380843; 585126, 2380959; 585063, 2380995; 585033, 2381030; 585027, 2381040; 585011, 2381059; 585004, 2381064; 584970, 2381105; 584845, 2381251; 584687, 2381354; 584639, 2381441; 584496, 2381498; 584403, 2381483; 584383, 2381494; return to starting point.

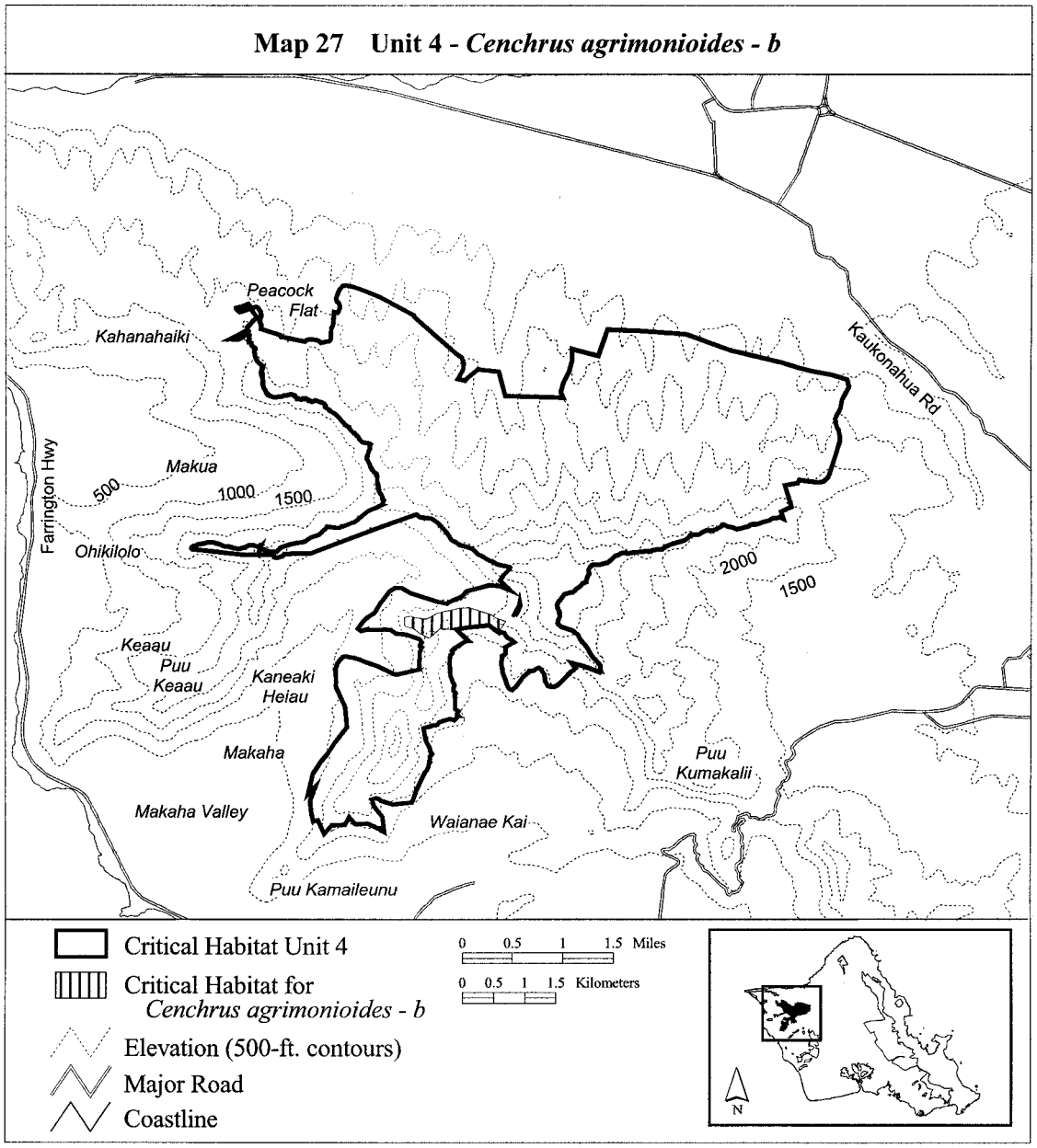
(ii) **Note:** Map 26 follows:



(27) Oahu 4—*Cenchrus agrimonioides*—b (40 ha; 99 ac)

(i) Unit consists of the following 23 boundary points: Start at 585892, 2378006; 585994, 2378031; 586109, 2378000; 586254, 2377981; 586430, 2378084; 586652, 2378126; 586778, 2378153; 586924, 2378161; 587115, 2378107; 587291, 2378046; 587356, 2378004; 587511, 2377943; 587402, 2377764; 587254, 2377883; 586893, 2377844; 586663, 2377808; 586470, 2377840; 586296, 2377671; 586162, 2377751; 586055, 2377824; 585921, 2377862; 585902, 2377863; 585897, 2377973; return to starting point.

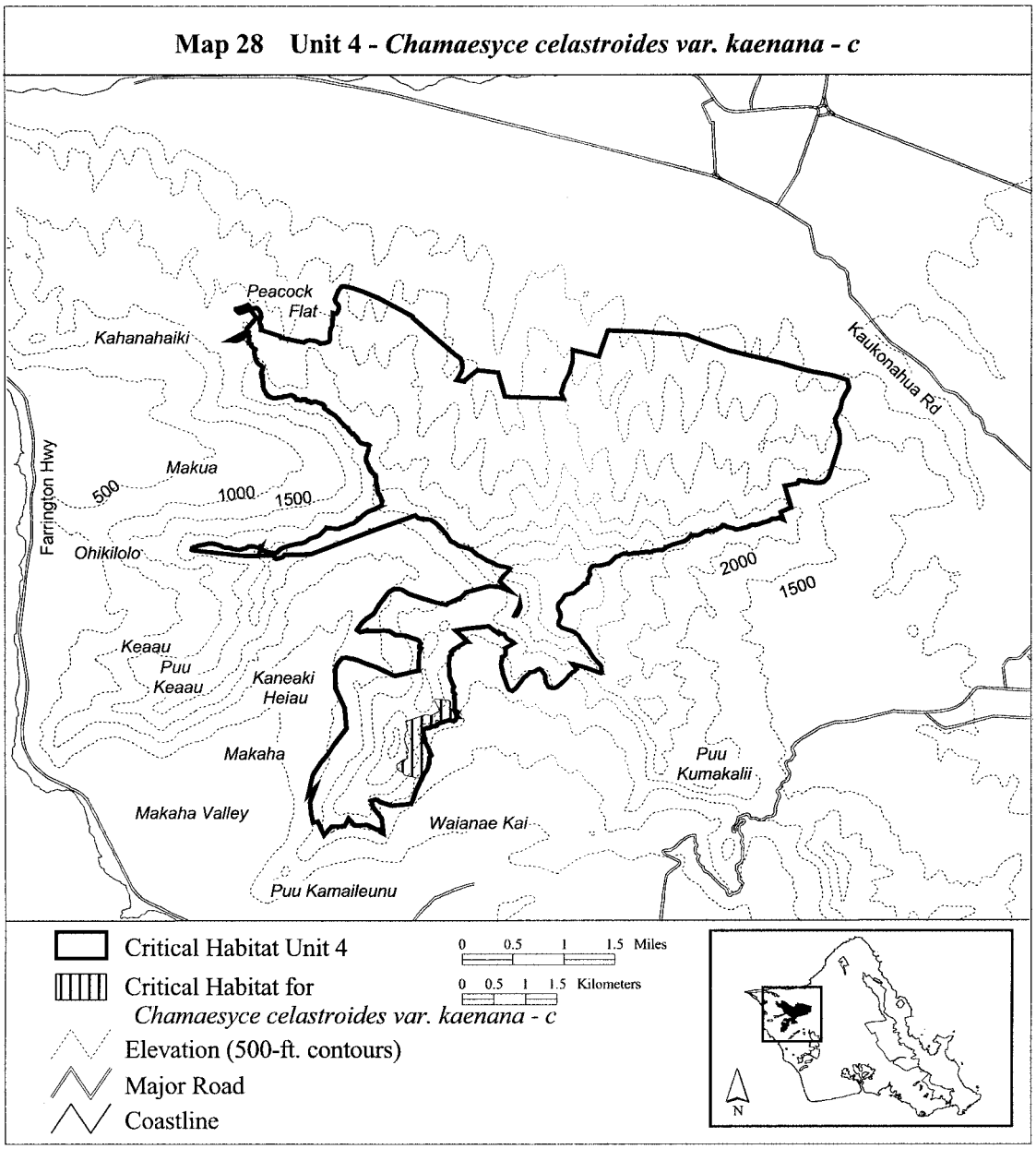
(ii) **Note:** Map 27 follows:



(28) Oahu 4—*Chamaesyce celastroides* var. *kaenana*—c (43 ha; 106 ac)

(i) Unit consists of the following 92 boundary points: Start at 586651, 2376680; 586644, 2376585; 586662, 2376562; 586667, 2376542; 586680, 2376519; 586696, 2376493; 586724, 2376470; 586726, 2376435; 586706, 2376405; 586669, 2376382; 586630, 2376383; 586563, 2376392; 586533, 2376380; 586508, 2376373; 586466, 2376373; 586443, 2376383; 586410, 2376382; 586403, 2376346; 586403, 2376327; 586364, 2376295; 586313, 2376302; 586251, 2376288; 586192, 2376262; 586184, 2376253; 586182, 2376218; 586178, 2376179; 586155, 2376159; 586182, 2376126; 586212, 2376096; 586237, 2376071; 586242, 2376022; 586270, 2375970; 586277, 2375925; 586291, 2375896; 586327, 2375856; 586343, 2375826; 586335, 2375810; 586302, 2375782; 586302, 2375752; 586309, 2375725; 586298, 2375700; 586281, 2375681; 586286, 2375646; 586277, 2375614; 586253, 2375556; 586226, 2375533; 586161, 2375490; 586104, 2375475; 586129, 2375453; 585970, 2375490; 585915, 2375515; 585884, 2375547; 585799, 2375607; 585799, 2375676; 585815, 2375693; 585841, 2375704; 585864, 2375723; 585878, 2375752; 585935, 2375768; 585960, 2375778; 585961, 2375806; 585960, 2375824; 585938, 2375854; 585965, 2375866; 585981, 2375888; 585970, 2375907; 585958, 2375933; 585926, 2376030; 585910, 2376082; 585935, 2376119; 585926, 2376156; 585935, 2376172; 585958, 2376221; 585951, 2376263; 585942, 2376308; 585937, 2376368; 586021, 2376392; 586166, 2376447; 586251, 2376479; 586302, 2376470; 586360, 2376466; 586406, 2376489; 586448, 2376512; 586459, 2376535; 586438, 2376601; 586415, 2376652; 586388, 2376699; 586388, 2376724; 586461, 2376724; 586537, 2376714; 586572, 2376710; 586623, 2376698; return to starting point.

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

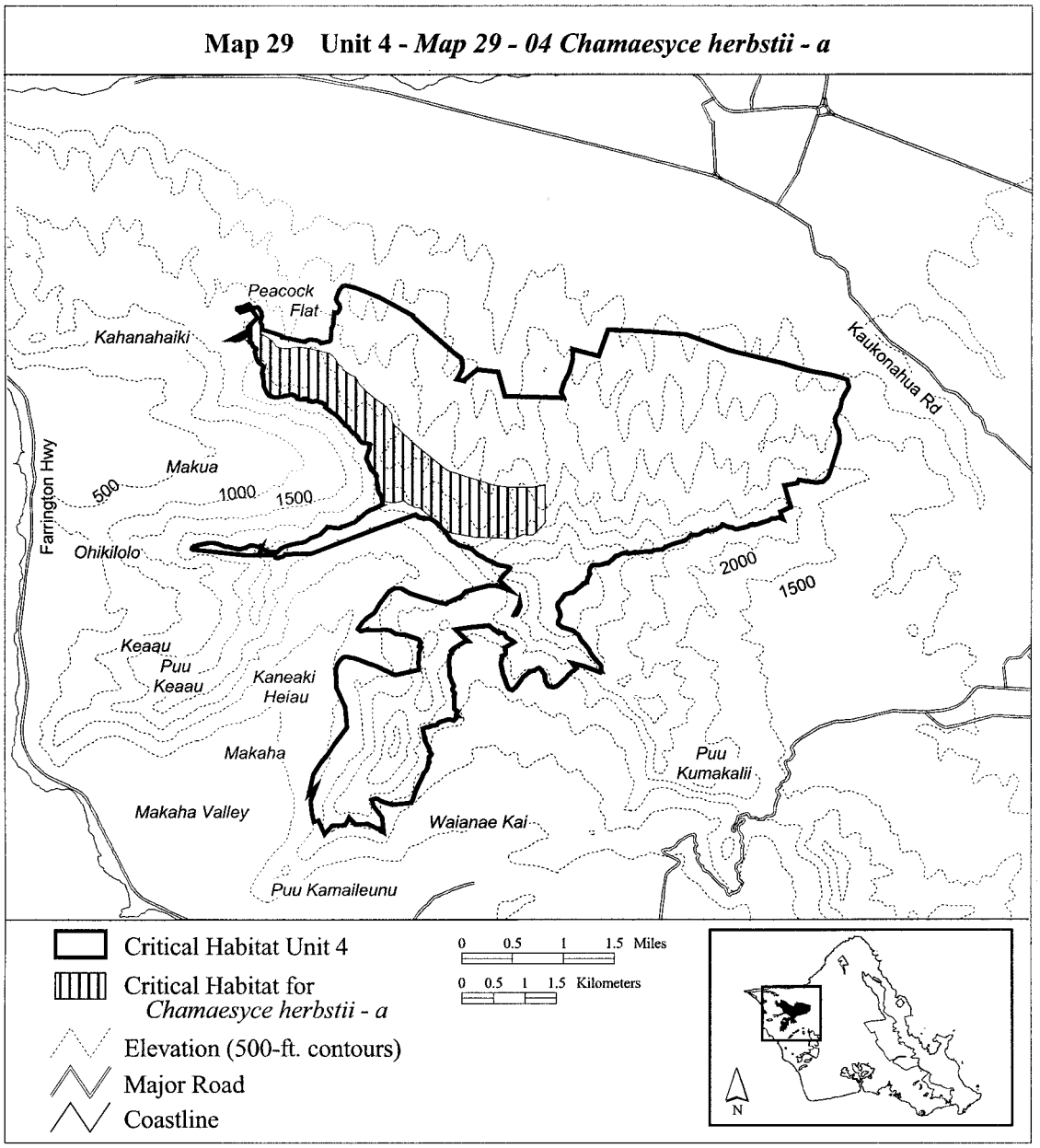


(29) Oahu 4—*Chamaesyce herbstii*—a (429 ha; 159 ac)

(i) Unit consists of the following 138 boundary points: Start at 583503, 2382342; 583526, 2382341; 583439, 2382511; 583414, 2382604; 583400, 2382650; 583402, 2382658; 583548, 2382823; 583450, 2382963; 583283, 2382906; 583228, 2382952; 583228, 2382973; 583336, 2382995; 583416, 2383033; 583475, 2382968; 583545, 2382989; 583567, 2382984; 583615, 2382909; 583626, 2382833; 583610, 2382785; 583594, 2382753; 583626, 2382704; 583626, 2382656; 583615, 2382564; 583734, 2382500; 583798, 2382440; 583863, 2382349; 583992, 2382327; 584046, 2382327; 584191, 2382354; 584397, 2382322; 584709, 2382257; 584779, 2382188; 584865, 2382064; 584903, 2382037; 584913, 2381999; 585043, 2381908; 585134, 2381865; 585177, 2381762; 585290, 2381644; 585425, 2381536; 585618, 2381396; 585710, 2381273; 585710, 2381176; 585753, 2381090; 585791, 2381066; 586087, 2380777; 586572, 2380389; 586597, 2380385; 586588, 2380370; 587339, 2380124; 587577, 2380104; 587951, 2380104; 588137, 2380136; 588137, 2380089; 588137, 2379981; 588137, 2379900; 588148, 2379825; 588148, 2379749; 588136, 2379529; 588072, 2379437; 587948, 2379340; 587899, 2379330; 587792, 2379346; 587652, 2379273; 587015, 2379301; 586634, 2379377; 586153, 2379776; 586086, 2379776; 585962, 2379836; 585897, 2379895; 585817, 2379862; 585704, 2379852; 585567, 2379876; 585549, 2379925; 585550, 2379928; 585550, 2379929; 585549, 2379929; 585549, 2379930; 585548, 2379930; 585547, 2379930; 585530, 2379977; 585483, 2380072; 585475, 2380117; 585474, 2380125; 585474, 2380128; 585472, 2380137; 585471, 2380141; 585460, 2380200; 585470, 2380286; 585383, 2380376; 585375, 2380388; 585365, 2380405; 585342, 2380472; 585303, 2380562; 585321, 2380656; 585324, 2380666; 585354, 2380756; 585347, 2380782; 585348, 2380789; 585348, 2380790; 585344, 2380798; 585344, 2380799; 585341, 2380800; 585340, 2380806; 585339, 2380804; 585215, 2380832; 585126,

2380952; 584993, 2381079; 584873, 2381226; 584724, 2381332; 584654, 2381380; 584630, 2381442; 584504, 2381496; 584422, 2381483; 584333, 2381519; 584325, 2381523; 584324, 2381523; 584317, 2381526; 584298, 2381533; 584261, 2381516; 584201, 2381520; 584133, 2381595; 584041, 2381579; 583935, 2381560; 583809, 2381569; 583723, 2381622; 583658, 2381762; 583655, 2381883; 583645, 2381972; 583657, 2382042; 583554, 2382141; 583527, 2382291; 583550, 2382324; 583523, 2382333; 583523, 2382334; 583522, 2382334; 583517, 2382336; 583508, 2382339; return to starting point.

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

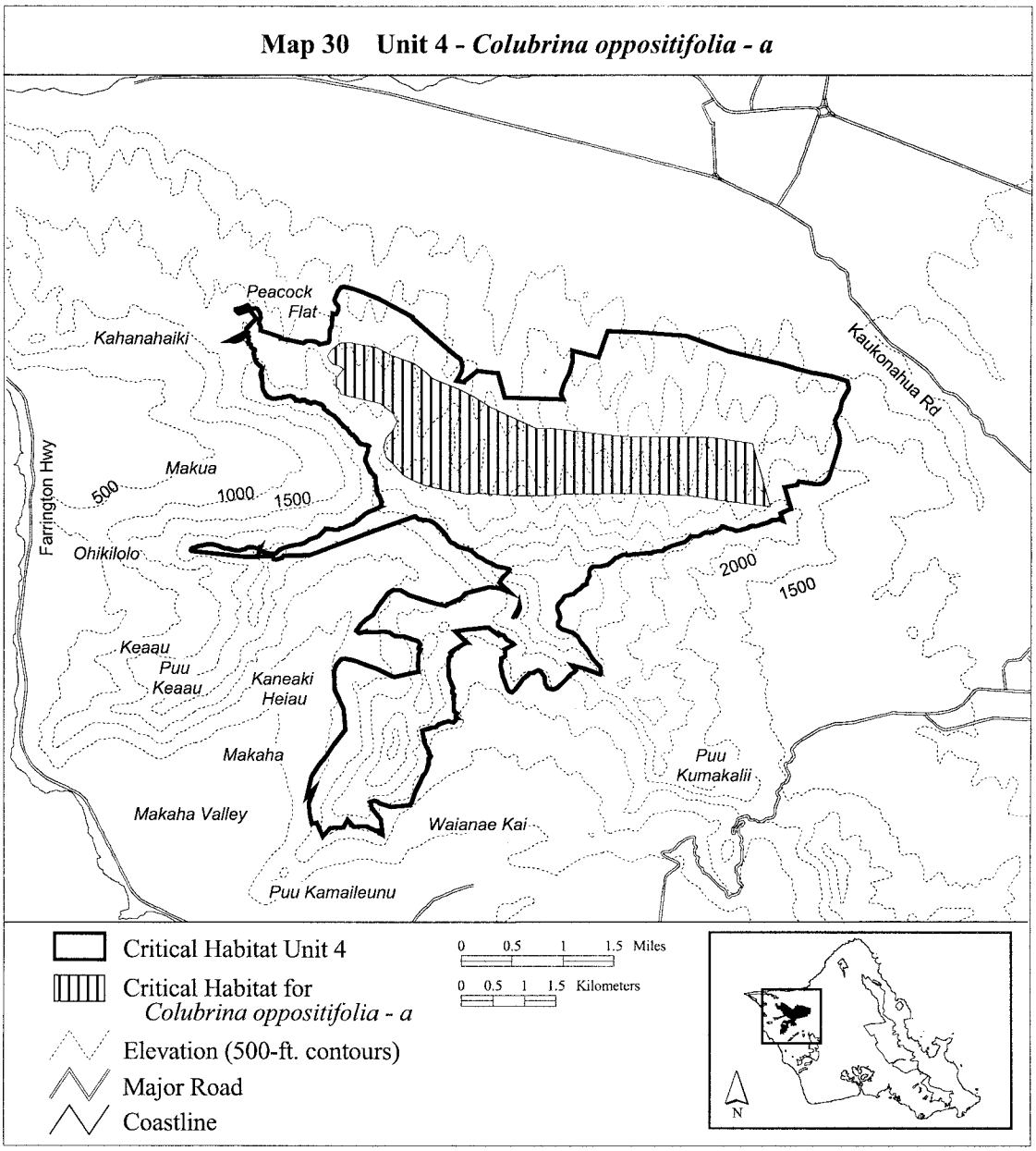


(30) Oahu 4—*Colubrina oppositifolia*—a (783 ha; 1,935 ac)

(i) Unit consists of the following 58 boundary points: Start at 588008, 2381069; 588057, 2381074; 588245, 2381074; 588704, 2381020; 589182, 2380963; 589495, 2380938; 590771, 2380923; 591455, 2380827; 591742, 2379816; 590859, 2379924; 590856, 2379925; 590854, 2379936; 590431, 2379992; 589977, 2380011; 589432, 2380031; 588699, 2380021; 588491, 2380021; 588192, 2379992; 587883, 2379987; 587661, 2379987; 587047, 2380034; 587048, 2380026; 586956, 2380011; 586559, 2380084; 586255, 2380156; 586047, 2380238; 585907, 2380320; 585773, 2380460; 585624, 2380620; 585590, 2380760; 585624, 2380909; 585744, 2381049; 585807, 2381170; 585735, 2381320; 585532, 2381474; 585218, 2381547; 584909, 2381619; 584875, 2381701; 584827, 2381745; 584837, 2381860; 584924, 2381976; 584948, 2382020; 584895, 2382063; 584793, 2382092; 584730, 2382140; 584701, 2382227; 584764, 2382329; 584899, 2382435; 585054, 2382445; 585237, 2382411; 585469, 2382367; 585706, 2382247; 586068, 2382107; 586270, 2381962; 586353, 2381875; 586779, 2381699; 587016,

2381581; 587278, 2381406; return to starting point.

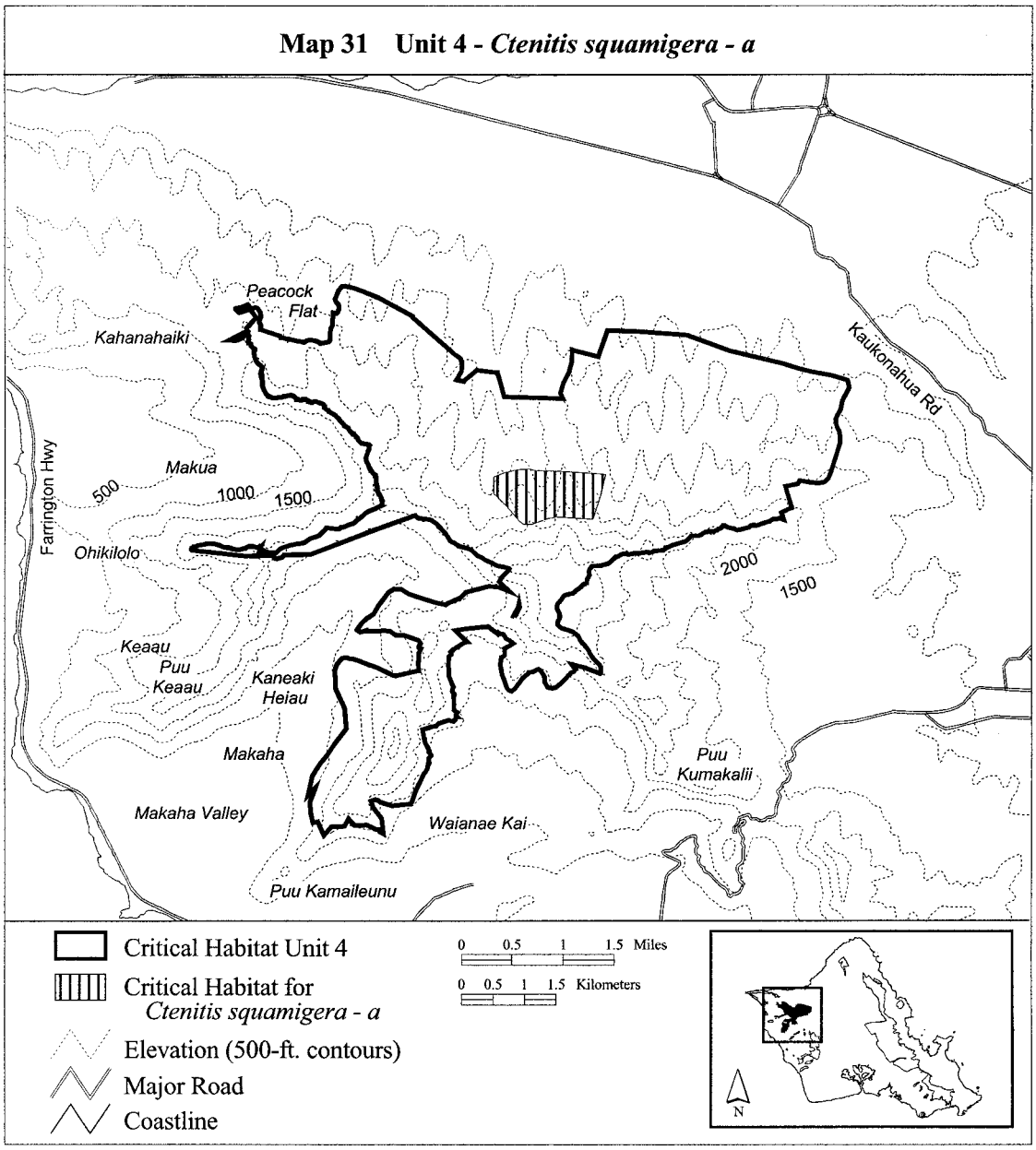
(ii) **Note:** Map 30 follows:



(31) Oahu 4—*Ctenitis squamigera*—a (120 ha; 298 ac)

(i) Unit consists of the following 22 boundary points: Start at 588909, 2379603; 588766, 2379609; 588486, 2379632; 588342, 2379636; 588233, 2379618; 588055, 2379564; 587942, 2379523; 587815, 2379523; 587752, 2379573; 587549, 2379813; 587345, 2380007; 587345, 2380130; 587341, 2380284; 587504, 2380347; 587726, 2380397; 587907, 2380406; 588016, 2380383; 588396, 2380370; 588613, 2380356; 588885, 2380333; 589113, 2380315; 589032, 2379960; return to starting point.

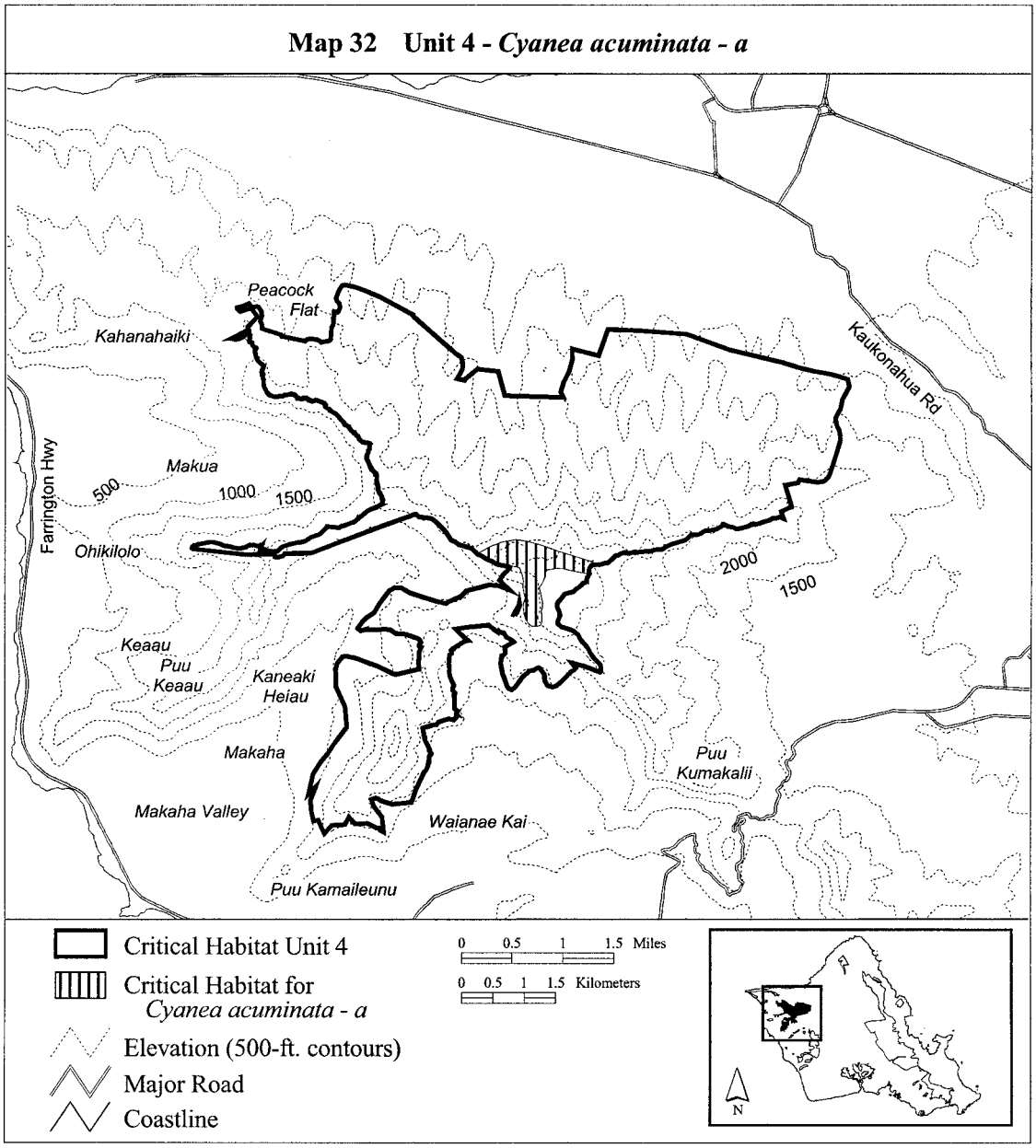
(ii) **Note:** Map 31 follows:



(32) Oahu 4—*Cyanea acuminata*—a (83 ha; 205 ac)

(i) Unit consists of the following 64 boundary points: Start at 588849, 2378698; 588770, 2378723; 588704, 2378726; 588538, 2378764; 588421, 2378792; 588320, 2378789; 588186, 2378769; 588157, 2378735; 588154, 2378666; 588120, 2378592; 588085, 2378517; 588062, 2378488; 588079, 2378402; 588091, 2378339; 588111, 2378245; 588111, 2378176; 588085, 2378090; 588102, 2378038; 588105, 2377972; 588105, 2377921; 588079, 2377875; 588071, 2377872; 588014, 2377866; 587936, 2377866; 587882, 2377912; 587830, 2377995; 587810, 2378079; 587804, 2378147; 587804, 2378216; 587830, 2378316; 587816, 2378388; 587799, 2378500; 587804, 2378594; 587790, 2378695; 587736, 2378798; 587675, 2378815; 587584, 2378835; 587437, 2378844; 587372, 2378861; 587311, 2378898; 587225, 2378941; 587154, 2378981; 587111, 2379036; 587108, 2379047; 587283, 2379145; 587472, 2379222; 587687, 2379257; 587856, 2379228; 588097, 2379168; 588340, 2379070; 588581, 2378999; 588879, 2378910; 588987, 2378856; 588910, 2378852; 588910, 2378851; 588899, 2378848; 588898, 2378848; 588887, 2378841; 588887, 2378840; 588862, 2378802; 588851, 2378772; 588851, 2378763; 588851, 2378746; 588855, 2378710; return to starting point.

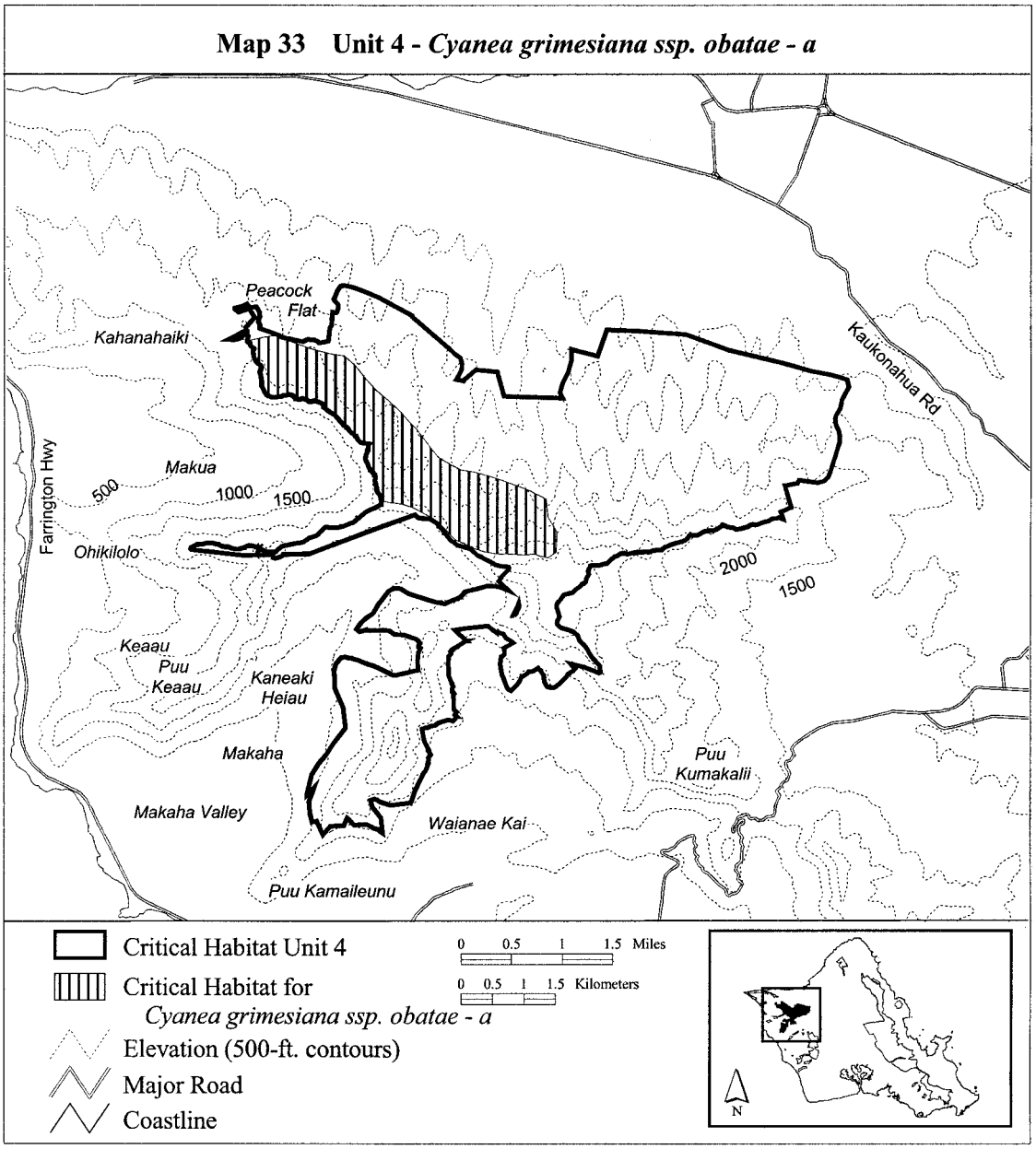
(ii) **Note:** Map 32 follows:



(33) Oahu 4—*Cyanea grimesiana* ssp. *obatae*—a (522 ha; 1,291 ac)

(i) Unit consists of the following 102 boundary points: Start at 584251, 2381509; 584192, 2381525; 584170, 2381549; 584167, 2381553; 584150, 2381572; 584148, 2381573; 584141, 2381581; 584117, 2381595; 583876, 2381561; 583789, 2381568; 583745, 2381584; 583733, 2381605; 583700, 2381659; 583663, 2381752; 583647, 2381925; 583667, 2382028; 583560, 2382137; 583530, 2382267; 583557, 2382327; 583487, 2382367; 583487, 2382400; 583454, 2382430; 583451, 2382446; 583505, 2382460; 583690, 2382504; 583864, 2382531; 584038, 2382468; 584255, 2382393; 584421, 2382326; 584745, 2382247; 584970, 2382204; 585143, 2382054; 585301, 2381856; 585475, 2381651; 585648, 2381505; 585857, 2381316; 586011, 2381138; 586134, 2381024; 586124, 2381013; 586441, 2380602; 586583, 2380511; 586836, 2380381; 587002, 2380353; 587250, 2380290; 587554, 2380188; 587893, 2380065; 588177, 2379919; 588201, 2379631; 588350, 2379387; 588346, 2379296; 588338, 2379063; 588204, 2378976; 588097, 2378996; 587975, 2379035; 587841, 2379020; 587604, 2379035; 587411, 2379035; 587218, 2379059; 587008, 2379134; 586724, 2379276; 586535, 2379469; 586365, 2379608; 586073, 2379769; 585884, 2379832; 585659, 2379860; 585562, 2379890; 585549, 2379924; 585550, 2379928; 585550, 2379929; 585549, 2379929; 585549, 2379930; 585548, 2379930; 585547, 2379930; 585478, 2380107; 585457, 2380302; 585395, 2380362; 585299, 2380563; 585336, 2380704; 585338, 2380712; 585339, 2380712; 585340, 2380721; 585345, 2380739; 585346, 2380751; 585346, 2380754; 585346, 2380756; 585350, 2380801; 585223, 2380827; 585174, 2380878; 585167, 2380888; 585157, 2380904; 585146, 2380918; 585118, 2380959; 585065, 2380985; 585023, 2381051; 584965, 2381104; 584807, 2381274; 584709, 2381333; 584646, 2381382; 584631, 2381444; 584500, 2381495; 584452, 2381482; 584301, 2381534; return to starting point.

(ii) **Note:** Map 33 follows:

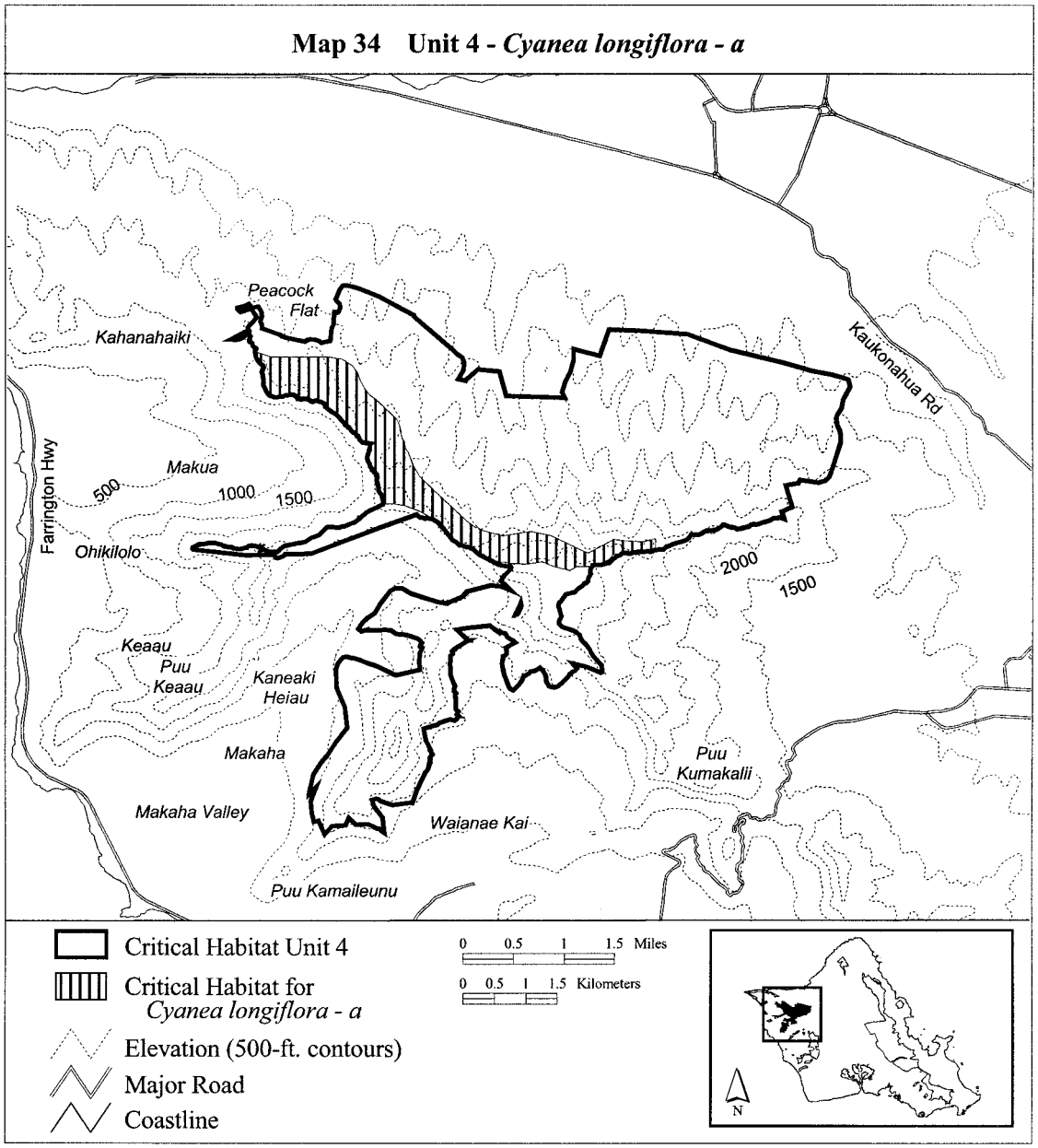


(34) Oahu 4—*Cyanea longiflora*+—a (362 ha; 896 ac)

(i) Unit consists of the following 163 boundary points: Start at 589322, 2379008; 589227, 2379030; 589144, 2378934; 588984, 2378856; 588910, 2378852; 588910, 2378851; 588899, 2378848; 588898, 2378848; 588887, 2378841; 588887, 2378840; 588866, 2378808; 588853, 2378830; 588638, 2378825; 588557, 2378780; 588549, 2378779; 588522, 2378764; 588468, 2378783; 588294, 2378820; 588097, 2378901; 588099, 2378909; 588092, 2378911; 588079, 2378910; 587994, 2378891; 587795, 2378868; 587551, 2378882; 587485, 2378896; 587399, 2378901; 587322, 2378929; 587266, 2378941; 587232, 2378962; 587081, 2379017; 586980, 2379113; 586772, 2379174; 586781, 2379184; 586778, 2379185; 586637, 2379321; 586447, 2379529; 586294, 2379624; 586135, 2379719; 585918, 2379796; 585737, 2379832; 585556, 2379836; 585574, 2379901; 585531, 2379987; 585481, 2380116; 585466, 2380282; 585337, 2380490; 585308, 2380573; 585327, 2380678; 585338, 2380712; 585339, 2380712; 585344, 2380738; 585346, 2380754; 585345, 2380767; 585345, 2380777; 585347, 2380785; 585348, 2380789; 585348, 2380790; 585352, 2380813; 585215, 2380831; 585132, 2380968; 585086, 2380996; 585028, 2381065; 584964, 2381101; 584881, 2381216; 584729, 2381329; 584626, 2381453; 584497, 2381510; 584462, 2381482; 584344, 2381514; 584325, 2381523; 584324, 2381523; 584310, 2381528; 584309, 2381528; 584295, 2381527; 584259, 2381537; 584134, 2381603; 584046, 2381591; 583951, 2381568; 583888, 2381564; 583811, 2381577; 583728, 2381611; 583670, 2381715; 583652, 2381855; 583660, 2382042; 583584, 2382099; 583545, 2382178; 583530, 2382274; 583616,

2382242; 583770, 2382188; 583933, 2382192; 584155, 2382192; 584490, 2382188; 584676, 2382188; 584911, 2382156; 585065, 2382052; 585141, 2381944; 585178, 2381835; 585254, 2381699; 585340, 2381577; 585435, 2381519; 585630, 2381329; 585770, 2381193; 585806, 2381121; 585833, 2381017; 585847, 2380890; 585888, 2380845; 585910, 2380736; 585955, 2380664; 586023, 2380469; 586133, 2380279; 586136, 2380279; 586407, 2380013; 586900, 2379542; 587025, 2379450; 587040, 2379467; 587126, 2379412; 587224, 2379382; 587447, 2379321; 587646, 2379357; 587816, 2379378; 587895, 2379391; 588218, 2379331; 588742, 2379076; 588826, 2379041; 589211, 2379253; 589214, 2379255; 589215, 2379255; 589224, 2379260; 589280, 2379255; 589300, 2379255; 589347, 2379249; 589636, 2379223; 589701, 2379230; 589887, 2379275; 589886, 2379260; 589892, 2379260; 589892, 2379189; 589892, 2379098; 589882, 2379095; 589882, 2379089; 589881, 2379089; 589839, 2379075; 589839, 2379074; 589806, 2379068; 589790, 2379069; 589787, 2379069; 589747, 2379069; 589705, 2379066; 589675, 2379063; 589616, 2379059; 589604, 2379058; 589557, 2379052; 589519, 2379042; 589496, 2379035; 589462, 2379034; 589441, 2379042; 589424, 2379047; 589391, 2379048; 589370, 2379041; 589369, 2379041; 589348, 2379025; 589324, 2379009; return to starting point.

(ii) **Note:** Map 34 follows:

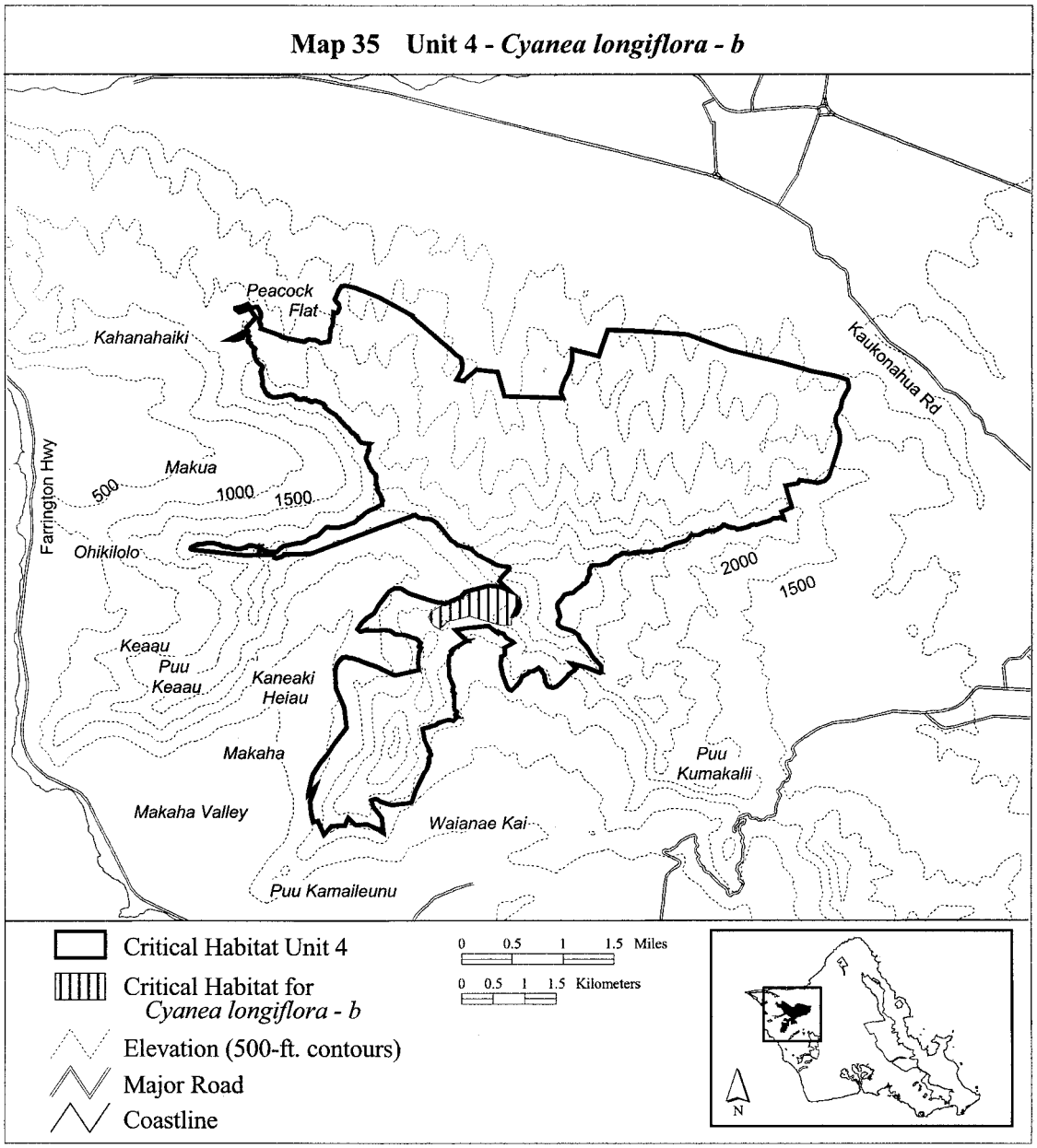


(35) Oahu 4—*Cyanea longiflora*—b (61 ha; 150 ac)

(i) Unit consists of the following 24 boundary points: Start at 586477, 2377825; 586452, 2377842; 586384, 2377878; 586334, 2377946; 586298, 2378018; 586330, 2378113; 586610, 2378253; 586813, 2378347; 586800, 2378330; 586827, 2378353; 586882, 2378430; 587085, 2378484; 587257, 2378529; 587429, 2378511; 587659, 2378421; 587718, 2378371; 587759,

2378299; 587727, 2378199; 587655, 2378068; 587610, 2377973; 587610, 2377887; 587449, 2377887; 586953, 2378038; 586608, 2377955; return to starting point.

(ii) **Note:** Map 35 follows:

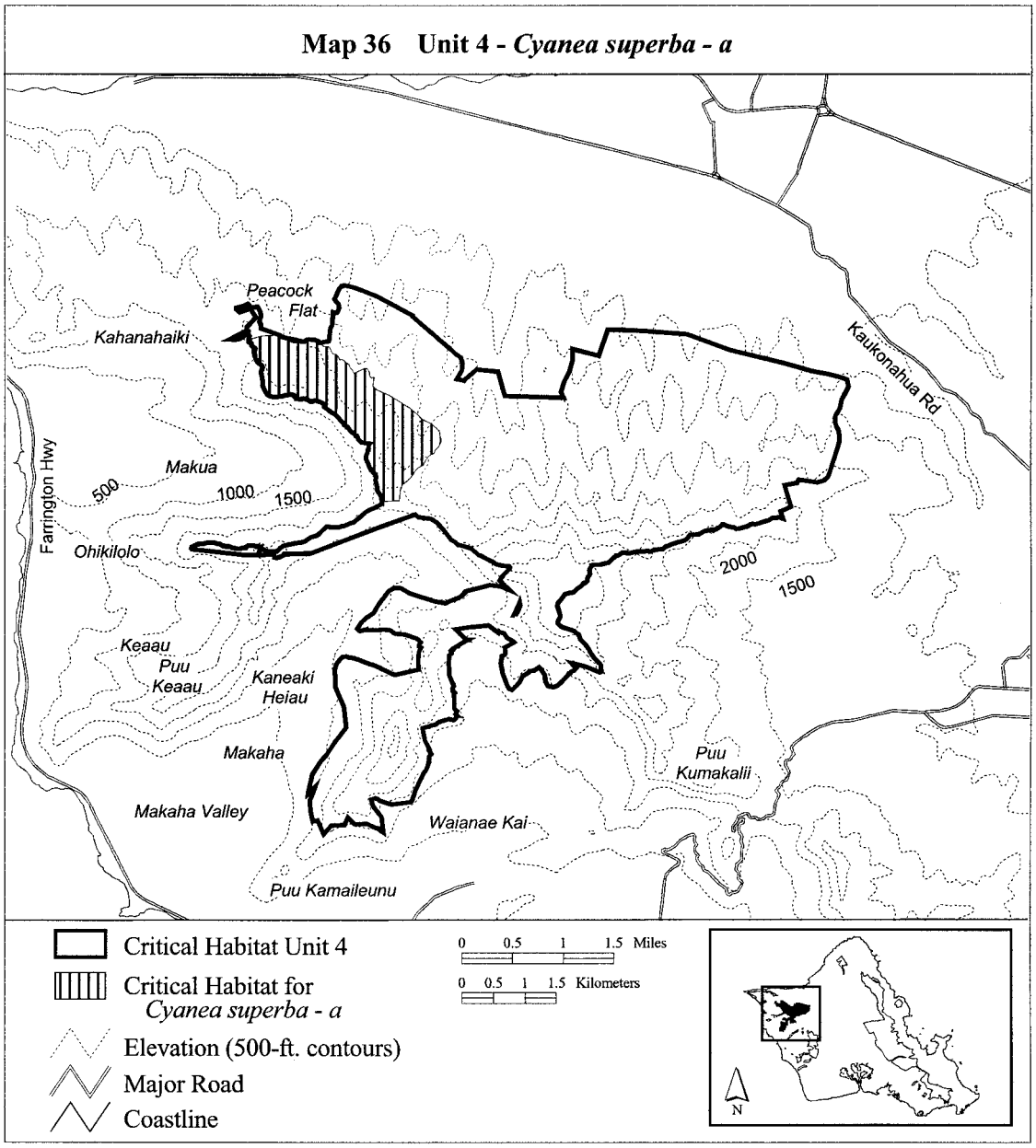


(36) Oahu 4—*Cyanea superba*—a (302 ha; 747 ac)

(i) Unit consists of the following 142 boundary points: Start at 583837, 2381543; 583777, 2381576; 583739, 2381579; 583731, 2381587; 583731, 2381589; 583658, 2381724; 583662, 2381803; 583646, 2381892; 583638, 2381956; 583650, 2381985; 583658, 2382035; 583567, 2382120; 583523, 2382284; 583540, 2382309; 583544, 2382321; 583480, 2382363; 583480, 2382413; 583434, 2382429; 583434, 2382473; 583434, 2382474; 583642, 2382522; 583867, 2382536; 584015, 2382467; 584112, 2382425; 584164, 2382418; 584268, 2382405; 584352, 2382460; 584393, 2382474; 584490, 2382463; 584552, 2382432; 584617, 2382373; 584631, 2382363; 584687, 2382353; 584718, 2382349; 584745, 2382297; 584766, 2382246; 584814, 2382239; 584832, 2382225; 584870, 2382177; 584880, 2382142; 584922, 2382156; 584977, 2382111; 585017, 2382080; 585022, 2382069; 585179, 2382021; 585084, 2381969; 585111, 2381938; 585129, 2381938; 585167, 2381952; 585212, 2381969; 585281, 2382017; 585326, 2382011; 585353, 2381955; 585357, 2381883; 585391, 2381855; 585433, 2381862; 585412, 2381779; 585409, 2381727; 585436, 2381703; 585464, 2381683; 585462, 2381673; 585661, 2381576; 585844, 2381475; 585999, 2381368; 586120, 2381258; 586210, 2381178; 586338, 2381120; 586462, 2381009; 586497, 2380847; 586486, 2380809; 586462, 2380757; 586393, 2380691; 586386, 2380643; 586310, 2380595; 586248, 2380522; 586213, 2381753; 586127,

2381705; 586086, 2380367; 586051, 2380294; 585971, 2380217; 585926, 2380170; 585870, 2380121; 585843, 2380028; 585836, 2379883; 585791, 2379883; 585587, 2379869; 585538, 2379948; 585531, 2379962; 585531, 2379963; 585523, 2379982; 585522, 2379982; 585518, 2379989; 585515, 2379997; 585500, 2380019; 585475, 2380122; 585474, 2380125; 585474, 2380128; 585472, 2380135; 585461, 2380273; 585440, 2380319; 585405, 2380348; 585366, 2381717; 585320, 2380510; 585299, 2380563; 585334, 2380698; 585338, 2380712; 585339, 2380712; 585342, 2380729; 585347, 2380750; 585347, 2380785; 585348, 2380789; 585348, 2380790; 585347, 2380792; 585347, 2380802; 585212, 2380834; 585116, 2380960; 585069, 2380992; 585025, 2381174; 584900, 2381178; 584809, 2381270; 584709, 2381331; 584646, 2381394; 584629, 2381439; 584609, 2381458; 584546, 2381479; 584484, 2381495; 584447, 2381479; 584418, 2381479; 584387, 2381500; 584349, 2381516; 584326, 2381533; 584295, 2381535; 584250, 2381516; 584202, 2381527; 584180, 2381542; 584177, 2381551; 584140, 2381589; 584073, 2381589; 583961, 2381562; 583916, 2381554; 583853, 2381551; 583839, 2381543; return to starting point.

(ii) **Note:** Map 36 follows:

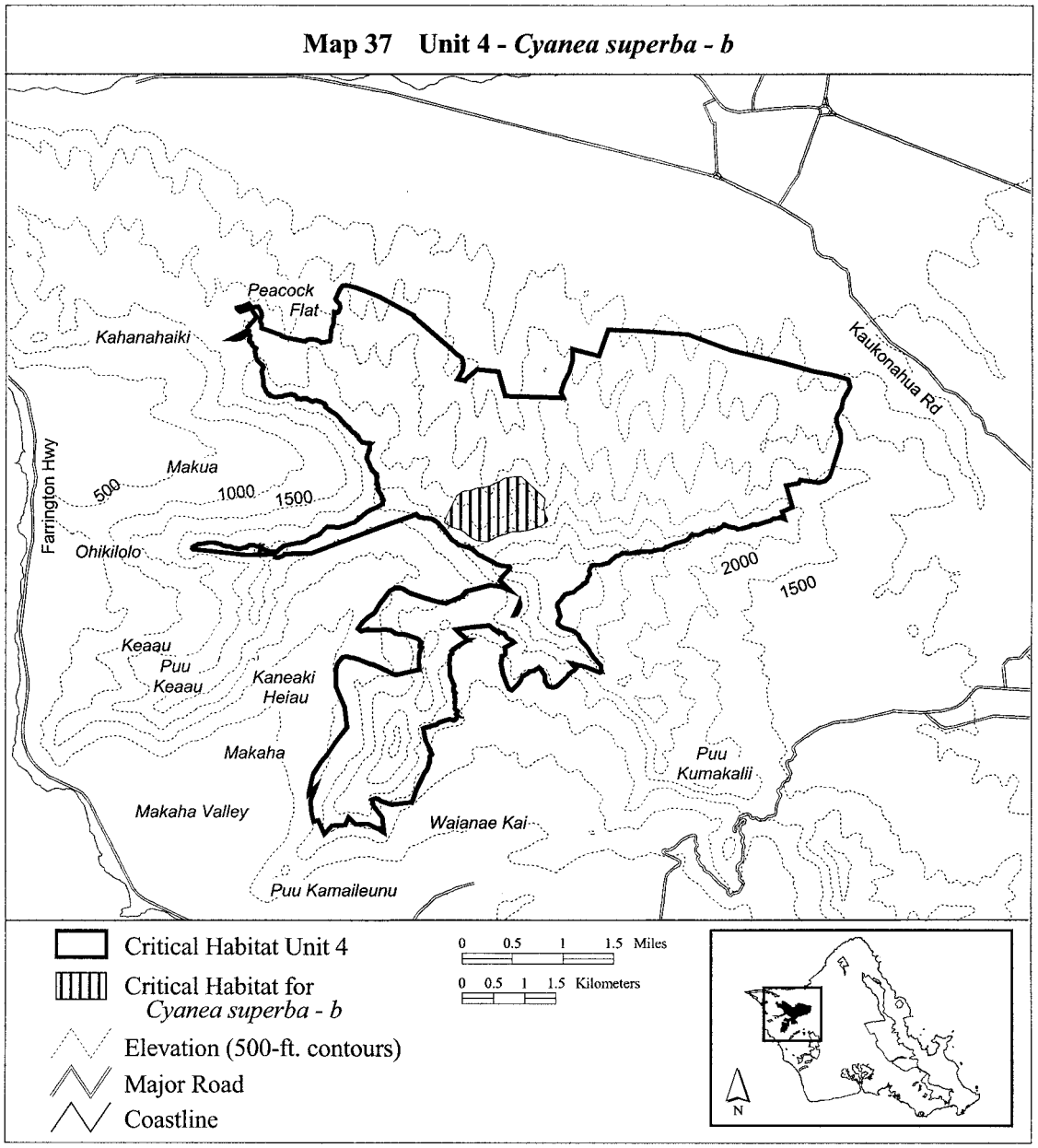


(37) Oahu 4—*Cyanea superba*—b (116 ha; 286 ac)

(i) Unit consists of the following 36 boundary points: Start at 587772, 2380274; 588060, 2379997; 588137, 2379927; 588144, 2379905; 588122, 2379765; 588141, 2379680; 588174, 2379610; 588189, 2379551; 588092, 2379477; 587911, 2379415; 587741, 2379393; 587627, 2379389; 587505, 2379341; 587424, 2379315; 587369, 2379297; 587232, 2379216; 587041, 2379249; 586926, 2379308; 586871, 2379370; 586797, 2379411; 586639, 2379459; 586532, 2379536; 586565,

2379636; 586639, 2379776; 586709, 2379898; 586731, 2379961; 586824, 2380031; 586879, 2380049; 586942, 2380049; 587082, 2380086; 587186, 2380101; 587285, 2380123; 587326, 2380156; 587411, 2380193; 587503, 2380244; 587639, 2380267; return to starting point.

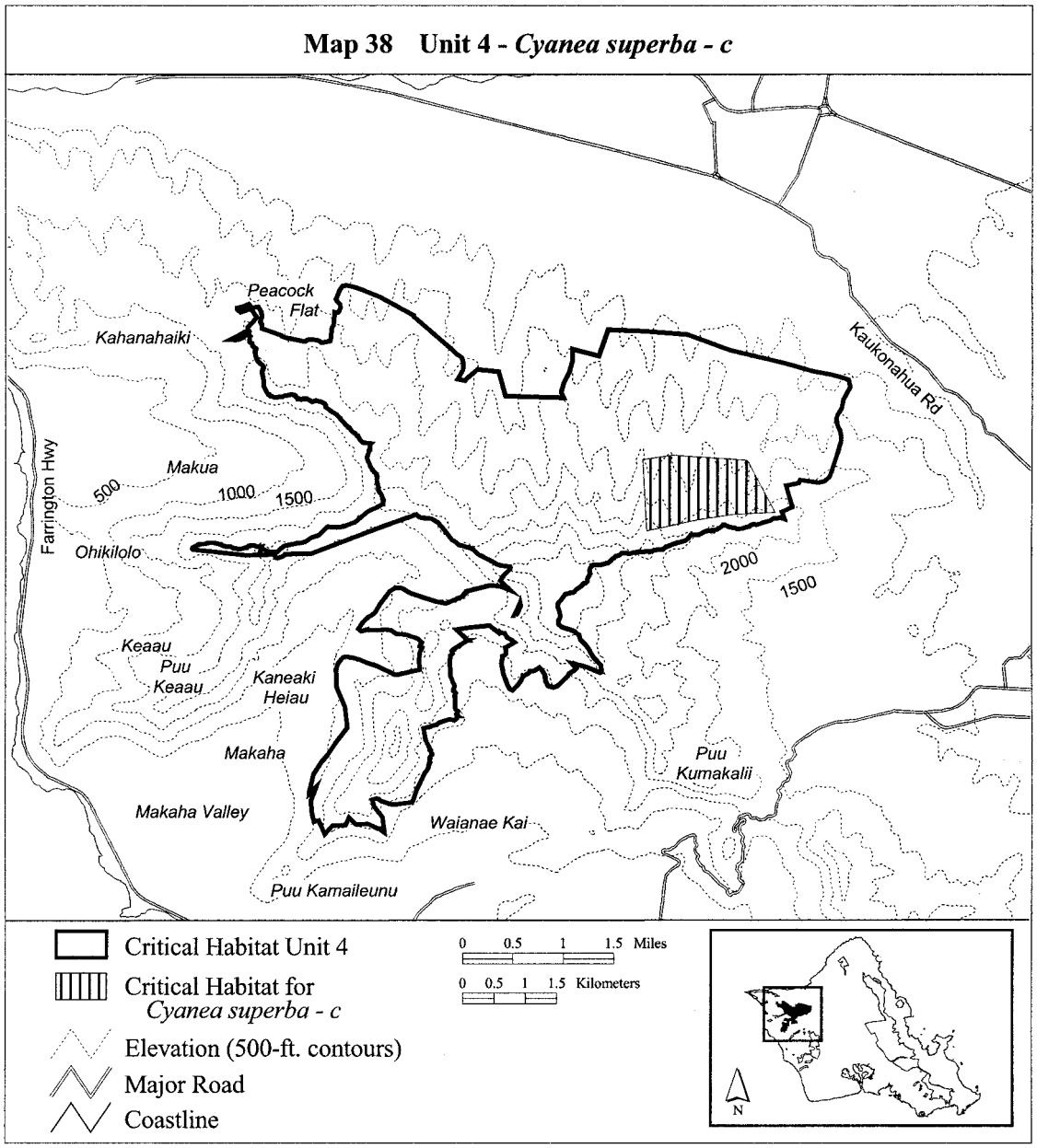
(ii) **Note:** Map 37 follows:



(38) Oahu 4—*Cyanea superba*—c (184 ha; 455 ac)

(i) Unit consists of the following 7 boundary points: Start at 589757, 2379400; 589699, 2380542; 590166, 2380613; 591361, 2380532; 591790, 2379700; 591135, 2379667; 590578, 2379579; return to starting point.

(ii) **Note:** Map 38 follows:



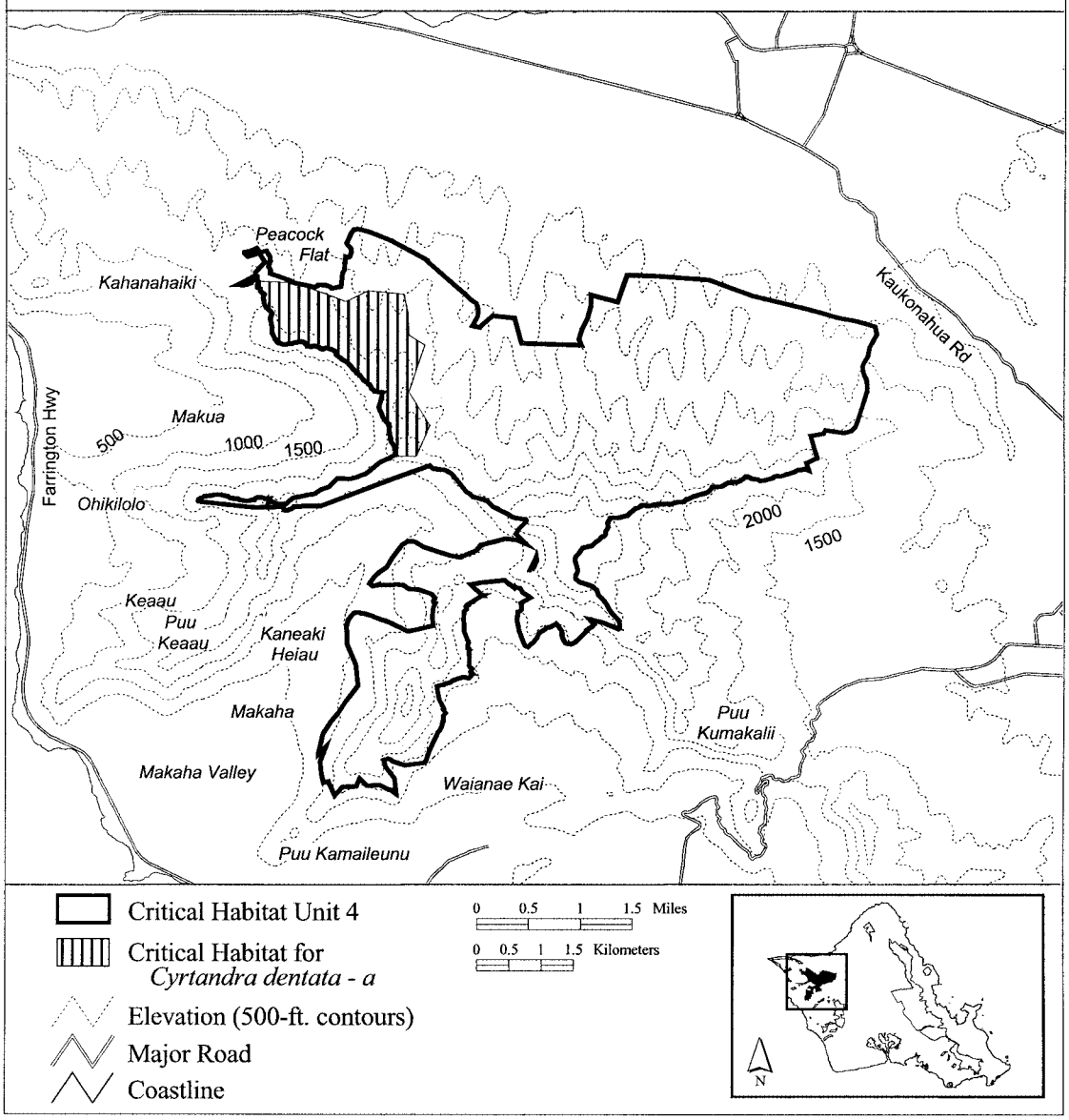
(39) Oahu 4—*Cyrtandra dentata*—a (306 ha; 757 ac)

(i) Unit consists of the following 208 boundary points: Start at 584020, 2381575; 583738, 2381581; 583730, 2381588; 583709, 2381612; 583707, 2381614; 583694, 2381639; 583685, 2381655; 583672, 2381685; 583659, 2381711; 583652, 2381731; 583651, 2381742; 583651, 2381757; 583651, 2381773; 583651, 2381774; 583651, 2381789; 583651, 2381805; 583651, 2381806; 583649, 2381820; 583644, 2381847; 583642, 2381874; 583639, 2381896; 583638, 2381897; 583634, 2381907; 583631, 2381919; 583629, 2381934; 583630, 2381951; 583633, 2381969; 583638, 2381979; 583645, 2381993; 583645, 2381994; 583649, 2382013; 583649, 2382018; 583648, 2382029; 583647, 2382030; 583641, 2382045; 583640, 2382045; 583626, 2382059; 583625, 2382059; 583610, 2382073; 583590, 2382091; 583570, 2382107; 583561, 2382120; 583552, 2382135; 583546, 2382153; 583536, 2382180; 583529, 2382214; 583523, 2382238; 583523, 2382239; 583518, 2382254; 583517, 2382264; 583517, 2382276; 583518, 2382287; 583521, 2382299; 583528, 2382305; 583535, 2382312; 583535, 2382313; 583535, 2382319; 583531, 2382326; 583523, 2382334; 583522, 2382334; 583511, 2382337; 583498, 2382345; 583497, 2382345; 583486, 2382351; 583477, 2382362; 583474, 2382370; 583475, 2382383; 583475, 2382397; 583474, 2382404; 583474, 2382405; 583469, 2382411; 583468, 2382411; 583457, 2382416; 583443, 2382421; 583435, 2382424; 583430, 2382430; 583429, 2382440; 583431, 2382460; 583433, 2382477; 583433, 2382478; 583431, 2382497; 583428, 2382521; 583969, 2382511; 584493, 2382321; 584788, 2382210; 585130, 2382381; 585675, 2382326; 585742, 2382055; 585760, 2381692; 586008, 2381531; 585763, 2380810; 586087, 2380293; 585882, 2379812; 585591, 2379807; 585555, 2379900; 585548, 2379922; 585550, 2379928; 585550, 2379929; 585549, 2379929; 585549, 2379930; 585548, 2379930; 585547, 2379930; 585546, 2379929; 585545, 2379931; 585539,

2379943; 585531, 2379963; 585523, 2379982; 585476, 2380102; 585476, 2380103; 585474, 2380125; 585474, 2380128; 585472, 2380137; 585468, 2380149; 585465, 2380160; 585461, 2380173; 585457, 2380185; 585456, 2380203; 585456, 2380223; 585459, 2380252; 585459, 2380269; 585456, 2380281; 585451, 2380295; 585443, 2380310; 585430, 2380325; 585430, 2380326; 585408, 2380344; 585393, 2380361; 585375, 2380388; 585364, 2380407; 585353, 2380428; 585342, 2380452; 585330, 2380478; 585322, 2380497; 585318, 2380512; 585308, 2380533; 585299, 2380553; 585297, 2380570; 585300, 2380580; 585303, 2380592; 585309, 2380613; 585315, 2380636; 585320, 2380654; 585379, 2380773; 585345, 2380796; 585344, 2380798; 585344, 2380799; 585338, 2380802; 585335, 2380803; 585130, 2380939; 585119, 2380952; 585119, 2380953; 585107, 2380962; 585106, 2380963; 585097, 2380967; 585034, 2381029; 585027, 2381040; 585011, 2381059; 584993, 2381074; 584993, 2381075; 584973, 2381090; 584971, 2381091; 584909, 2381153; 584905, 2381157; 584891, 2381175; 584867, 2381205; 584852, 2381221; 584844, 2381230; 584813, 2381261; 584796, 2381273; 584778, 2381284; 584774, 2381287; 584771, 2381289; 584718, 2381341; 584638, 2381397; 584636, 2381408; 584633, 2381420; 584628, 2381430; 584618, 2381442; 584617, 2381442; 584601, 2381452; 584581, 2381462; 584562, 2381467; 584539, 2381475; 584519, 2381483; 584494, 2381489; 584478, 2381486; 584461, 2381479; 584387, 2381491; 584383, 2381494; 584357, 2381507; 584350, 2381511; 584325, 2381523; 584324, 2381523; 584310, 2381528; 584309, 2381528; 584291, 2381527; 584290, 2381527; 584281, 2381521; 584275, 2381516; 584266, 2381511; 584260, 2381512; 584167, 2381553; 584150, 2381572; 584130, 2381584; 584129, 2381584; 584104, 2381586; 584065, 2381583; 584021, 2381575; return to starting point.

(ii) **Note:** Map 39 follows:

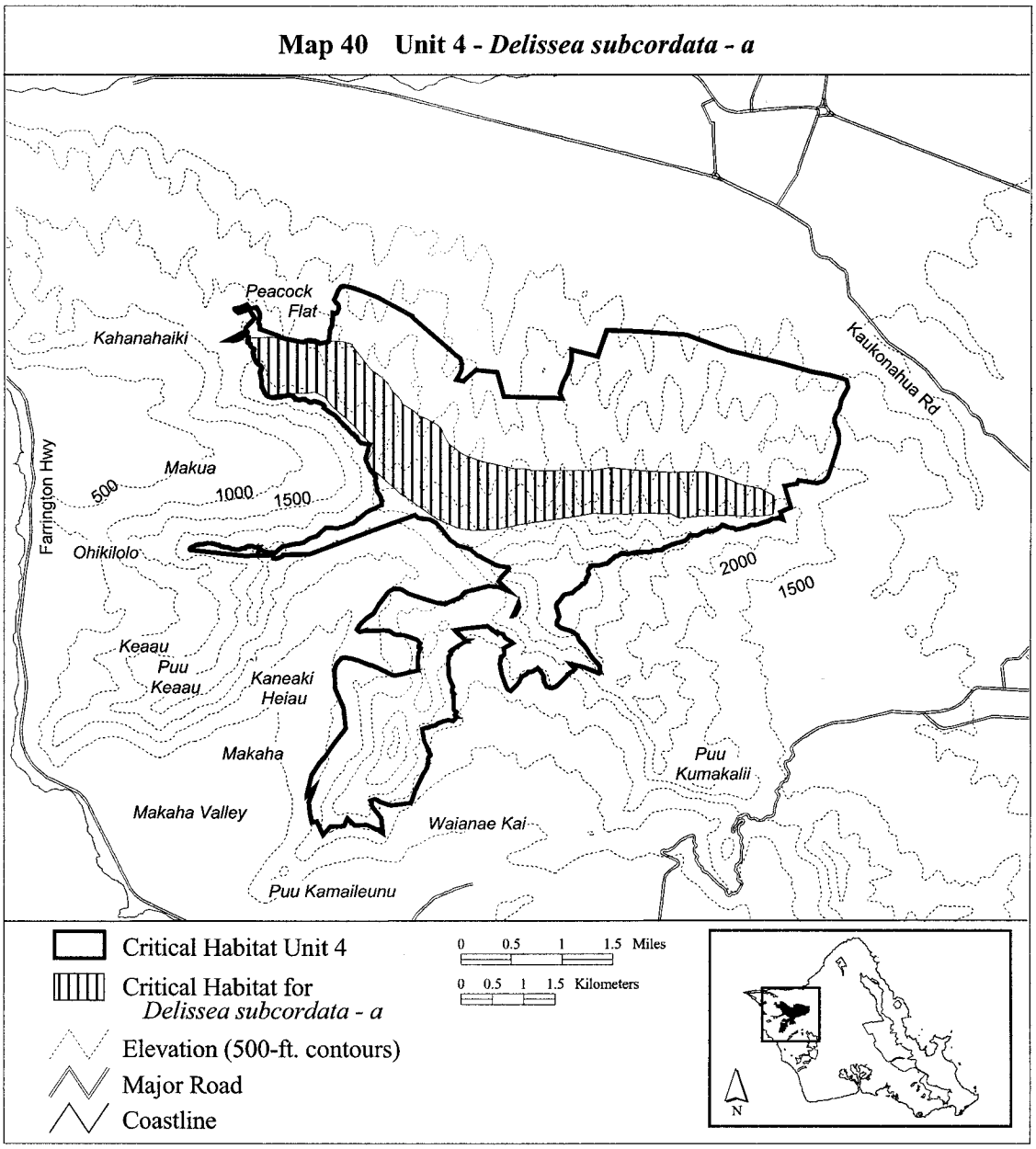
Map 39 Unit 4 - *Cyrtandra dentata - a*



(40) Oahu 4—*Delissea subcordata*—a (763 ha; 1,887 ac)

(i) Unit consists of the following 169 boundary points: Start at 585089, 2382409; 585090, 2382377; 585381, 2382000; 585498, 2381921; 585544, 2381879; 585651, 2381776; 585704, 2381680; 585829, 2381548; 585893, 2381445; 586067, 2381331; 586131, 2381264; 586262, 2381214; 586430, 2381114; 586518, 2381036; 586524, 2380998; 586623, 2380811; 586860, 2380636; 587154, 2380527; 587552, 2380437; 587670, 2380401; 587841, 2380404; 587950, 2380380; 588168, 2380376; 588504, 2380385; 588518, 2380385; 588684, 2380385; 588935, 2380385; 589191, 2380423; 589521, 2380390; 589966, 2380357; 590137, 2380342; 590715, 2380357; 591046, 2380243; 591241, 2380167; 591582, 2380082; 591804, 2379973; 591809, 2379855; 591780, 2379675; 591681, 2379656; 591430, 2379637; 591056, 2379651; 590810, 2379646; 590667, 2379646; 590298, 2379608; 590156, 2379679; 589701, 2379694; 589578, 2379689; 589464, 2379675; 589147, 2379679; 588923, 2379692; 588518, 2379622; 588234, 2379585; 587925, 2379537; 587868, 2379523; 587792, 2379518; 587636, 2379480; 587352, 2379424; 586987, 2379414; 586774, 2379452; 586442, 2379599; 586149, 2379798; 585912, 2379968; 585913, 2379978; 585907, 2379963; 585505, 2380319; 585513, 2380319; 585405, 2380393; 585348, 2380460; 585330, 2380538; 585415, 2380698; 585406, 2380748; 585359, 2380830; 585224, 2380972; 585100, 2381114; 585100, 2381117; 584986, 2381217; 584775, 2381402; 584654, 2381559; 584498, 2381633; 584352, 2381619; 584217, 2381619; 583982, 2381609; 583901, 2381598; 583773, 2381573; 583732, 2381587; 583730, 2381588; 583709, 2381612; 583707, 2381614; 583694, 2381639; 583685, 2381655; 583672, 2381685; 583659, 2381711; 583652, 2381731; 583651, 2381742; 583651, 2381757; 583651, 2381773; 583651, 2381789; 583651, 2381805; 583651, 2381806; 583649, 2381820; 583644, 2381847; 583642, 2381874; 583639, 2381896; 583638, 2381897; 583634, 2381907; 583631, 2381919; 583629, 2381934; 583630, 2381951; 583633, 2381969; 583638, 2381979; 583645, 2381993; 583645, 2381994; 583649, 2382013; 583649, 2382018; 583648, 2382029; 583647, 2382030; 583641, 2382175; 583640, 2382175; 583626, 2382059; 583610, 2382073; 583590, 2382091; 583570, 2382107; 583561, 2382120; 583552, 2382135; 583546, 2382153; 583536, 2382180; 583529, 2382214; 583523, 2382238; 583518, 2382254; 583517, 2382264; 583517, 2382276; 583518, 2382287; 583521, 2382299; 583528, 2382305; 583535, 2382312; 583535, 2382313; 583535, 2382319; 583531, 2382326; 583523, 2382334; 583522, 2382334; 583511, 2382337; 583498, 2382345; 583497, 2382345; 583486, 2382351; 583477, 2382362; 583474, 2382370; 583475, 2382383; 583475, 2382397; 583474, 2382404; 583474, 2382405; 583469, 2382411; 583468, 2382411; 583457, 2382416; 583443, 2382421; 583435, 2382424; 583430, 2382430; 583429, 2382440; 583431, 2382460; 583433, 2382477; 583433, 2382478; 583432, 2382490; 583506, 2382508; 583805, 2382519; 584043, 2382487; 584403, 2382423; 584513, 2382409; 584616, 2382423; 584769, 2382455; 584936, 2382441; return to starting point.

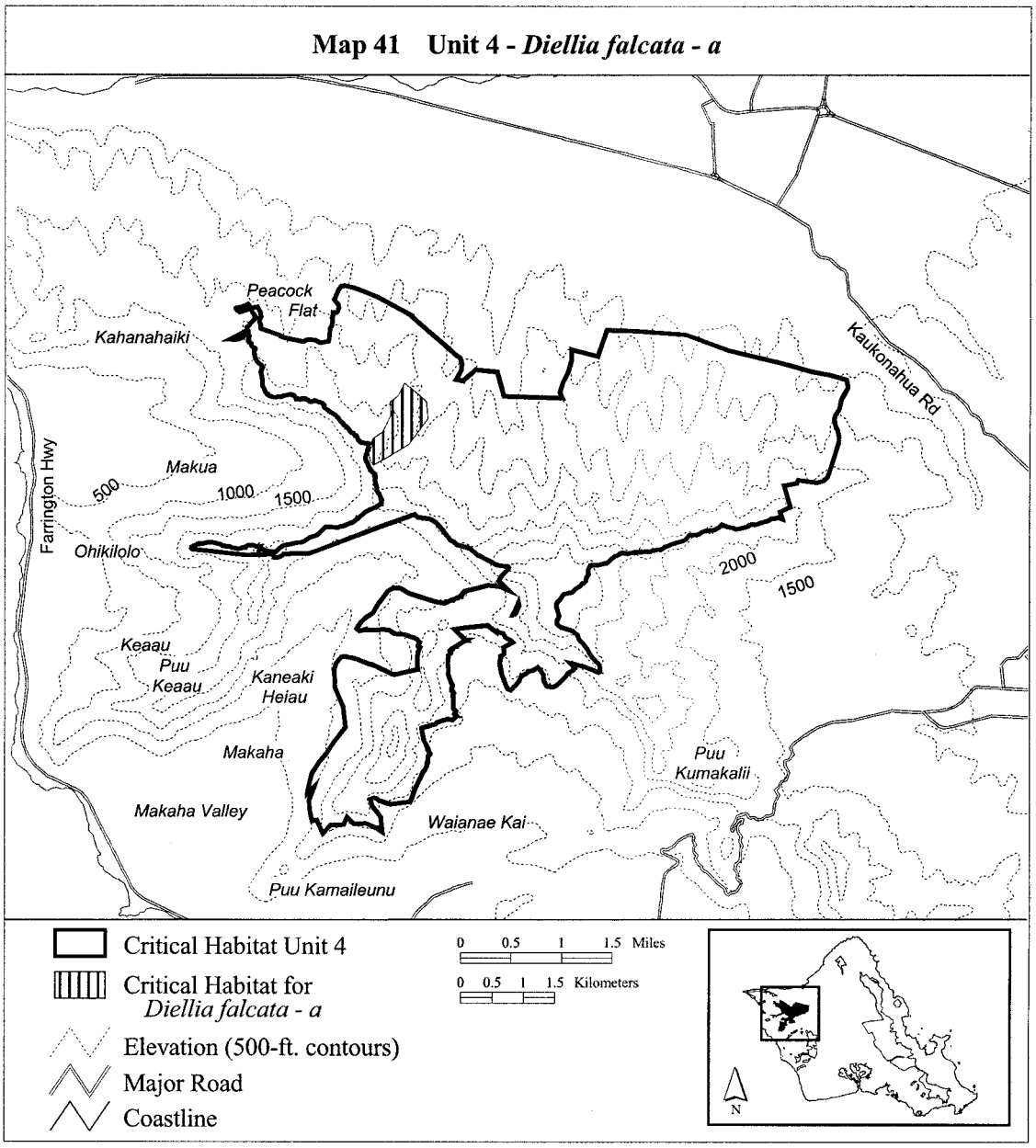
(ii) **Note:** Map 40 follows:



(41) Oahu 4—*Diellia falcata*—a (60 ha; 147 ac)

(i) Unit consists of the following 21 boundary points: Start at 585421, 2380455; 585383, 2380524; 585356, 2380641; 585411, 2380778; 585389, 2380782; 585417, 2380883; 585579, 2380991; 585706, 2381244; 585697, 2381470; 585824, 2381570; 585926, 2381770; 585950, 2381757; 585979, 2381715; 585978, 2381713; 586014, 2381706; 586260, 2381493; 586273, 2381458; 586277, 2381451; 586294, 2381199; 585995, 2380792; 585643, 2380575; return to starting point.

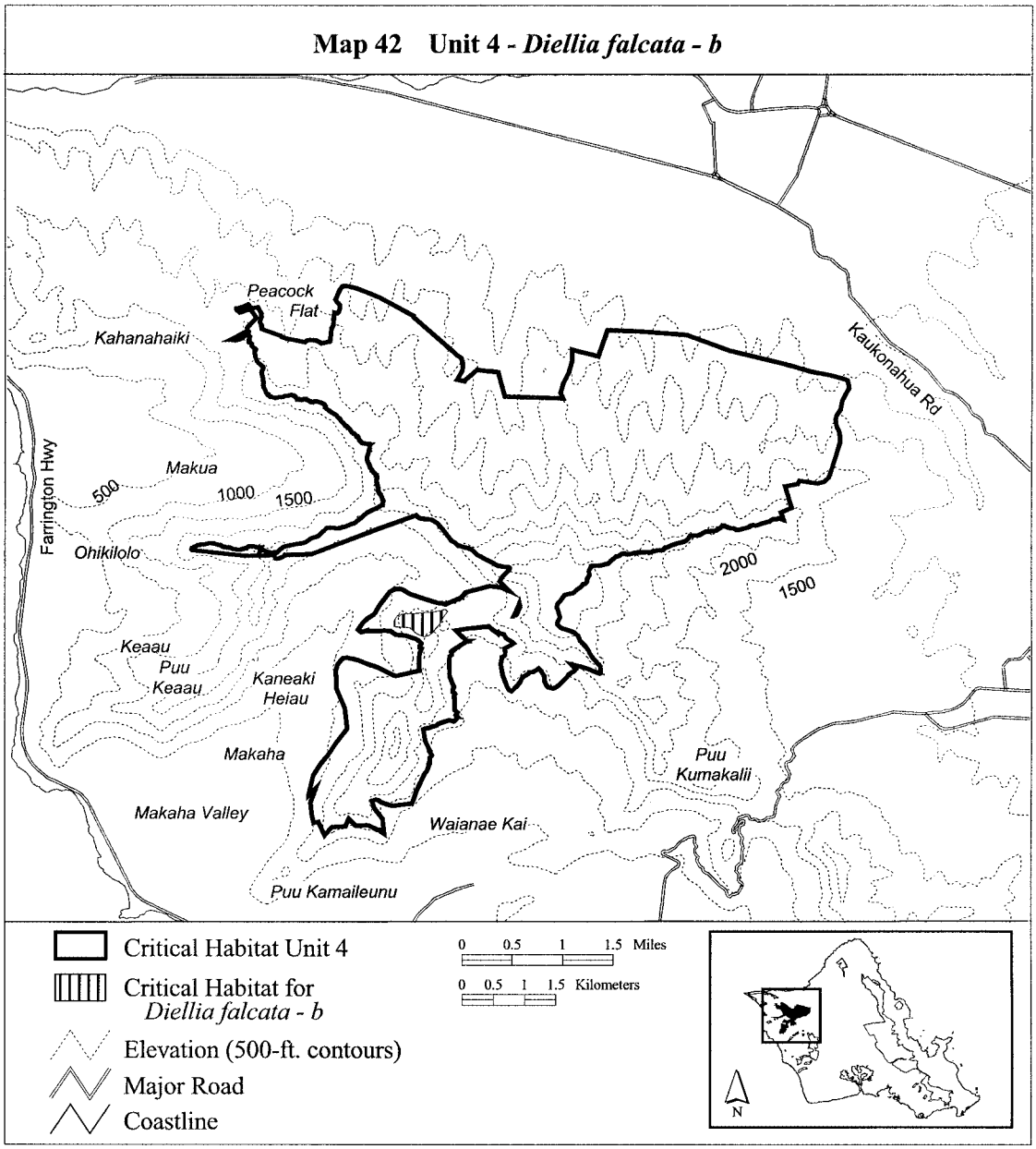
(ii) **Note:** Map 41 follows:



(42) Oahu 4—*Diellia falcata*—b (22 ha; 54 ac)

(i) Unit consists of the following 18 boundary points: Start at 585820, 2378037; 585847, 2378081; 586055, 2378092; 586289, 2378108; 586398, 2378114; 586562, 2378152; 586595, 2378119; 586546, 2378043; 586464, 2377906; 586349, 2377781; 586306, 2377743; 586218, 2377721; 586104, 2377764; 585984, 2377863; 585836, 2377873; 585733, 2377884; 585733, 2377961; 585798, 2378059; return to starting point.

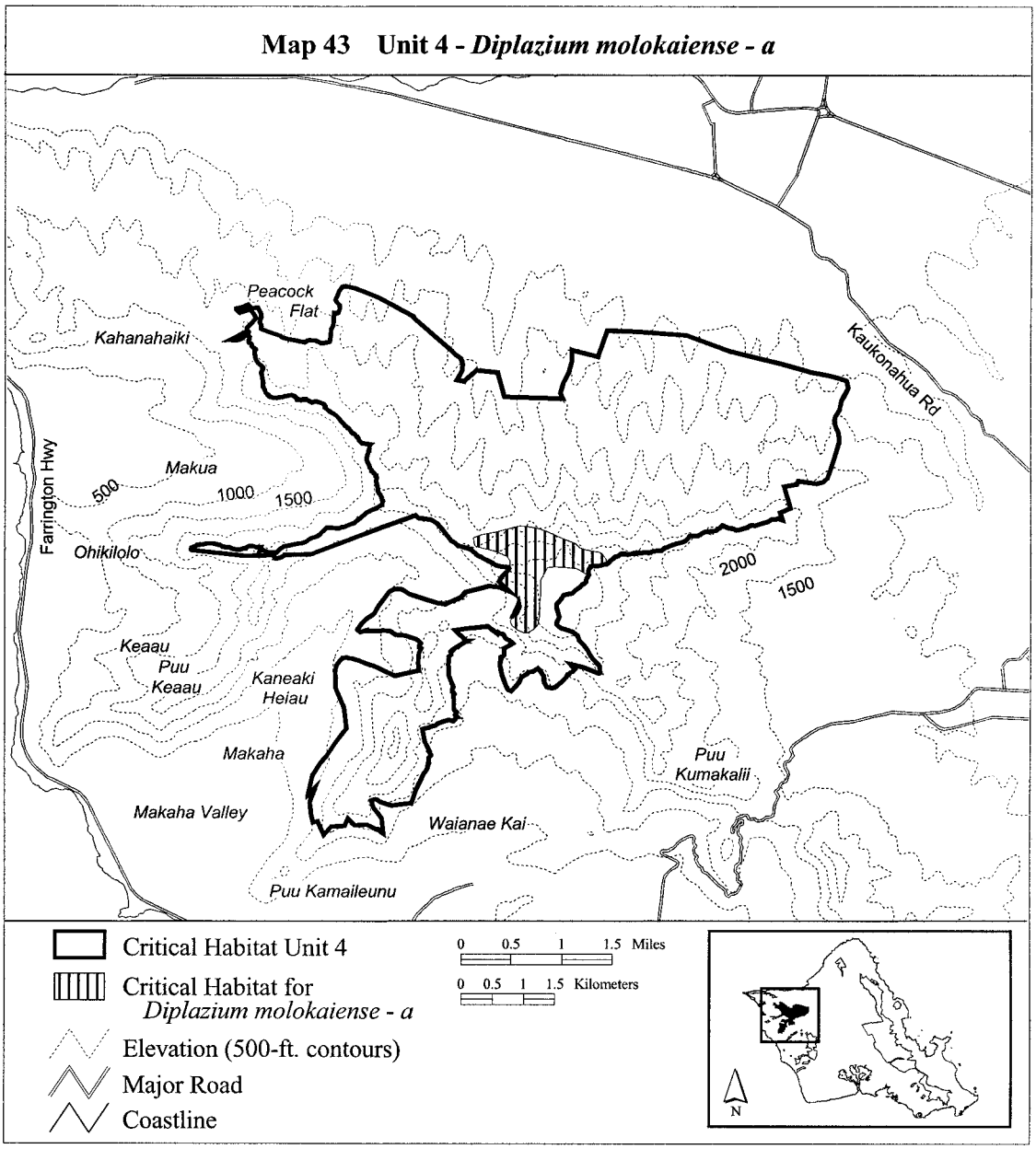
(ii) **Note:** Map 42 follows:



(43) Oahu 4—*Diplazium molokaiense*—a (138 ha; 340 ac)

(i) Unit consists of the following 63 boundary points: Start at 588852, 2378704; 588669, 2378805; 588490, 2378830; 588311, 2378838; 588207, 2378826; 588141, 2378709; 588091, 2378605; 588091, 2378489; 588099, 2378389; 588070, 2378227; 588066, 2378019; 588037, 2377894; 587972, 2377824; 587897, 2377786; 587845, 2377777; 587712, 2377827; 587625, 2377911; 587608, 2377977; 587692, 2378073; 587754, 2378202; 587721, 2378327; 587579, 2378456; 587496, 2378530; 587425, 2378601; 587467, 2378676; 587575, 2378780; 587600, 2378863; 587608, 2378930; 587550, 2379009; 587367, 2379079; 587201, 2379125; 587038, 2379167; 587022, 2379213; 587013, 2379304; 587155, 2379350; 587400, 2379404; 587633, 2379466; 587758, 2379491; 587887, 2379479; 588066, 2379446; 588195, 2379400; 588457, 2379283; 588640, 2379208; 588723, 2379134; 588831, 2379104; 589002, 2379075; 589064, 2379050; 589135, 2378959; 589135, 2378882; 589123, 2378879; 589060, 2378862; 589009, 2378857; 588910, 2378852; 588910, 2378851; 588899, 2378848; 588898, 2378848; 588887, 2378841; 588887, 2378840; 588862, 2378802; 588851, 2378772; 588851, 2378763; 588851, 2378746; 588855, 2378710; return to starting point.

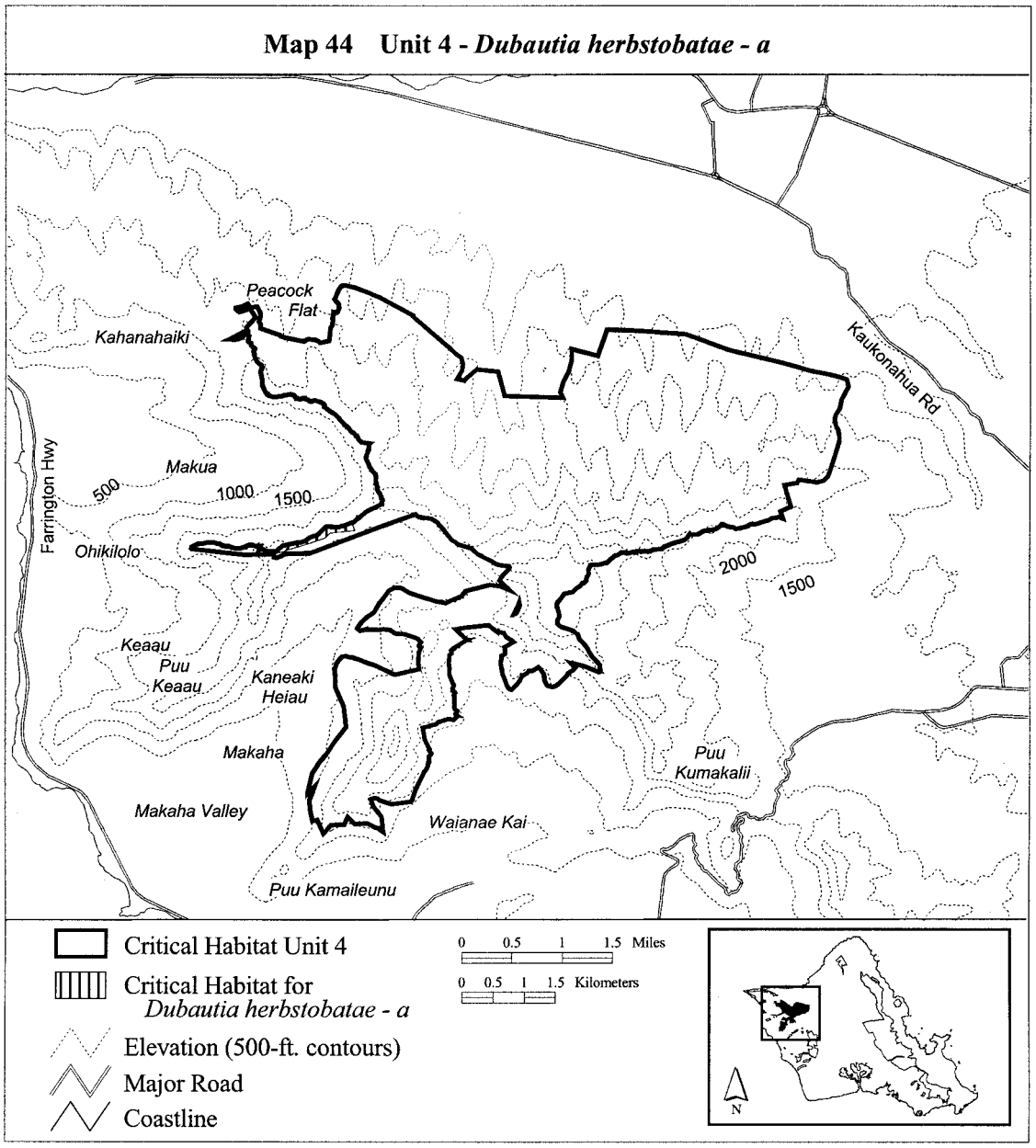
(ii) **Note:** Map 43 follows:



(44) Oahu 4—*Dubautia herbstobatae*—a (12 ha; 29 ac)

(i) Unit consists of the following 30 boundary points: Start at 585068, 2379524; 585080, 2379506; 585126, 2379404; 584736, 2379361; 584661, 2379278; 584406, 2379187; 584106, 2379096; 583936, 2379044; 583909, 2379048; 583909, 2379076; 583899, 2379083; 583947, 2379131; 583977, 2379150; 584086, 2379180; 584226, 2379210; 584256, 2379210; 584326, 2379230; 584327, 2379230; 584417, 2379290; 584526, 2379330; 584527, 2379330; 584557, 2379350; 584657, 2379450; 584667, 2379460; 584836, 2379450; 584866, 2379450; 584867, 2379450; 584906, 2379470; 584936, 2379470; 584937, 2379470; return to starting point.

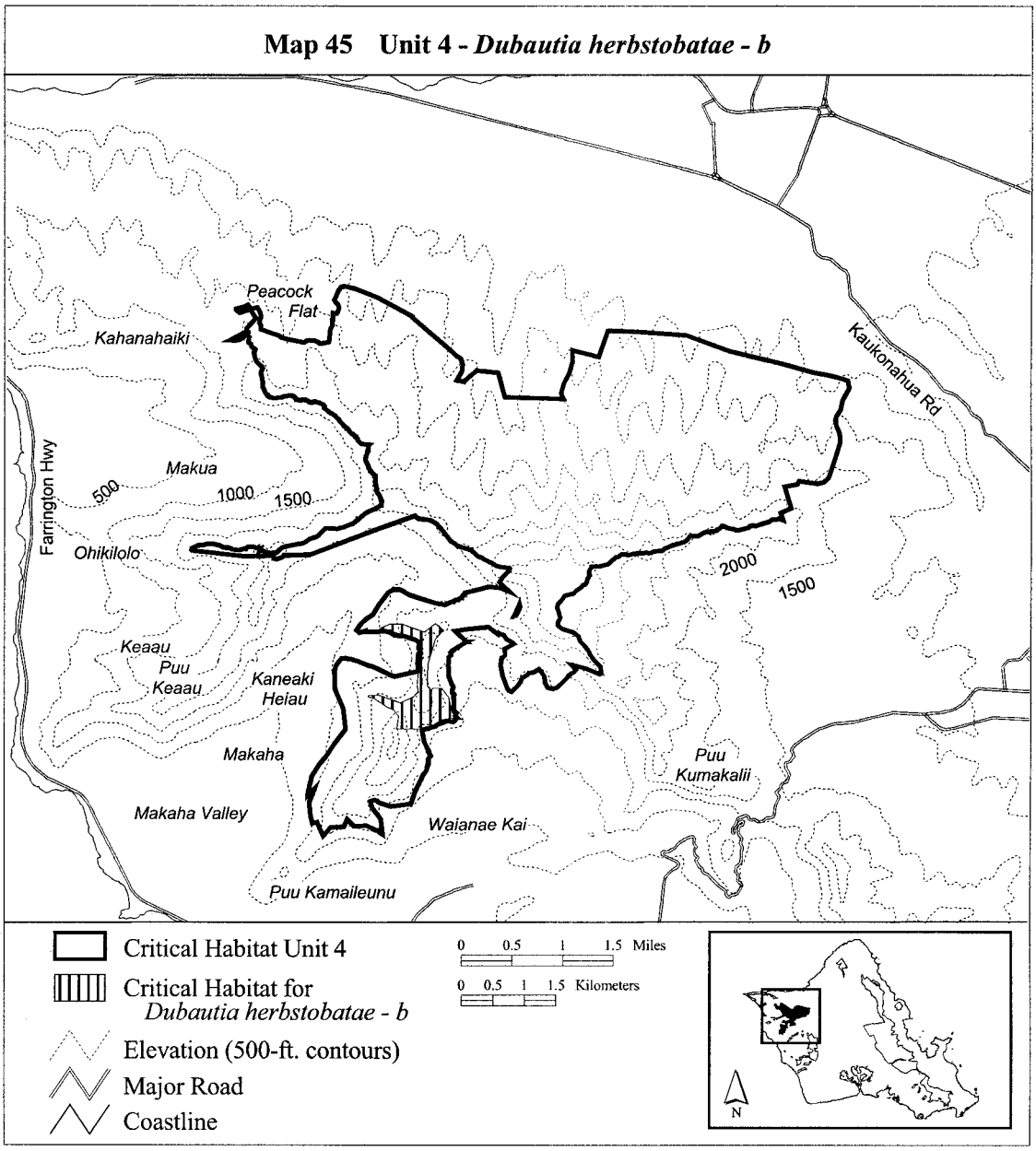
(ii) **Note:** Map 44 follows:



(45) Oahu 4—*Dubautia herbstobatae*—b (77 ha; 190 ac)

(i) Unit consists of the following 35 boundary points: Start at 586413, 2377940; 586540, 2377836; 586415, 2377693; 586296, 2377282; 586288, 2376942; 586343, 2376878; 586377, 2376897; 586514, 2376901; 586627, 2376764; 586675, 2376521; 586749, 2376437; 586505, 2376404; 586426, 2376297; 586148, 2376252; 585803, 2376258; 585833, 2376452; 585749, 2376553; 585646, 2376609; 585450, 2376733; 585354, 2376763; 585361, 2376789; 585529, 2376789; 585862, 2376670; 586066, 2376763; 586138, 2376846; 586128, 2376969; 586145, 2377104; 586133, 2377283; 586144, 2377443; 586202, 2377576; 586102, 2377698; 585538, 2377868; 585699, 2377929; 585886, 2377929; 586246, 2377799; return to starting point.

(ii) **Note:** Map 45 follows:

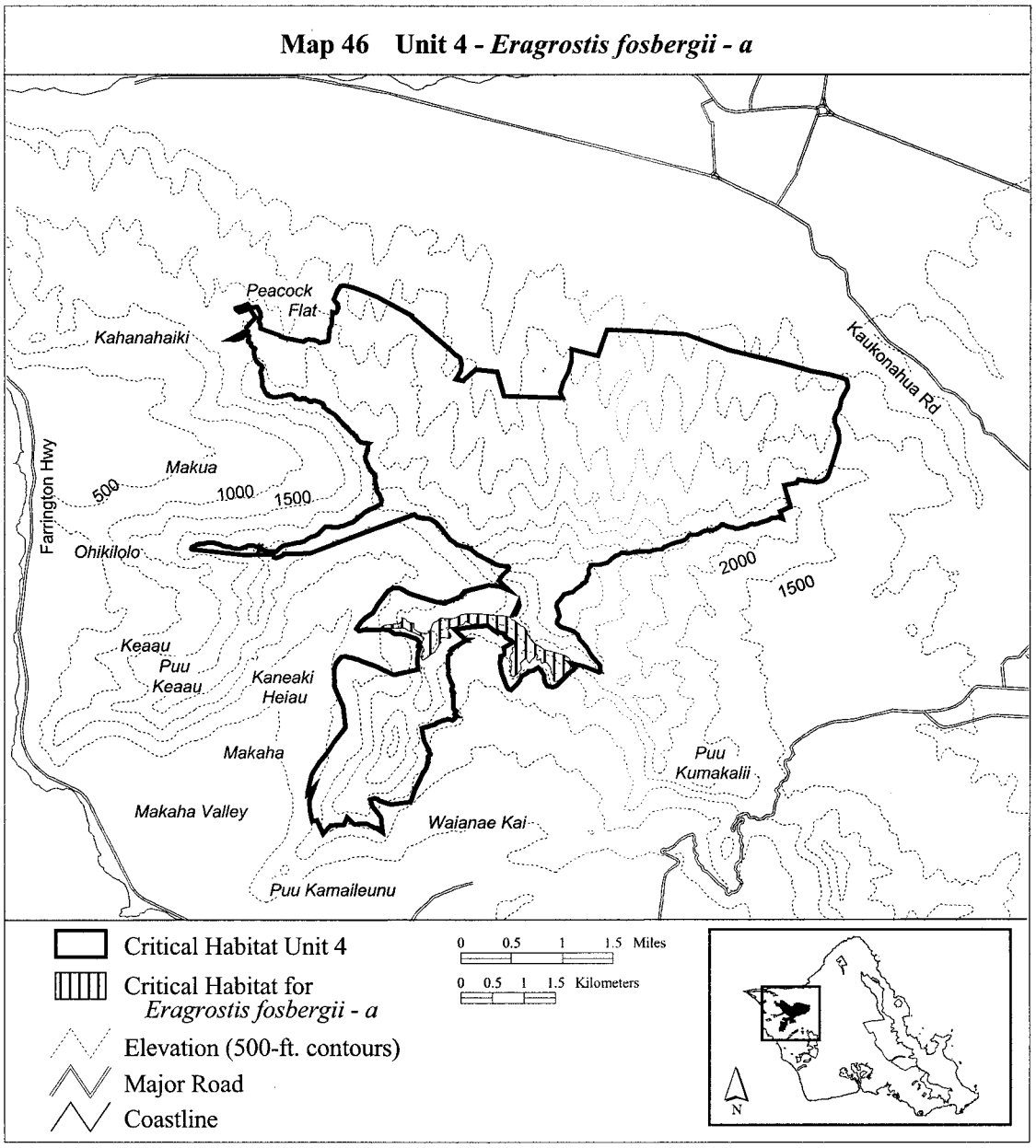


(46) Oahu 4—*Eragrostis fosbergii*—a (81 ha; 199 ac)

(i) Unit consists of the following 219 boundary points: Start at 586573, 2377994; 586653, 2377994; 586691, 2377987; 586747, 2378005; 586782, 2378016; 586811, 2378015; 586774, 2378020; 586836, 2378053; 586919, 2378070; 587065, 2378070; 587207, 2378064; 587332, 2378050; 587490, 2378035; 587605, 2378023; 587629, 2377978; 587677, 2377964; 587733, 2377922; 587784, 2377877; 587819, 2377865; 587864, 2377809; 587885, 2377738; 587935, 2377666; 587997, 2377601; 588084, 2377539; 588158, 2377494; 588293, 2377456; 588479, 2377399; 588563, 2377350; 588569, 2377252; 588569, 2377240; 588563, 2377191; 588559, 2377135; 588546, 2377121; 588525, 2377106; 588476, 2377103; 588456, 2377072; 588428, 2377047; 588396, 2377013; 588338, 2376982; 588294, 2376983; 588289, 2377024; 588291, 2377065; 588278, 2377088; 588263, 2377129; 588252, 2377191; 588234, 2377235; 588213, 2377250; 588195, 2377283; 588165, 2377289; 588132, 2377281; 588113, 2377276; 588098, 2377294; 588090, 2377325; 588090, 2377348; 588060, 2377332; 588036, 2377323; 588026, 2377341; 588038, 2377395; 588036, 2377415; 588008, 2377392; 587997, 2377364; 587969, 2377343; 587951, 2377328; 587931, 2377305; 587925, 2377287; 587895, 2377289; 587879, 2377327; 587866, 2377348; 587833, 2377340; 587813, 2377315; 587794, 2377299; 587769, 2377274; 587776, 2377243; 587781, 2377207; 587791, 2377176; 587779, 2377160; 587753, 2377145; 587738, 2377127; 587728, 2377111; 587697, 2377083; 587673, 2377060; 587645, 2377060; 587629, 2377072; 587611, 2377111; 587612, 2377137; 587624, 2377180; 587632, 2377225; 587635, 2377253; 587620, 2377279; 587643, 2377302; 587609, 2377337; 587604, 2377384; 587635, 2377425; 587663, 2377459; 587637, 2377497; 587643, 2377520; 587678, 2377541; 587673, 2377554; 587674, 2377580; 587671, 2377580; 587626, 2377640; 587531, 2377693; 587492, 2377759; 587424, 2377773; 587394,

2377815; 587323, 2377818; 587302, 2377836; 587285, 2377871; 587249, 2377886; 587190, 2377889; 587083, 2377907; 586993, 2377898; 586904, 2377943; 586885, 2377936; 586889, 2377920; 586865, 2377903; 586837, 2377893; 586787, 2377884; 586747, 2377865; 586699, 2377853; 586677, 2377853; 586643, 2377837; 586615, 2377817; 586629, 2377782; 586659, 2377746; 586667, 2377705; 586658, 2377679; 586648, 2377671; 586605, 2377684; 586572, 2377686; 586548, 2377687; 586530, 2377687; 586503, 2377667; 586497, 2377647; 586511, 2377606; 586500, 2377587; 586485, 2377569; 586473, 2377550; 586450, 2377517; 586425, 2377475; 586415, 2377454; 586369, 2377427; 586313, 2377382; 586283, 2377360; 586243, 2377325; 586214, 2377331; 586192, 2377360; 586198, 2377394; 586208, 2377414; 586208, 2377432; 586228, 2377451; 586241, 2377465; 586241, 2377491; 586230, 2377507; 586219, 2377534; 586216, 2377552; 586185, 2377572; 586182, 2377588; 586200, 2377616; 586228, 2377641; 586238, 2377678; 586190, 2377707; 586134, 2377745; 586088, 2377767; 586007, 2377791; 585967, 2377813; 585938, 2377839; 585892, 2377847; 585817, 2377839; 585817, 2377843; 585794, 2377839; 585748, 2377839; 585684, 2377847; 585660, 2377847; 585627, 2377844; 585588, 2377844; 585566, 2377844; 585561, 2377852; 585572, 2377860; 585606, 2377881; 585649, 2377892; 585686, 2377892; 585737, 2377904; 585796, 2377909; 585842, 2377914; 585821, 2377904; 585821, 2377901; 585852, 2377904; 585880, 2377944; 585890, 2377967; 585880, 2378007; 585888, 2378010; 585917, 2377999; 585949, 2377981; 585962, 2377959; 585981, 2377946; 586002, 2377928; 586029, 2377930; 586061, 2377922; 586082, 2377916; 586082, 2377882; 586083, 2377837; 586115, 2377801; 586161, 2377774; 586206, 2377764; 586246, 2377751; 586270, 2377746; 586326, 2377775; 586343, 2377813; 586364, 2377852; 586367, 2377873; 586378, 2377904; 586391, 2377919; 586415, 2377933; 586441, 2377946; 586473, 2377972; 586484, 2377986; 586506, 2377999; 586538, 2377999; return to starting point.

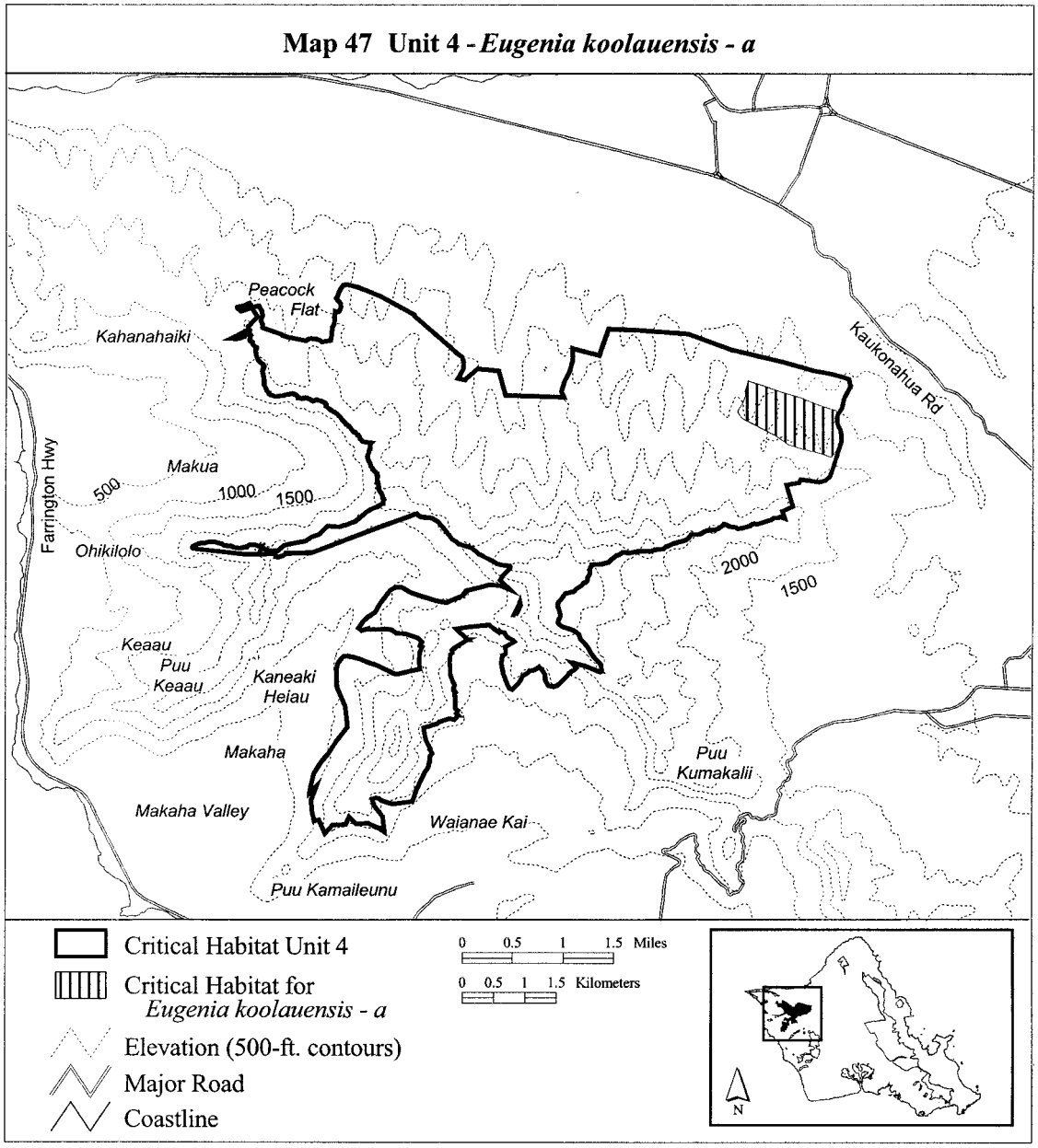
(ii) **Note:** Map 46 follows:



(47) Oahu 4—*Eugenia koolauensis*—a (113 ha; 280 ac)

(i) Unit consists of the following 23 boundary points: Start at 591255, 2381198; 591189, 2381301; 591255, 2381419; 591312, 2381558; 591307, 2381625; 591358, 2381794; 591610, 2381717; 591883, 2381620; 592196, 2381522; 592459, 2381414; 592623, 2381362; 592757, 2381326; 592772, 2381126; 592803, 2381018; 592829, 2380930; 592829, 2380822; 592793, 2380714; 592685, 2380571; 592505, 2380637; 592402, 2380658; 592227, 2380699; 592001, 2380771; 591790, 2380915; return to starting point.

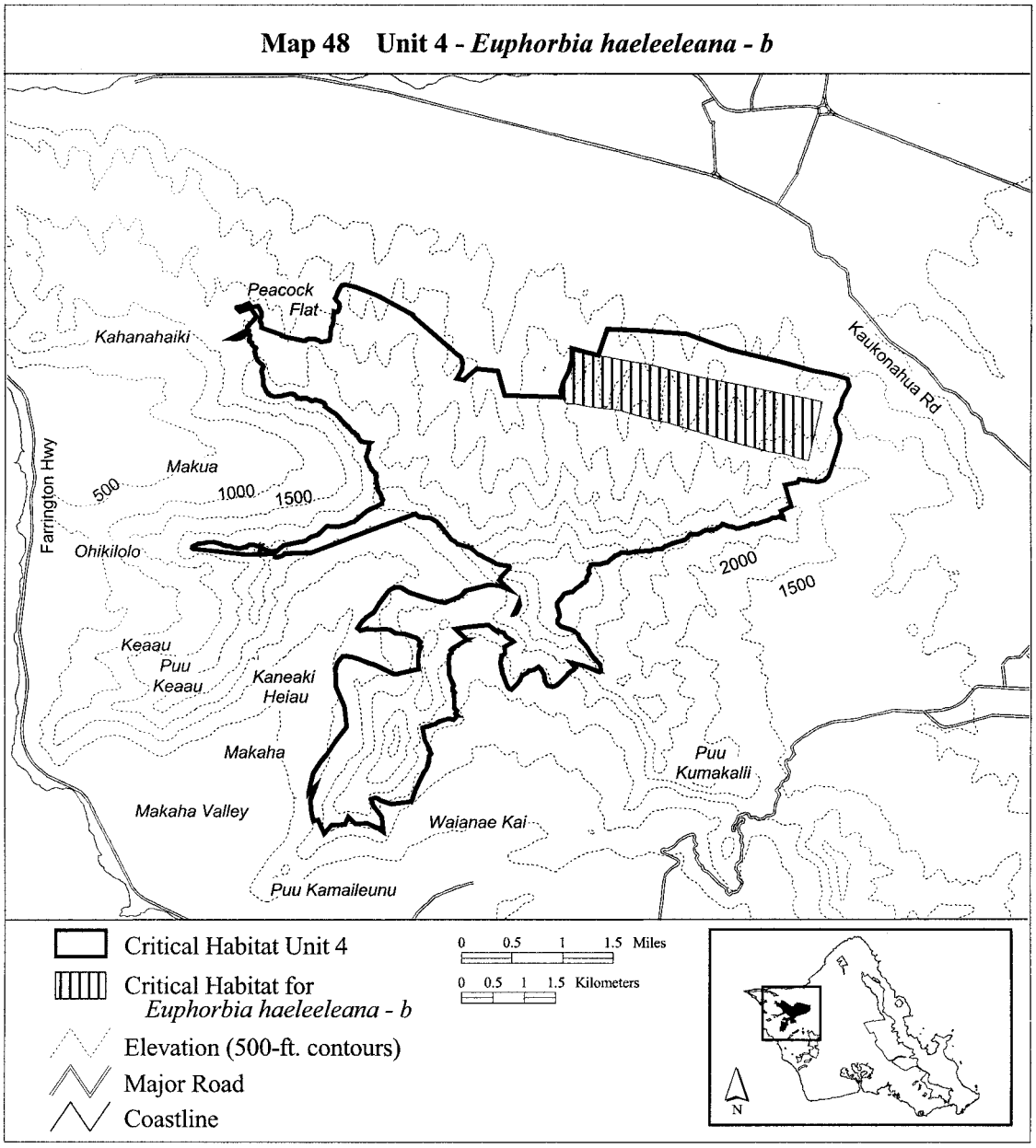
(ii) **Note:** Map 47 follows:



(48) Oahu 4—*Euphorbia haeleeleana*—b (357 ha; 881 ac)

(i) Unit consists of the following 33 boundary points: Start at 589099, 2382193; 589372, 2382136; 589555, 2382097; 589794, 2382058; 590632, 2381854; 591432, 2381701; 591836, 2381610; 592280, 2381523; 592557, 2381462; 592334, 2380514; 592288, 2380528; 591980, 2380619; 591814, 2380645; 591697, 2380658; 591406, 2380745; 591049, 2380836; 590645, 2380958; 590267, 2381067; 590080, 2381136; 589906, 2381158; 589638, 2381236; 589368, 2381315; 589274, 2381335; 589020, 2381362; 588860, 2381384; 588642, 2381428; 588481, 2381436; 588399, 2381615; 588442, 2381784; 588529, 2381962; 588581, 2382136; 588577, 2382315; 589091, 2382181; return to starting point.

(ii) **Note:** Map 48 follows:

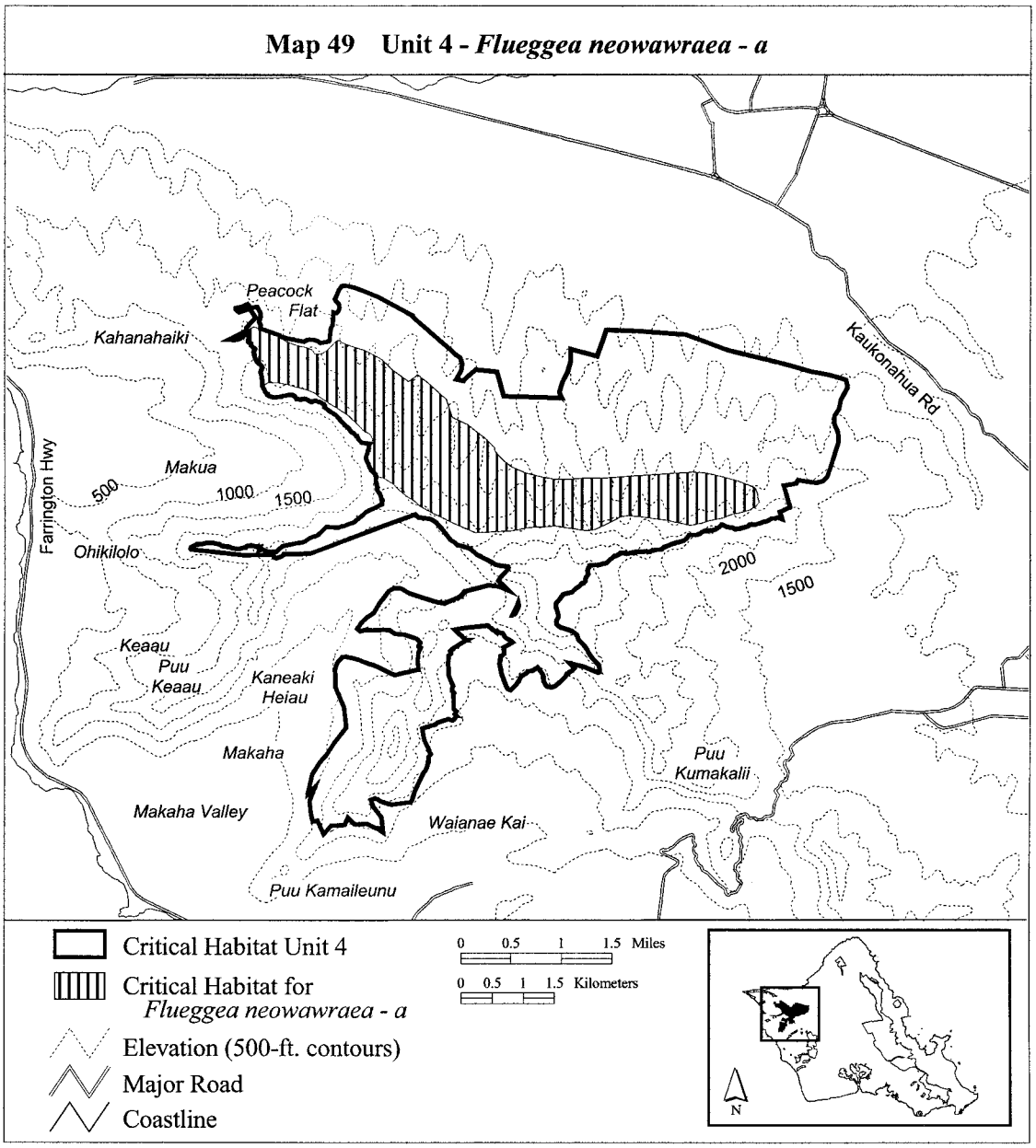


(49) Oahu 4—*Flueggea neowawraea*—a (845 ha; 2,087 ac)

(i) Unit consists of the following 242 boundary points: Start at 585312, 2380625; 585349, 2380698; 585367, 2380769; 585403, 2380875; 585367, 2380946; 585291, 2381001; 585286, 2380984; 585176, 2381087; 585013, 2381250; 584871, 2381356; 584708, 2381452; 584531, 2381568; 584478, 2381621; 584340, 2381671; 584163, 2381717; 584022, 2381752; 583891, 2381777; 583746, 2381777; 583657, 2381716; 583652, 2381731; 583651, 2381742; 583651, 2381757; 583651, 2381773; 583651, 2381789; 583651, 2381805; 583651, 2381806; 583649, 2381820; 583644, 2381847; 583642, 2381874; 583639, 2381896; 583638, 2381897; 583634, 2381907; 583631, 2381919; 583629, 2381934; 583630, 2381951; 583633, 2381969; 583638, 2381979; 583645, 2381993; 583645, 2381994; 583649, 2382013; 583649, 2382018; 583648, 2382029; 583647, 2382030; 583641, 2382045; 583640, 2382045; 583626, 2382059; 583610, 2382073; 583590, 2382091; 583570, 2382107; 583561, 2382120; 583552, 2382135; 583546, 2382153; 583536, 2382180; 583529, 2382214; 583523, 2382238; 583518, 2382254; 583517, 2382264; 583517, 2382276; 583518, 2382287; 583521, 2382299; 583528, 2382305; 583535, 2382312; 583535, 2382313; 583535, 2382319; 583531, 2382326; 583523, 2382334; 583522, 2382334; 583511, 2382337; 583498, 2382345; 583486, 2382351; 583477, 2382362; 583474, 2382370; 583475, 2382383; 583475, 2382397; 583474, 2382404; 583474, 2382405; 583469, 2382411; 583468, 2382411; 583457, 2382416; 583443, 2382421; 583435, 2382424; 583430, 2382430; 583429, 2382440; 583431, 2382460; 583433, 2382477; 583433, 2382478; 583431, 2382497; 583427, 2382525; 583427, 2382526; 583422, 2382540; 583419, 2382560; 583417, 2382581; 583417, 2382582; 583412, 2382595; 583411, 2382596; 583405, 2382599; 583404, 2382599; 583403, 2382599; 583403, 2382598; 583396, 2382592; 583396, 2382591; 583382, 2382561; 583360, 2382532; 583351, 2382522; 583336,

2382510; 583315, 2382498; 583295, 2382485; 583281, 2382481; 583265, 2382474; 583249, 2382467; 583232, 2382466; 583216, 2382464; 583204, 2382463; 583193, 2382461; 583179, 2382464; 583159, 2382468; 583158, 2382468; 583138, 2382470; 583125, 2382472; 583122, 2382472; 583519, 2382674; 583934, 2382535; 583948, 2382499; 583931, 2382503; 584036, 2382432; 584213, 2382372; 584266, 2382361; 584345, 2382340; 584433, 2382308; 584461, 2382280; 584476, 2382248; 584596, 2382241; 584681, 2382301; 584755, 2382368; 584822, 2382457; 584865, 2382453; 584893, 2382449; 584907, 2382421; 585028, 2382379; 585158, 2382333; 585296, 2382290; 585548, 2382156; 585604, 2382099; 585725, 2381982; 585976, 2381802; 586121, 2381904; 586281, 2381794; 586580, 2381520; 586680, 2381222; 586921, 2381108; 587200, 2380896; 587225, 2380870; 587227, 2380873; 587358, 2380734; 587358, 2380731; 587359, 2380730; 587358, 2380728; 587358, 2380692; 587431, 2380608; 587468, 2380566; 587468, 2380565; 587494, 2380535; 587643, 2380425; 587873, 2380330; 588120, 2380259; 588322, 2380224; 588541, 2380224; 588789, 2380241; 589069, 2380248; 590508, 2380344; 590692, 2380337; 590915, 2380294; 591116, 2380231; 591244, 2380195; 591453, 2380118; 591516, 2380089; 591548, 2379990; 591552, 2379934; 591573, 2379863; 591534, 2379799; 591424, 2379735; 591318, 2379704; 591106, 2379658; 591003, 2379612; 590801, 2379573; 590667, 2379527; 590483, 2379495; 590341, 2379520; 590111, 2379573; 589881, 2379604; 589683, 2379626; 589496, 2379643; 589379, 2379629; 589184, 2379523; 588979, 2379424; 588887, 2379410; 588777, 2379410; 588675, 2379424; 588487, 2379456; 588328, 2379481; 588148, 2379463; 588045, 2379463; 587882, 2379449; 587744, 2379420; 587624, 2379396; 587394, 2379392; 587263, 2379382; 587051, 2379371; 586874, 2379442; 586691, 2379530; 586686, 2379523; 586496, 2379625; 586364, 2379689; 586368, 2379694; 586366, 2379695; 586364, 2379693; 586162, 2379796; 586099, 2379859; 585932, 2379976; 585837, 2380054; 585745, 2380146; 585589, 2380245; 585456, 2380281; 585451, 2380295; 585443, 2380310; 585430, 2380325; 585430, 2380326; 585408, 2380344; 585393, 2380361; 585375, 2380388; 585364, 2380407; 585353, 2380428; 585342, 2380452; 585330, 2380478; 585322, 2380497; 585318, 2380512; 585308, 2380533; 585299, 2380553; 585297, 2380570; 585300, 2380580; 585303, 2380592; 585309, 2380613; return to starting point.

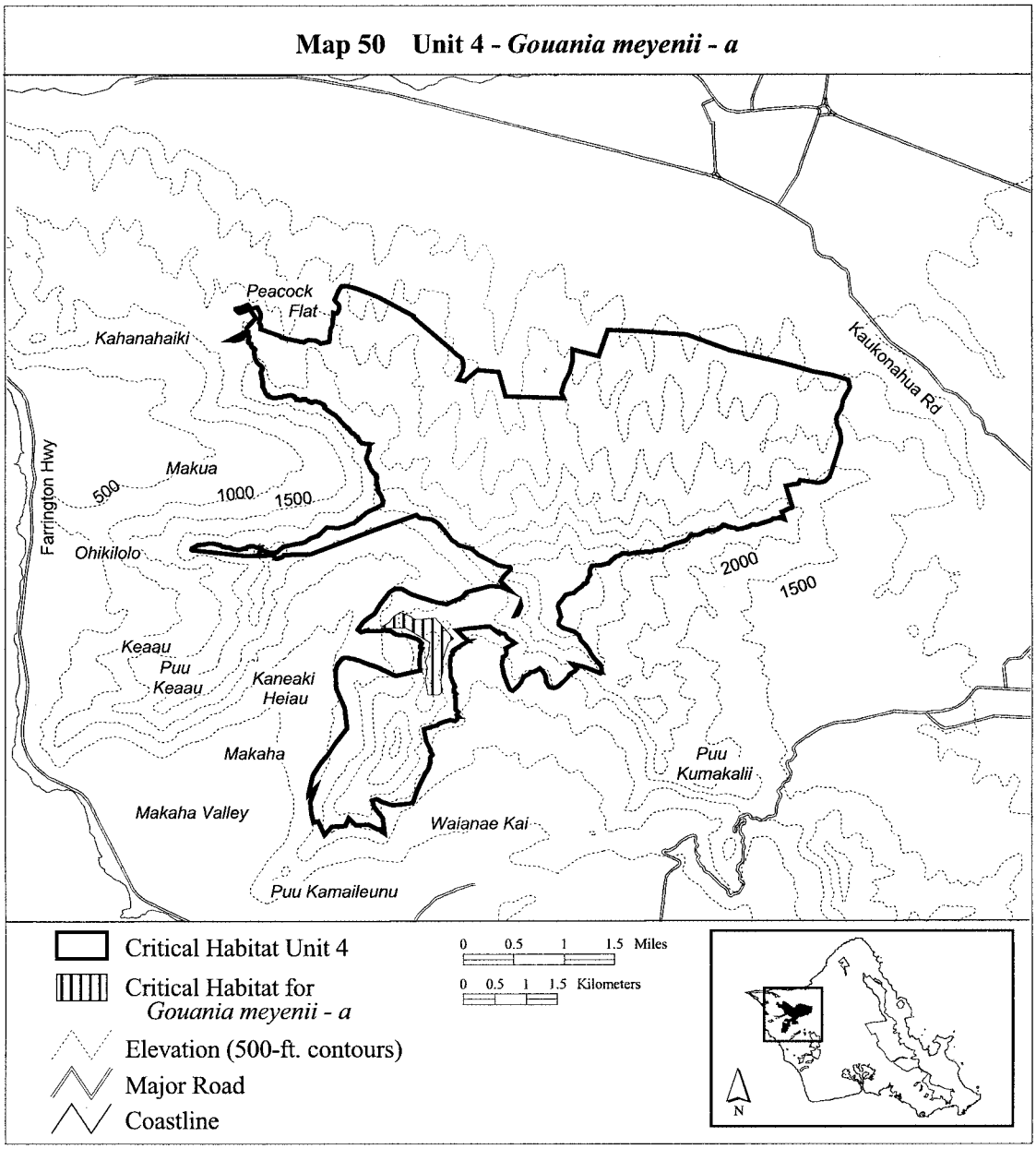
(ii) **Note:** Map 49 follows:



(50) Oahu 4—*Gouania meyenii*—a (48 ha; 118 ac)

(i) Unit consists of the following 27 boundary points: Start at 585998, 2378034; 586072, 2377992; 586303, 2378011; 586383, 2378023; 586678, 2377679; 586598, 2377619; 586542, 2377467; 586505, 2377324; 586505, 2377158; 586469, 2377029; 586496, 2376830; 586445, 2376780; 586270, 2376780; 586256, 2376853; 586220, 2377015; 586256, 2377222; 586224, 2377314; 586279, 2377439; 586289, 2377577; 586293, 2377628; 585924, 2377854; 585533, 2377854; 585556, 2377882; 585662, 2377942; 585726, 2378034; 585837, 2378108; 585929, 2378075; return to starting point.

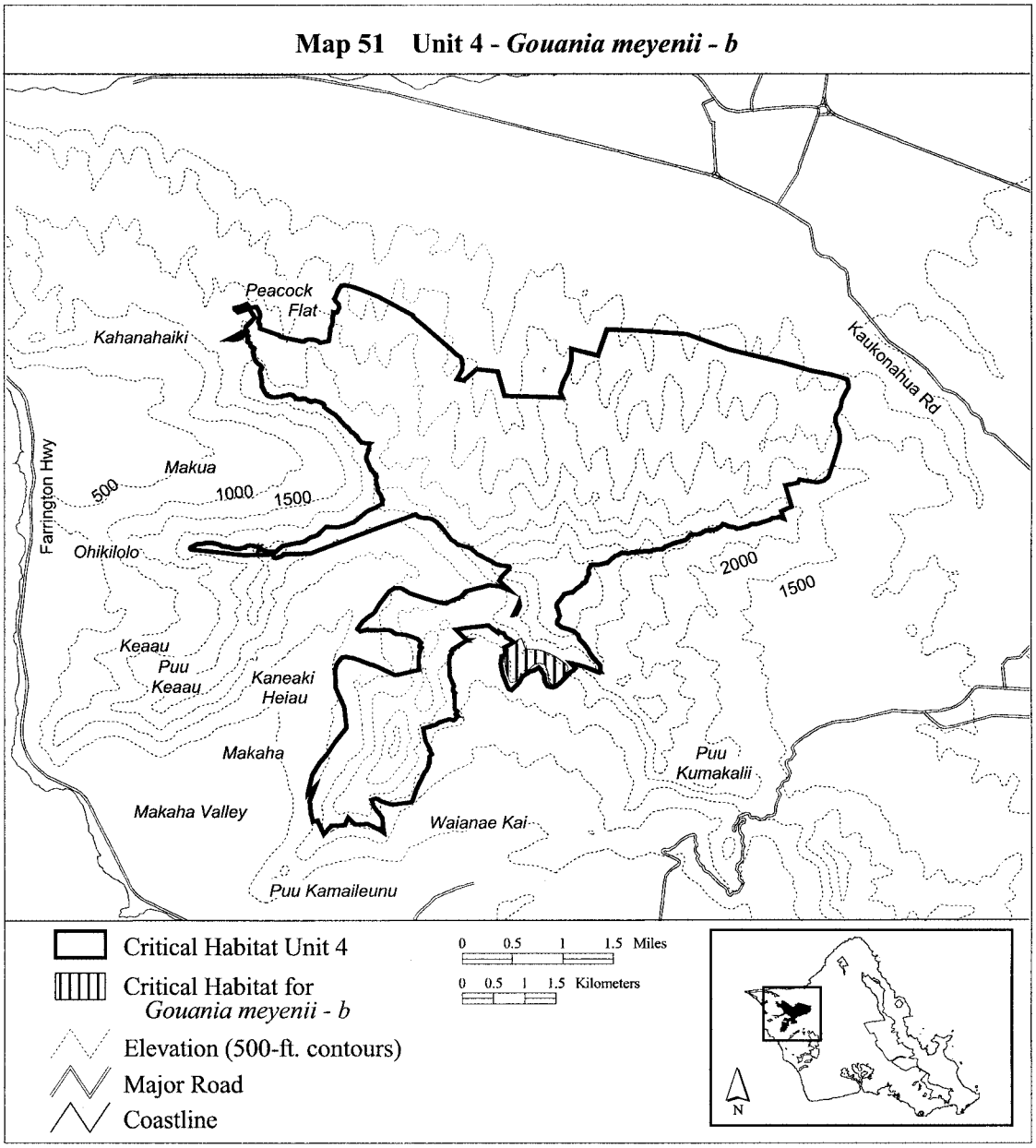
(ii) **Note:** Map 50 follows:



(51) Oahu 4—*Gouania meyenii*—b (39 ha; 96 ac)

(i) Unit consists of the following 28 boundary points: Start at 587782, 2377681; 587796, 2377628; 587833, 2377517; 587902, 2377499; 588022, 2377499; 588119, 2377471; 588313, 2377388; 588497, 2377268; 588530, 2377195; 588433, 2377056; 588364, 2376969; 588276, 2376936; 588221, 2376964; 588207, 2377047; 588193, 2377149; 588147, 2377255; 588068, 2377287; 587972, 2377245; 587879, 2377144; 587773, 2377075; 587709, 2376996; 587603, 2376964; 587575, 2377024; 587534, 2377125; 587511, 2377227; 587506, 2377319; 587515, 2377513; 587507, 2377531; return to starting point.

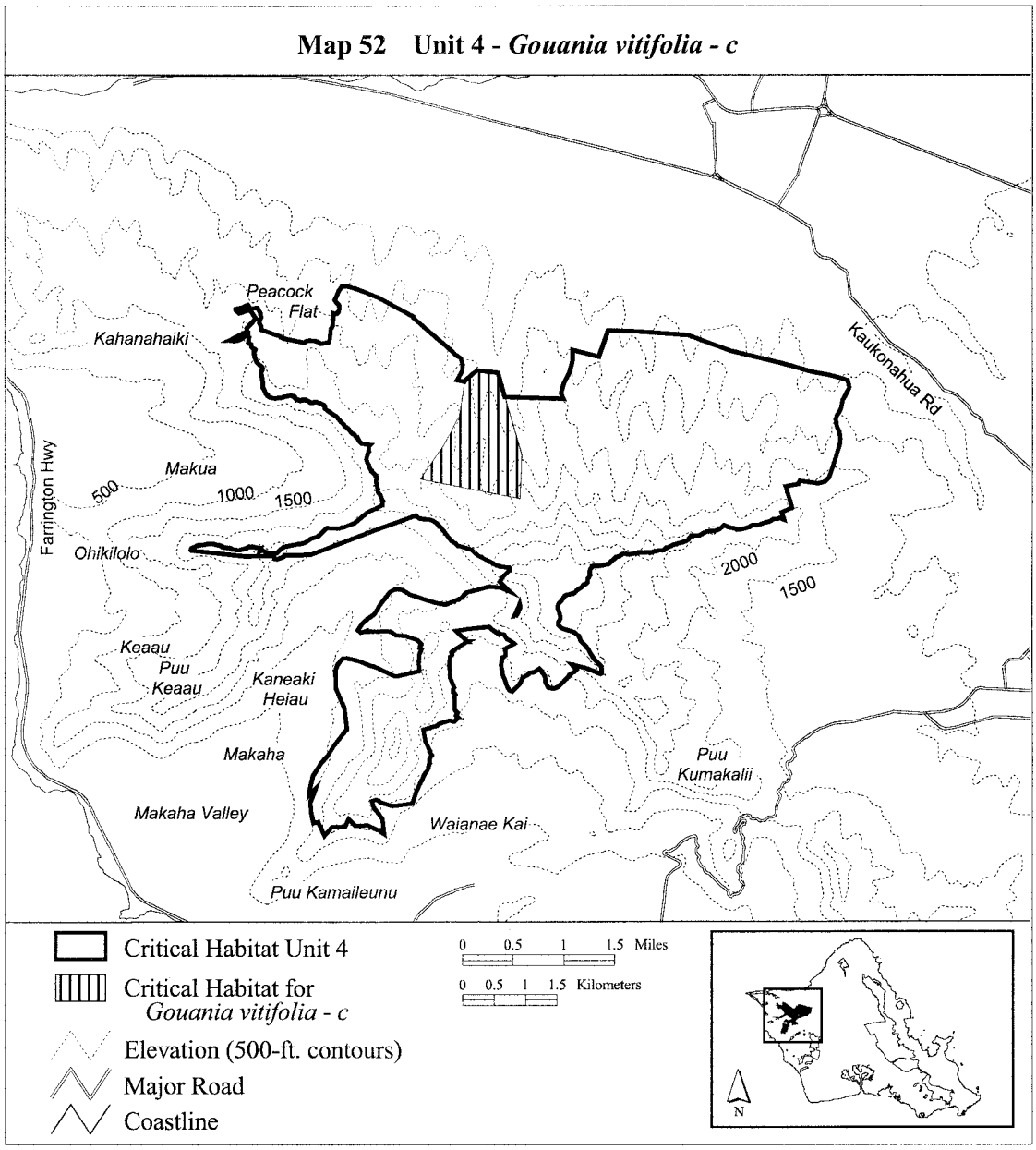
(ii) **Note:** Map 51 follows:



(52) Oahu 4—*Gouania vitifolia*—c (195 ha; 483 ac)

(i) Unit consists of the following 8 boundary points: Start at 587752, 2379934; 586159, 2380248; 586533, 2380789; 586779, 2381256; 586867, 2381827; 587064, 2381994; 587393, 2381955; 587777, 2380637; return to starting point.

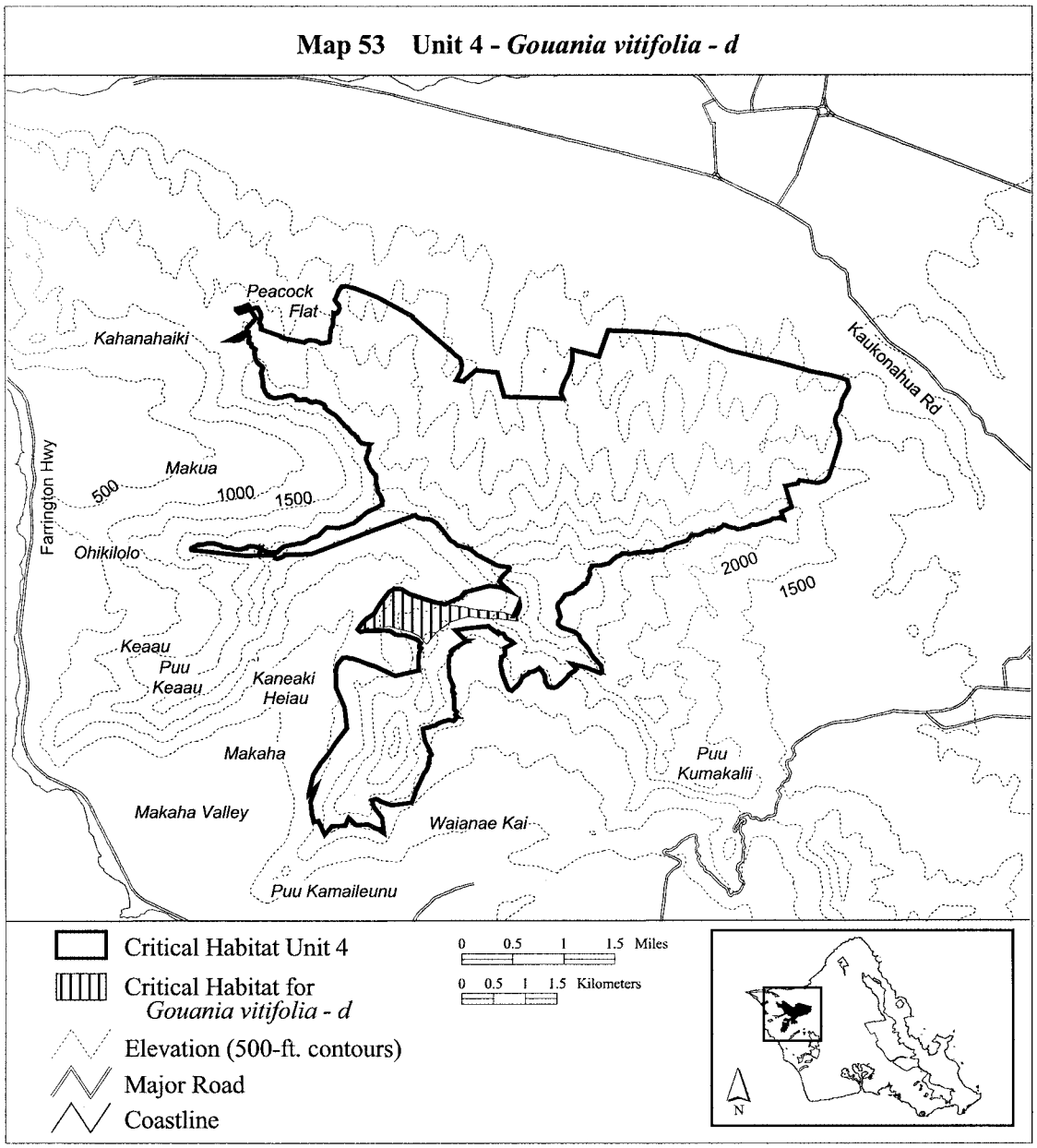
(ii) **Note:** Map 52 follows:



(53) Oahu 4—*Gouania vitifolia*—d (84 ha; 208 ac)

(i) Unit consists of the following 36 boundary points: Start at 586265, 2377593; 586264, 2377598; 586208, 2377667; 586135, 2377736; 586019, 2377792; 585834, 2377839; 585666, 2377882; 585550, 2377860; 585387, 2377843; 585206, 2377792; 585159, 2377830; 585236, 2377934; 585326, 2378020; 585421, 2378084; 585511, 2378235; 585602, 2378355; 585670, 2378437; 585752, 2378484; 585842, 2378480; 585873, 2378475; 585984, 2378402; 586230, 2378321; 586415, 2378265; 586582, 2378230; 586883, 2378192; 586957, 2378166; 587335, 2378123; 587490, 2378106; 587628, 2378058; 587705, 2378024; 587719, 2377966; 587435, 2378001; 587170, 2378013; 586936, 2378033; 586647, 2377957; 586421, 2377784; return to starting point.

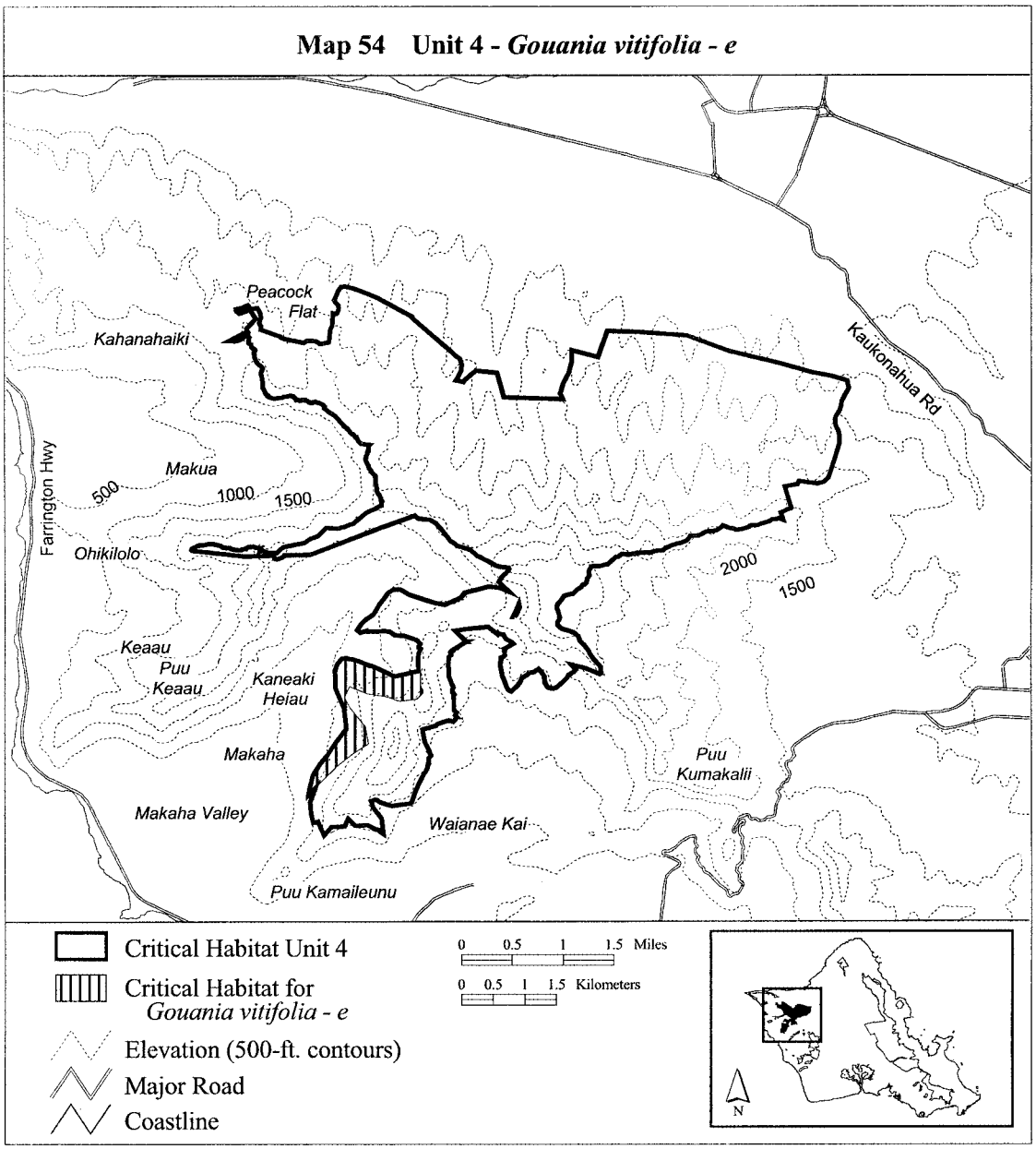
(ii) **Note:** Map 53 follows:



(54) Oahu 4—*Gouania vitifolia*—e (102 ha; 252 ac)

(i) Unit consists of the following 41 boundary points: Start at 585510, 2377208; 585756, 2377090; 586178, 2377178; 586178, 2377052; 586178, 2376914; 586190, 2376916; 586204, 2376890; 586213, 2376815; 586127, 2376725; 585844, 2376688; 585624, 2376763; 585329, 2376813; 585104, 2376927; 584958, 2376744; 585052, 2376581; 585285, 2376292; 585341, 2376015; 585102, 2375858; 584857, 2375669; 584562, 2375374; 584380, 2375182; 584380, 2375189; 584453, 2375499; 584578, 2375705; 584681, 2375822; 584794, 2376001; 584985, 2376248; 584956, 2376578; 584816, 2376896; 584814, 2377043; 584802, 2377164; 584836, 2377263; 584875, 2377327; 584926, 2377374; 584991, 2377379; 585042, 2377361; 585081, 2377361; 585167, 2377340; 585257, 2377301; 585382, 2377258; 585393, 2377255; return to starting point.

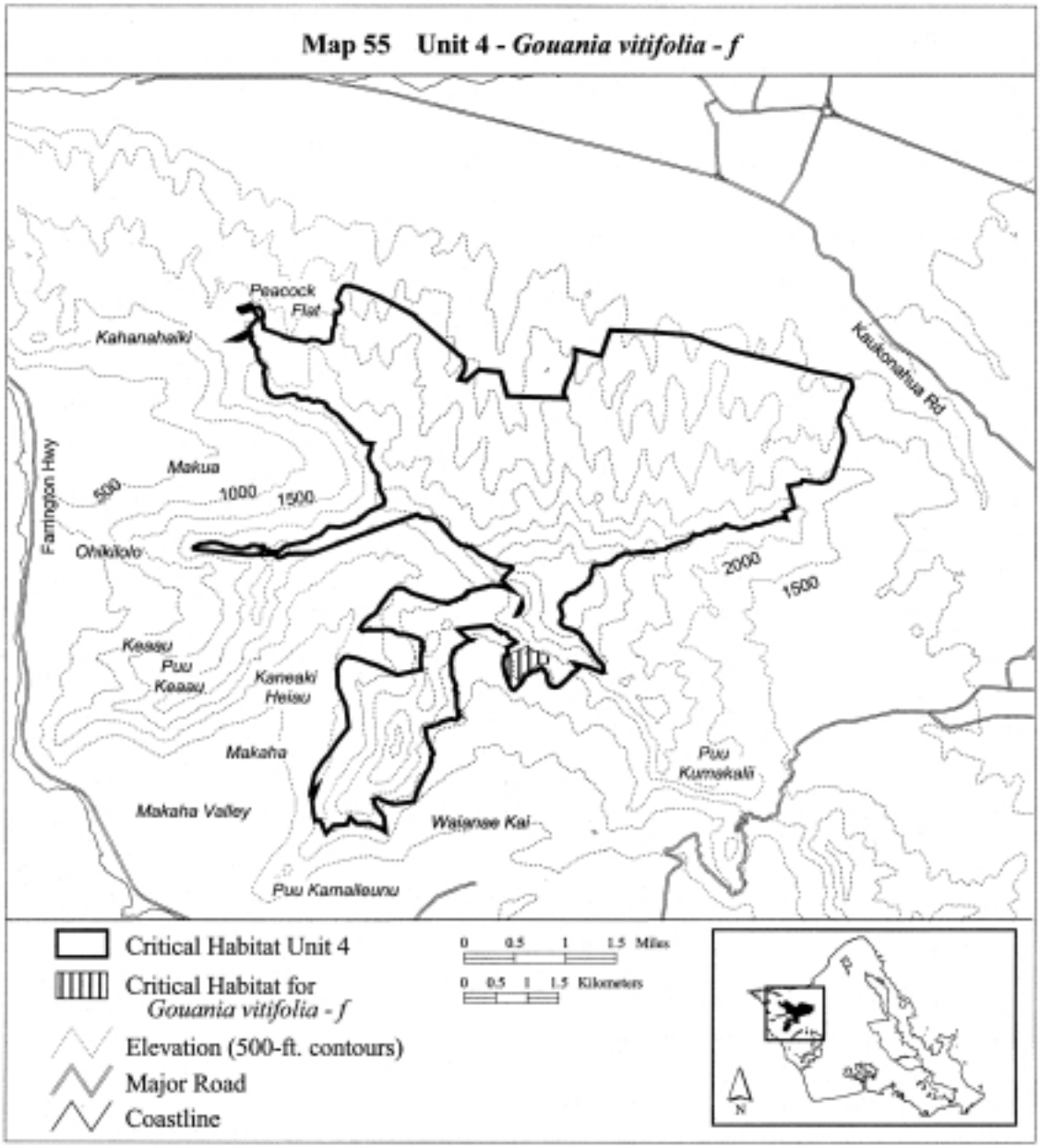
(ii) **Note:** Map 54 follows:



(55) Oahu 4—*Gouania vitifolia*—f (27 ha; 67 ac)

(i) Unit consists of the following 25 boundary points: Start at 587841, 2377556; 587873, 2377508; 587963, 2377465; 588066, 2377439; 588131, 2377413; 588170, 2377374; 588170, 2377336; 588157, 2377271; 588058, 2377275; 587963, 2377245; 587903, 2377168; 587873, 2377121; 587791, 2377060; 587757, 2377000; 587701, 2376931; 587675, 2376897; 587619, 2376850; 587580, 2376862; 587554, 2376906; 587503, 2377026; 587477, 2377090; 587455, 2377189; 587443, 2377271; 587460, 2377366; 587455, 2377389; return to starting point.

(ii) **Note:** Map 55 follows:

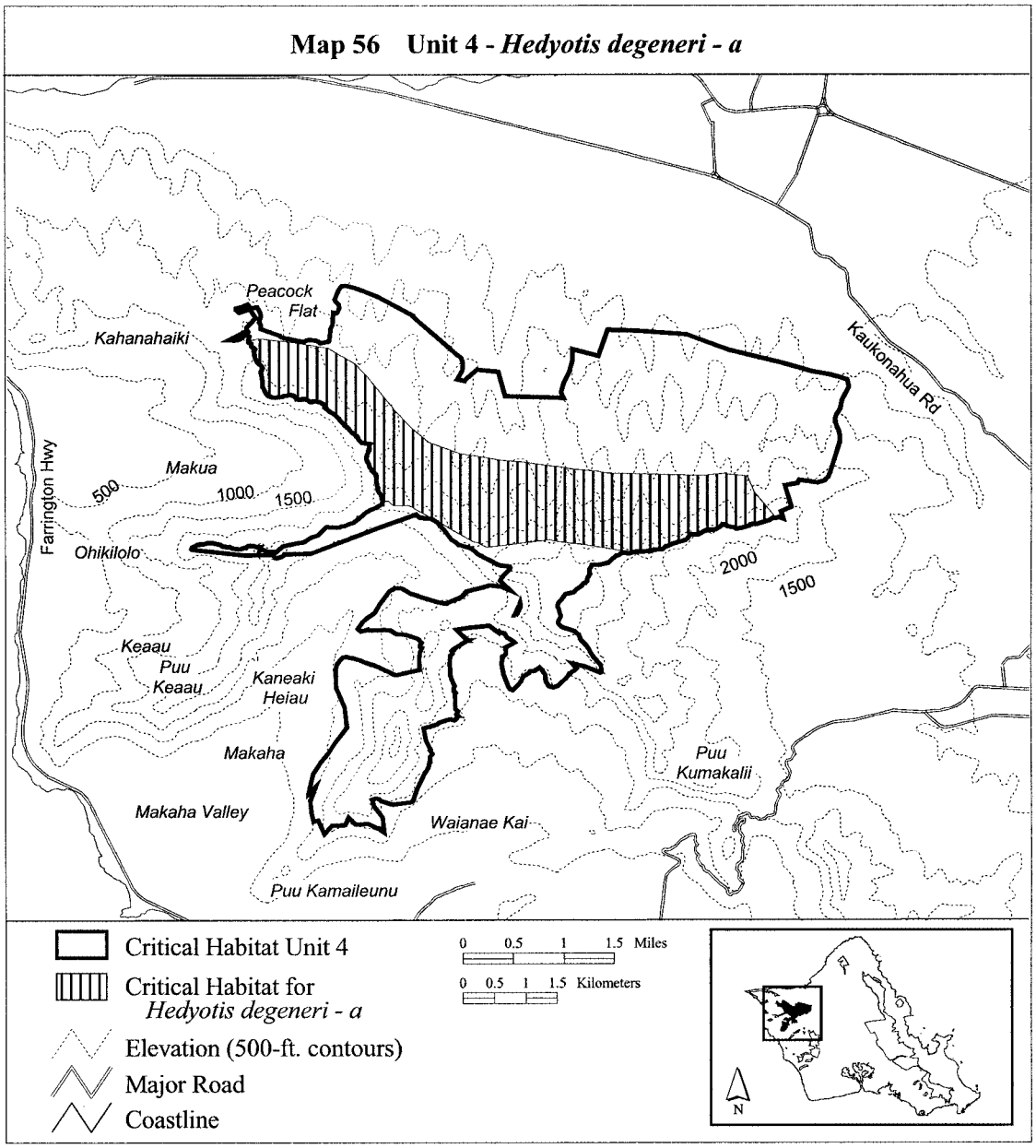


(56) Oahu 4—*Hedyotis degeneri*—a (917 ha; 2,265 ac)

(i) Unit consists of the following 334 boundary points: Start at 590035, 2379115; 589518, 2379058; 588672, 2379188; 588616, 2379195; 588356, 2379231; 588192, 2379252; 587212, 2379139; 587072, 2379208; 587008, 2379219; 586848, 2379307; 586668, 2379411; 586497, 2379514; 586155, 2379713; 586096, 2379735; 585983, 2379807; 585725, 2379807; 585661, 2379871; 585619, 2379878; 585550, 2379846; 585558, 2379891; 585558, 2379892; 585557, 2379892; 585548, 2379922; 585550, 2379928; 585550, 2379929; 585549, 2379929; 585549, 2379930; 585548, 2379930; 585547, 2379930; 585546, 2379929; 585545, 2379931; 585539, 2379943; 585531, 2379963; 585523, 2379982; 585522, 2379982; 585511, 2380001; 585498, 2380021; 585488, 2380040; 585483, 2380053; 585478, 2380071; 585475, 2380089; 585476, 2380103; 585474, 2380125; 585474, 2380128; 585472, 2380137; 585468, 2380149; 585465, 2380160; 585461, 2380173; 585457, 2380185; 585456, 2380203; 585456, 2380223; 585459, 2380252; 585459, 2380269; 585456, 2380281; 585451, 2380295; 585443, 2380310; 585430, 2380325; 585430, 2380326; 585408, 2380344; 585393, 2380361; 585375, 2380388; 585364, 2380407; 585353, 2380428; 585342, 2380452; 585330, 2380478; 585326, 2380488; 585324, 2380511; 585336, 2380611; 585384, 2380711; 585358, 2380763; 585345, 2380771; 585345, 2380779; 585348, 2380789; 585348, 2380790; 585344, 2380798; 585344, 2380799; 585338, 2380802; 585329, 2380804; 585328, 2380804; 585308, 2380806; 585281, 2380810; 585257, 2380825; 585168, 2380904; 585156, 2380911; 585140, 2380929; 585134, 2380934; 585119, 2380952; 585119, 2380953; 585107, 2380962; 585106, 2380963; 585095, 2380967; 585046, 2381011; 585039, 2381021; 585027, 2381040; 585011, 2381059; 584993, 2381074; 584973, 2381090; 584954, 2381104; 584939, 2381117; 584923, 2381137; 584905, 2381157; 584891, 2381175; 584867, 2381205; 584852, 2381221; 584844, 2381230; 584843, 2381230; 584813,

2381261; 584799, 2381271; 584665, 2381437; 584613, 2381445; 584601, 2381452; 584600, 2381452; 584581, 2381462; 584562, 2381467; 584539, 2381475; 584519, 2381483; 584494, 2381489; 584478, 2381486; 584457, 2381478; 584441, 2381471; 584426, 2381472; 584425, 2381472; 584415, 2381477; 584406, 2381482; 584401, 2381483; 584383, 2381494; 584357, 2381507; 584350, 2381511; 584325, 2381523; 584324, 2381523; 584310, 2381528; 584309, 2381528; 584291, 2381527; 584290, 2381527; 584281, 2381521; 584275, 2381516; 584266, 2381511; 584252, 2381510; 584252, 2381509; 584242, 2381507; 584170, 2381548; 584167, 2381553; 584150, 2381572; 584130, 2381584; 584129, 2381584; 584104, 2381586; 584065, 2381583; 584021, 2381575; 583992, 2381567; 583957, 2381557; 583934, 2381555; 583897, 2381549; 583869, 2381541; 583842, 2381542; 583813, 2381547; 583780, 2381558; 583747, 2381571; 583730, 2381588; 583709, 2381612; 583707, 2381614; 583694, 2381639; 583685, 2381655; 583672, 2381685; 583659, 2381711; 583652, 2381731; 583651, 2381742; 583651, 2381757; 583651, 2381773; 583651, 2381789; 583651, 2381805; 583651, 2381806; 583649, 2381820; 583644, 2381847; 583642, 2381874; 583639, 2381896; 583638, 2381897; 583634, 2381907; 583631, 2381919; 583629, 2381934; 583630, 2381951; 583633, 2381969; 583638, 2381979; 583645, 2381993; 583645, 2381994; 583649, 2382013; 583649, 2382018; 583648, 2382029; 583647, 2382030; 583641, 2382045; 583640, 2382045; 583626, 2382059; 583610, 2382073; 583590, 2382091; 583570, 2382107; 583561, 2382120; 583552, 2382135; 583546, 2382153; 583536, 2382180; 583529, 2382214; 583523, 2382238; 583518, 2382254; 583517, 2382264; 583517, 2382276; 583518, 2382287; 583521, 2382299; 583528, 2382305; 583535, 2382312; 583535, 2382313; 583535, 2382319; 583531, 2382326; 583523, 2382334; 583522, 2382334; 583511, 2382337; 583498, 2382345; 583486, 2382351; 583477, 2382362; 583474, 2382370; 583475, 2382383; 583475, 2382397; 583474, 2382404; 583474, 2382405; 583469, 2382411; 583468, 2382411; 583457, 2382416; 583443, 2382421; 583435, 2382424; 583430, 2382430; 583429, 2382440; 583430, 2382451; 583476, 2382463; 583596, 2382491; 583784, 2382467; 583865, 2382453; 584016, 2382441; 584696, 2382335; 584904, 2382209; 584933, 2382195; 585141, 2382071; 585220, 2381983; 585281, 2381926; 585773, 2381317; 586002, 2381061; 586045, 2381031; 586285, 2380827; 586281, 2380825; 586763, 2380651; 586775, 2380649; 587289, 2380560; 587297, 2380559; 587311, 2380556; 587447, 2380533; 587787, 2380509; 588274, 2381740; 588341, 2381739; 588487, 2381710; 588601, 2380394; 588977, 2380351; 589125, 2380331; 590233, 2380296; 590319, 2380295; 591767, 2380291; 590674, 2380291; 590693, 2380291; 591035, 2380323; 591035, 2380306; 591364, 2380283; 591476, 2380022; 591831, 2379597; 591830, 2379598; 591791, 2379602; 591790, 2379602; 591766, 2379598; 591765, 2379598; 591752, 2379591; 591751, 2379591; 591619, 2379557; 591485, 2379499; 591461, 2379506; 591460, 2379506; 591443, 2379503; 591431, 2379499; 591420, 2379498; 591419, 2379498; 591417, 2379488; 591404, 2379487; 591390, 2379469; 591280, 2379446; 591259, 2379439; 591242, 2379438; 591198, 2379429; 591193, 2379430; 591164, 2379441; 591138, 2379451; 591113, 2379458; 591069, 2379465; 591039, 2379476; 590996, 2379497; 590996, 2379498; 590995, 2379498; 590982, 2379496; 590981, 2379496; 590981, 2379495; 590970, 2379488; 590969, 2379488; 590943, 2379463; 590908, 2379443; 590883, 2379429; 590832, 2379413; 590808, 2379409; 590790, 2379408; 590721, 2379404; 590699, 2379398; 590669, 2379385; 590668, 2379384; 590630, 2379354; 590593, 2379338; 590572, 2379336; 590525, 2379340; 590514, 2379339; 591779, 2379340; 591778, 2379340; 591762, 2379334; 591744, 2379312; 590415, 2379277; 590373, 2379247; 590347, 2379233; 590321, 2379227; 590285, 2379219; 590191, 2379191; 590084, 2379149; 590076, 2379145; 590067, 2379142; 590066, 2379141; 590039, 2379117; return to starting point.

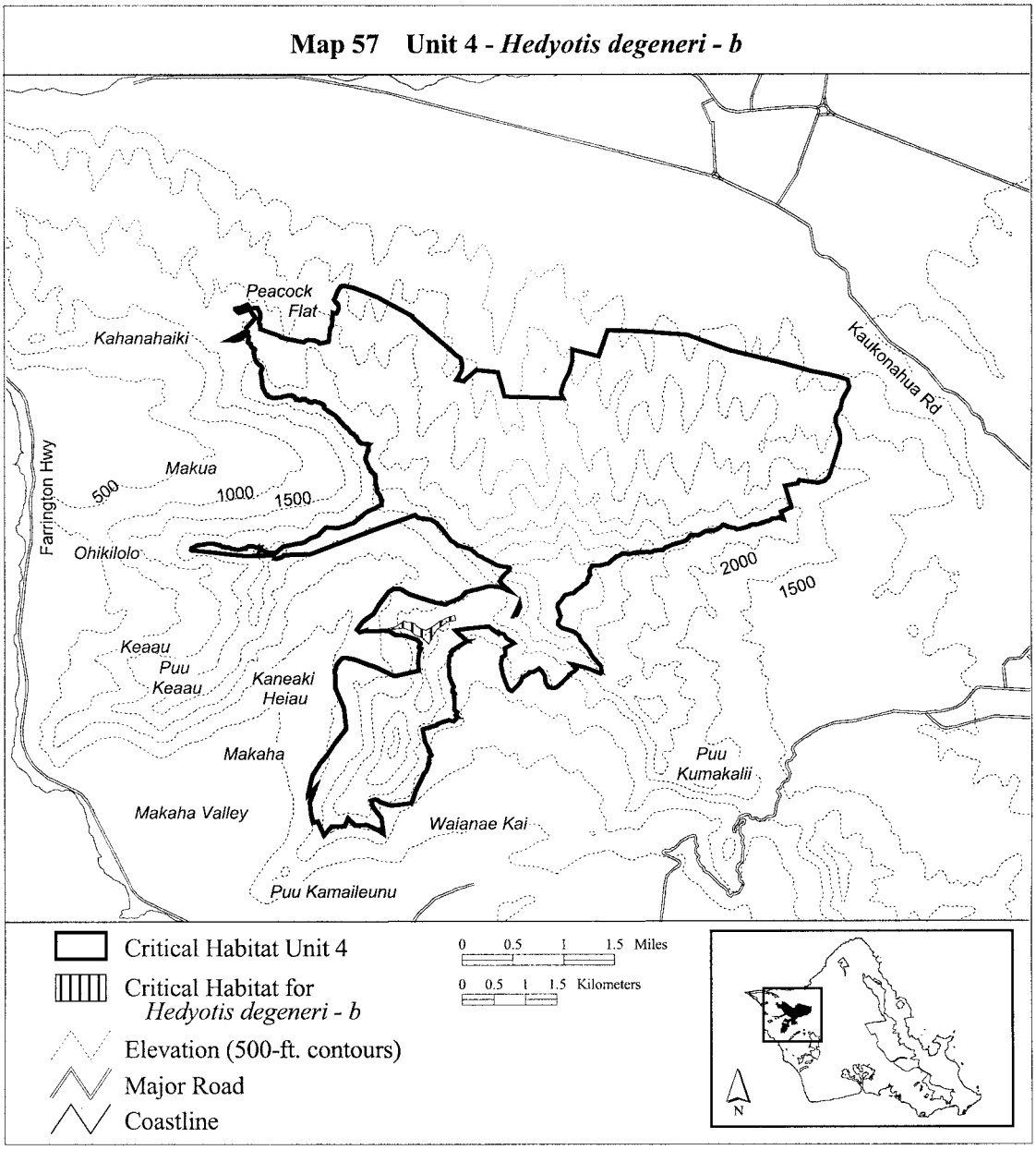
(ii) **Note:** Map 56 follows:



(57) Oahu 4—*Hedyotis degeneri*—b (12 ha; 29 ac)

(i) Unit consists of the following 31 boundary points: Start at 586352, 2377675; 586332, 2377658; 586305, 2377602; 586273, 2377640; 586200, 2377699; 586086, 2377748; 586007, 2377816; 585902, 2377857; 585796, 2377842; 585700, 2377836; 585650, 2377839; 585653, 2377857; 585720, 2377868; 585787, 2377883; 585875, 2377947; 585919, 2377971; 585963, 2377944; 586027, 2377944; 586083, 2377927; 586098, 2377900; 586162, 2377851; 586264, 2377816; 586370, 2377886; 586469, 2377962; 586630, 2378038; 586717, 2378053; 586729, 2377984; 586680, 2377973; 586585, 2377946; 586434, 2377833; 586354, 2377700; return to starting point.

(ii) **Note:** Map 57 follows:

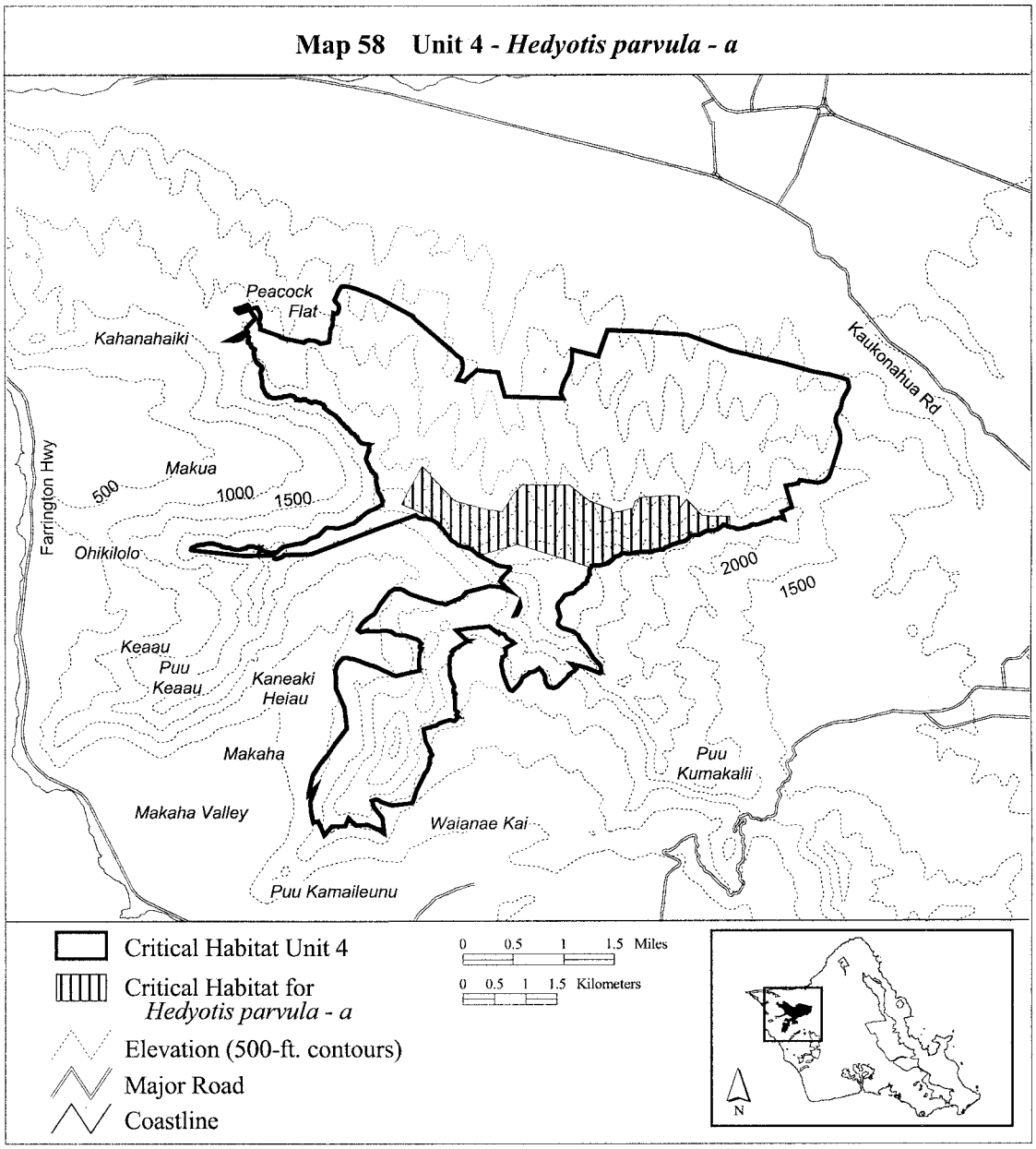


(58) Oahu 4—*Hedyotis parvula*—a (387 ha; 958 ac)

(i) Unit consists of the following 111 boundary points: Start at 589524, 2379043; 589477, 2379034; 589462, 2379034; 589441, 2379042; 589424, 2379047; 589391, 2379048; 589370, 2379041; 589369, 2379041; 589348, 2379025; 589324, 2379009; 589303, 2379003; 589286, 2379001; 589285, 2379001; 589276, 2378998; 589275, 2378998; 589271, 2378994; 589223, 2378985; 589021, 2378858; 589009, 2378857; 588910, 2378852; 588910, 2378851; 588899, 2378848; 588898, 2378848; 588887, 2378841; 588887, 2378840; 588872, 2378818; 588702, 2378884; 587699, 2379193; 587159, 2379038; 587048, 2379065; 587045, 2379095; 586904, 2379179; 586764, 2379173; 586676, 2379263; 586542, 2379397; 586421, 2379532; 586176, 2379699; 585874, 2379837; 585860, 2379838; 585956, 2380034; 586191, 2380443; 586309, 2380325; 586324, 2380341; 586311, 2380311; 586706, 2379887; 587036, 2379801; 587201, 2379758; 587471, 2379718; 587658, 2380020; 587784, 2380156; 587949, 2380153; 588167, 2380149; 588534, 2380143; 588706, 2380004; 588703, 2379964; 588722, 2379990; 588846, 2379891; 589200, 2379754; 589203, 2379694; 589300, 2379716; 589311, 2379711; 589328, 2379722; 589550, 2379771; 589567, 2379874; 589674, 2379941; 590079, 2379973; 590273, 2379963; 590283, 2379771; 590394, 2379904; 590646, 2379643; 591073, 2379636; 591075, 2379464; 591069, 2379465; 591039, 2379476; 590996, 2379497; 590996, 2379498; 590995, 2379498; 590982, 2379496; 590981, 2379496; 590981, 2379495; 590970, 2379488; 590969, 2379488; 590943, 2379463; 590908, 2379443; 590896, 2379436; 590874, 2379427; 590832, 2379413; 590808, 2379409; 590790, 2379408; 590721, 2379404; 590699, 2379398; 590669, 2379385; 590668, 2379384; 590630, 2379354; 590593, 2379338; 590572, 2379336; 590525, 2379340; 590514, 2379339; 590479, 2379340; 590478, 2379340; 590462, 2379334; 590444, 2379312; 590415, 2379277; 590373, 2379247; 590347, 2379233; 590321, 2379227; 590285,

2379219; 590191, 2379191; 590099, 2379155; 589590, 2379056; 589557, 2379052; return to starting point.

(ii) **Note:** Map 58 follows:

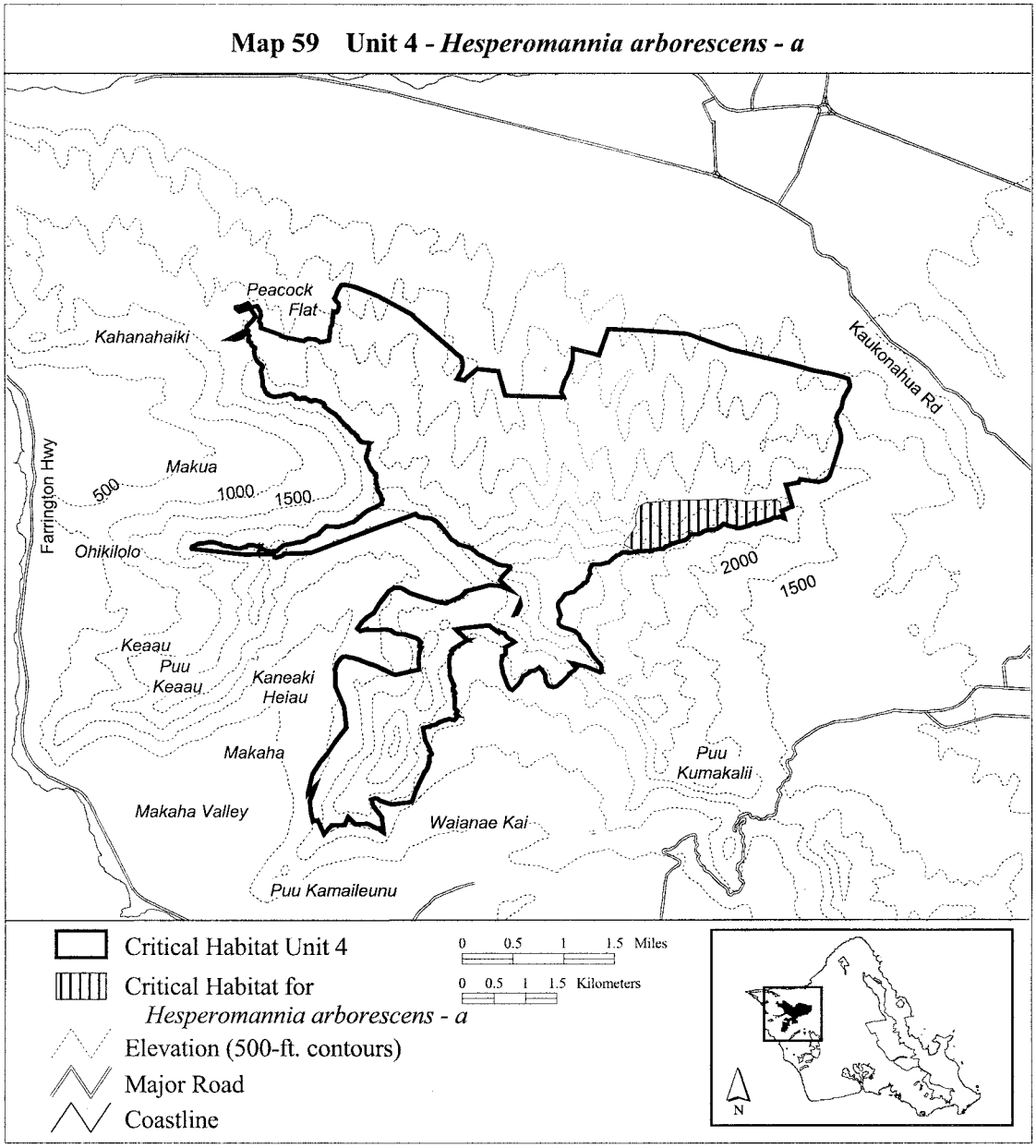


(59) Oahu 4—*Hesperomannia arborescens*—a (125 ha; 308 ac)

(i) Unit consists of the following 82 boundary points: Start at 591935, 2379592; 591870, 2379614; 591821, 2379599; 591791, 2379602; 591790, 2379602; 591766, 2379598; 591765, 2379598; 591740, 2379584; 591709, 2379566; 591635, 2379543; 591613, 2379538; 591582, 2379527; 591581, 2379526; 591567, 2379517; 591504, 2379497; 591500, 2379496; 591496, 2379496; 591461, 2379506; 591460, 2379506; 591443, 2379503; 591431, 2379499; 591420, 2379498; 591419, 2379498; 591404, 2379488; 591404, 2379487; 591395, 2379475; 591235, 2379445; 591091, 2379479; 591026, 2379482; 590996, 2379497; 590996, 2379498; 590995, 2379498; 590982, 2379496; 590981, 2379496; 590981, 2379495; 590970, 2379488; 590969, 2379488; 590943, 2379463; 590908, 2379443; 590883, 2379429; 590832, 2379413; 590808, 2379409; 590790, 2379408; 590721, 2379404; 590699, 2379398; 590698, 2379398; 590669, 2379385; 590668, 2379384; 590641, 2379362; 590534, 2379339; 590525, 2379340; 590514, 2379339; 590479, 2379340; 590478, 2379340; 590462, 2379334; 590444, 2379312; 590415, 2379277; 590396, 2379264; 590308, 2379227; 590232, 2379203; 590191, 2379191; 590187, 2379189; 590056, 2379149; 589821, 2379079; 589613, 2379066; 589594, 2379063; 589406, 2379168; 589408, 2379201; 589491, 2379323; 589582, 2379471; 589578, 2379631; 589630, 2379784; 589747, 2379845; 589991, 2379862; 590282, 2379879; 590739, 2379888; 591022, 2379897; 591330, 2379866; 591565, 2379871; 591800, 2379892; 591878,

2379858; 591896, 2379718; return to starting point.

(ii) **Note:** Map 59 follows:

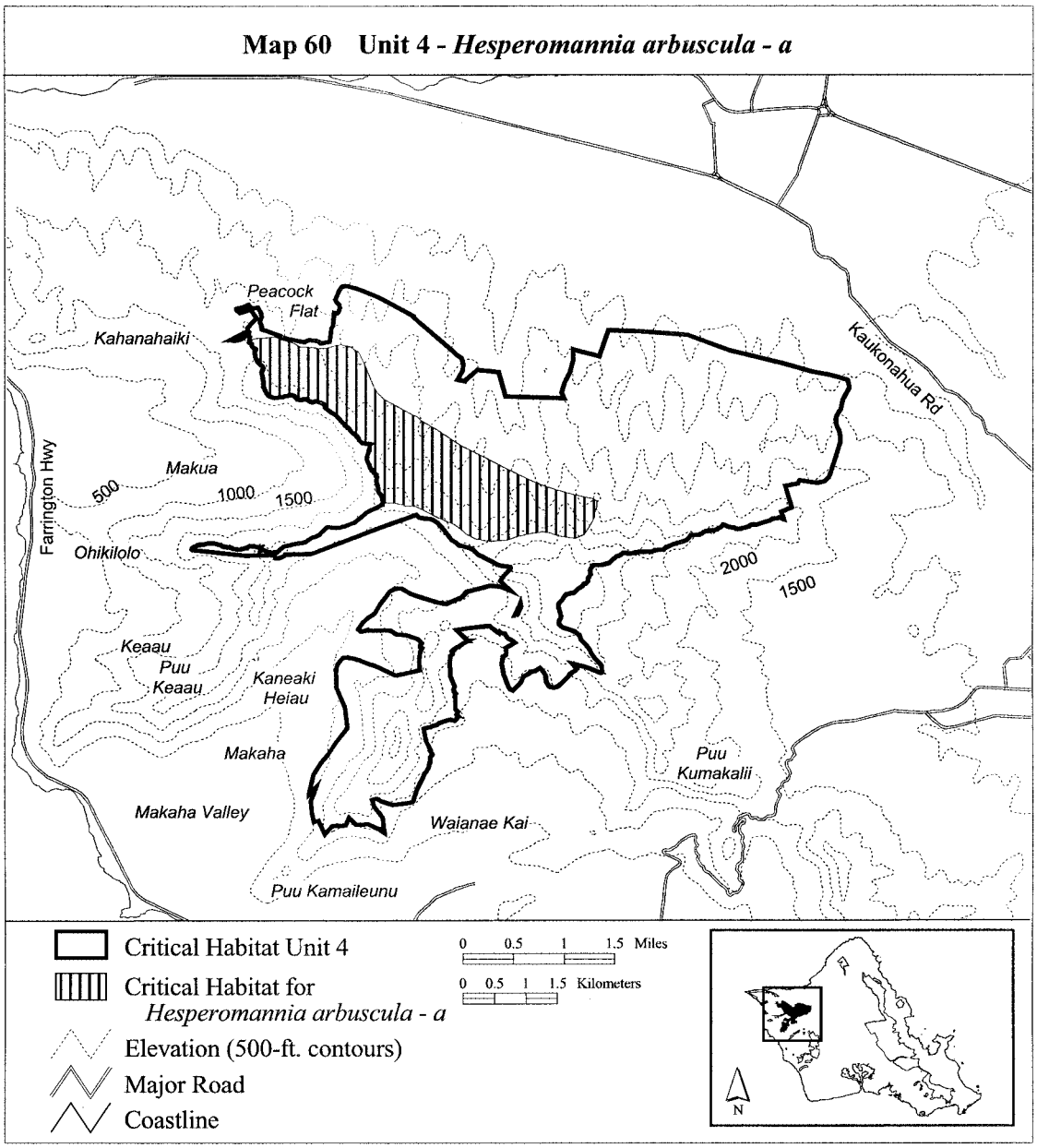


(60) Oahu 4—*Hesperomannia arbuscula*—a (596 ha; 1,472 ac)

(i) Unit consists of the following 289 boundary points: Start at 583882, 2381544; 583799, 2381556; 583764, 2381564; 583747, 2381571; 583730, 2381588; 583709, 2381612; 583707, 2381614; 583694, 2381639; 583685, 2381655; 583672, 2381685; 583659, 2381711; 583652, 2381731; 583651, 2381742; 583651, 2381757; 583651, 2381773; 583651, 2381789; 583651, 2381805; 583651, 2381806; 583649, 2381820; 583644, 2381847; 583642, 2381874; 583639, 2381896; 583638, 2381897; 583634, 2381907; 583631, 2381919; 583629, 2381934; 583630, 2381951; 583633, 2381969; 583638, 2381979; 583645, 2381993; 583645, 2381994; 583649, 2382013; 583649, 2382018; 583648, 2382029; 583647, 2382030; 583641, 2382045; 583640, 2382045; 583626, 2382059; 583610, 2382073; 583590, 2382091; 583570, 2382107; 583561, 2382120; 583552, 2382135; 583546, 2382153; 583536, 2382180; 583529, 2382214; 583523, 2382238; 583523, 2382239; 583518, 2382254; 583517, 2382264; 583517, 2382276; 583518, 2382287; 583521, 2382299; 583528, 2382305; 583535, 2382312; 583535, 2382313; 583535, 2382319; 583531, 2382326; 583523, 2382334; 583522, 2382334; 583511, 2382337; 583498, 2382345; 583497, 2382345; 583486, 2382351; 583477, 2382362; 583474, 2382370; 583475, 2382383; 583475, 2382397; 583474, 2382417; 583474, 2382405; 583469, 2382411; 583468, 2382411; 583457, 2382416; 583443, 2382421; 583435, 2382424; 583430, 2382430; 583429, 2382440; 583430, 2382455; 583530, 2382499; 583719, 2382510; 583836, 2382521; 583970, 2382474; 584145, 2382415; 584247, 2382364; 584328, 2382361; 584536, 2382332; 584605,

2382332; 584700, 2382353; 584802, 2382379; 584893, 2382397; 585046, 2382364; 585105, 2382317; 585166, 2382284; 585261, 2382091; 585407, 2381723; 585483, 2381614; 585582, 2381519; 585800, 2381399; 586026, 2381275; 586114, 2381231; 586157, 2381184; 586363, 2381060; 586369, 2381064; 586802, 2380776; 587167, 2380586; 587495, 2380415; 587717, 2380306; 587957, 2380186; 588030, 2380175; 588030, 2380165; 588198, 2380098; 588318, 2380062; 588573, 2379993; 588781, 2379945; 588886, 2379923; 588955, 2379880; 588955, 2379792; 588918, 2379690; 588918, 2379614; 588853, 2379479; 588758, 2379348; 588612, 2379286; 588361, 2379318; 588193, 2379370; 588087, 2379391; 588007, 2379374; 588007, 2379373; 588003, 2379372; 587989, 2379370; 587989, 2379371; 587902, 2379359; 587690, 2379311; 587556, 2379264; 587271, 2379235; 587035, 2379271; 586892, 2379348; 586783, 2379435; 586688, 2379512; 586550, 2379559; 586437, 2379614; 586280, 2379697; 586098, 2379788; 585985, 2379810; 585898, 2379803; 585876, 2379829; 585716, 2379850; 585588, 2379850; 585557, 2379890; 585558, 2379891; 585558, 2379892; 585557, 2379892; 585548, 2379922; 585550, 2379928; 585550, 2379929; 585549, 2379929; 585549, 2379930; 585548, 2379930; 585547, 2379930; 585546, 2379929; 585545, 2379931; 585539, 2379943; 585531, 2379963; 585523, 2379982; 585522, 2379982; 585511, 2380001; 585509, 2380004; 585504, 2380029; 585480, 2380063; 585478, 2380071; 585475, 2380089; 585476, 2380103; 585474, 2380125; 585474, 2380128; 585472, 2380137; 585468, 2380149; 585465, 2380160; 585461, 2380173; 585457, 2380185; 585456, 2380203; 585456, 2380223; 585459, 2380252; 585459, 2380269; 585456, 2380281; 585451, 2380295; 585443, 2380310; 585430, 2380325; 585430, 2380326; 585408, 2380344; 585400, 2380353; 585402, 2380382; 585445, 2380413; 585391, 2380375; 585350, 2380434; 585342, 2380452; 585330, 2380478; 585322, 2380497; 585318, 2380512; 585308, 2380533; 585299, 2380553; 585297, 2380570; 585300, 2380580; 585303, 2380592; 585309, 2380613; 585312, 2380624; 585355, 2380732; 585356, 2380787; 585348, 2380789; 585348, 2380790; 585344, 2380798; 585344, 2380799; 585338, 2380802; 585329, 2380804; 585328, 2380804; 585308, 2380806; 585279, 2380811; 585252, 2380816; 585222, 2380825; 585208, 2380833; 585194, 2380847; 585183, 2380863; 585167, 2380888; 585157, 2380904; 585138, 2380929; 585119, 2380952; 585119, 2380953; 585107, 2380962; 585106, 2380963; 585034, 2381030; 585027, 2381040; 585011, 2381059; 584993, 2381074; 584993, 2381075; 584973, 2381090; 584955, 2381103; 584937, 2381120; 584923, 2381137; 584905, 2381157; 584891, 2381175; 584867, 2381205; 584852, 2381221; 584844, 2381230; 584843, 2381230; 584813, 2381261; 584796, 2381273; 584778, 2381284; 584774, 2381287; 584751, 2381303; 584728, 2381318; 584715, 2381325; 584706, 2381333; 584641, 2381428; 584624, 2381434; 584618, 2381442; 584617, 2381442; 584601, 2381452; 584581, 2381462; 584562, 2381467; 584539, 2381475; 584519, 2381483; 584494, 2381489; 584478, 2381486; 584461, 2381479; 584415, 2381486; 584386, 2381492; 584383, 2381494; 584357, 2381507; 584350, 2381511; 584325, 2381523; 584324, 2381523; 584310, 2381528; 584309, 2381528; 584291, 2381527; 584290, 2381527; 584281, 2381521; 584275, 2381516; 584273, 2381515; 584269, 2381515; 584174, 2381559; 584160, 2381560; 584150, 2381572; 584130, 2381584; 584129, 2381584; 584104, 2381586; 584065, 2381583; 584021, 2381575; 583992, 2381567; 583957, 2381557; 583934, 2381555; 583897, 2381549; return to starting point.

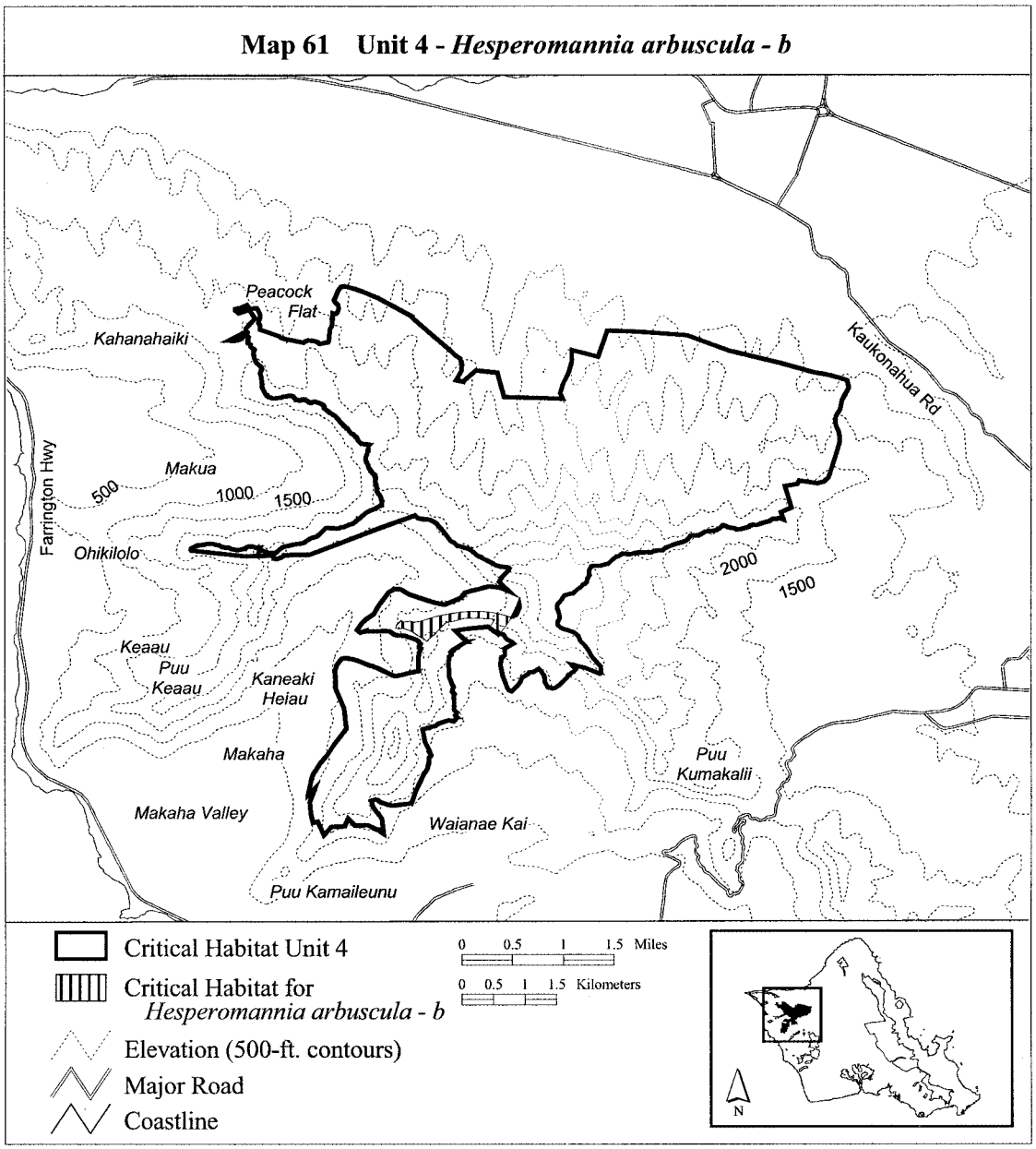
(ii) **Note:** Map 60 follows:



(61) Oahu 4—*Hesperomannia arbuscula*—b (31 ha; 78 ac)

(i) Unit consists of the following 35 boundary points: Start at 585893, 2377968; 586006, 2377974; 586069, 2377958; 586208, 2377978; 586416, 2378047; 586624, 2378090; 586810, 2378123; 586965, 2378130; 587150, 2378130; 587336, 2378110; 587498, 2378077; 587620, 2378030; 587622, 2378022; 587460, 2377788; 587277, 2377877; 587356, 2378000; 587078, 2378018; 586882, 2378021; 586704, 2377975; 586578, 2377945; 586471, 2377850; 586396, 2377759; 586327, 2377703; 586274, 2377650; 586237, 2377680; 586168, 2377720; 586098, 2377766; 586046, 2377796; 585966, 2377839; 585910, 2377855; 585847, 2377852; 585788, 2377855; 585778, 2377865; 585801, 2377911; 585864, 2377981; return to starting point.

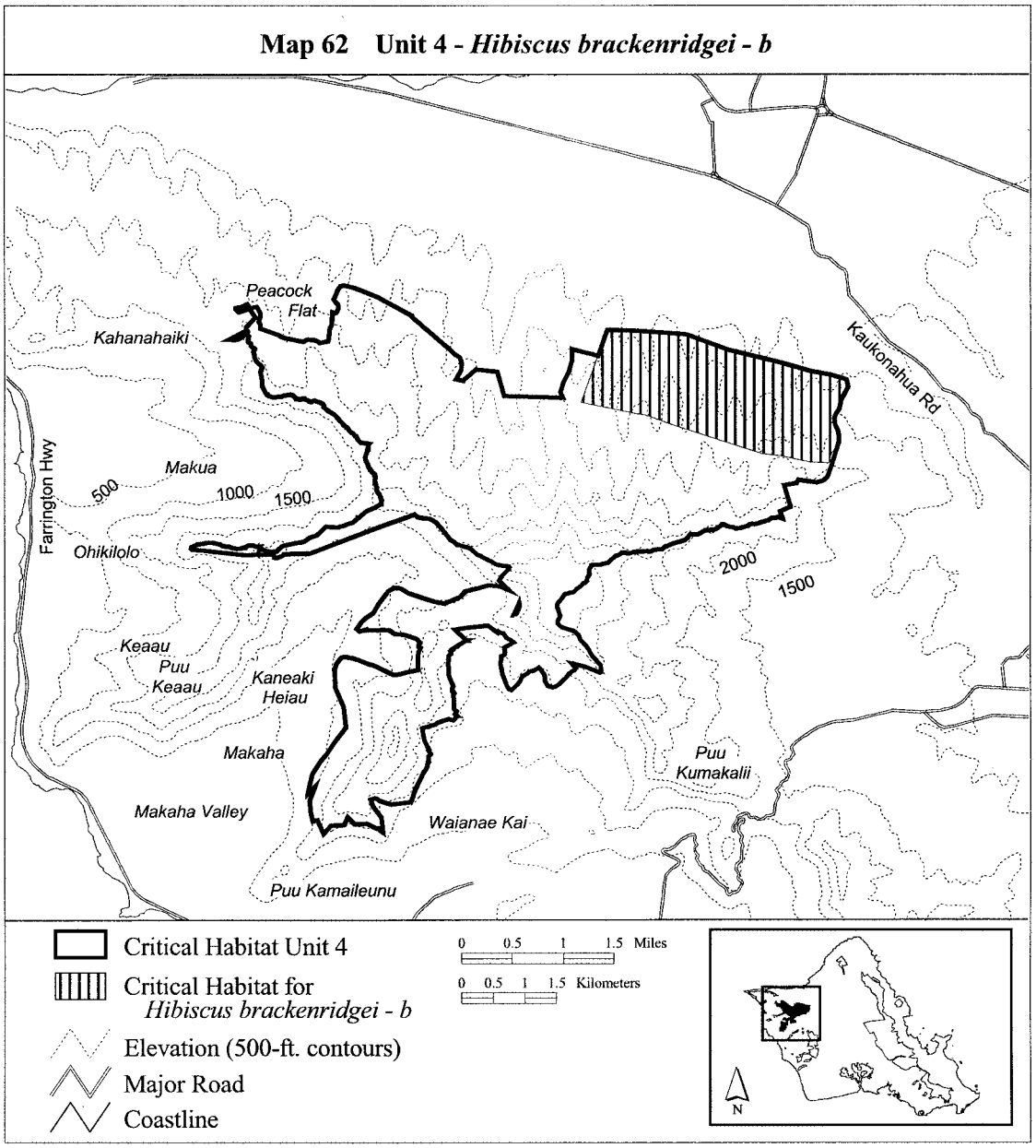
(ii) **Note:** Map 61 follows:



(62) Oahu 4—*Hibiscus brackenridgei*—b (560 ha; 1,385 ac)

(i) Unit consists of the following 35 boundary points: Start at 590390, 2382551; 591054, 2382306; 591908, 2382094; 592162, 2382021; 592395, 2381959; 592679, 2381908; 592850, 2381861; 592959, 2381825; 592985, 2381706; 592917, 2381592; 592871, 2381504; 592845, 2381364; 592788, 2381266; 592762, 2381188; 592757, 2381116; 592819, 2381017; 592840, 2380924; 592840, 2380826; 592793, 2380717; 592731, 2380650; 592695, 2380562; 592705, 2380520; 592679, 2380479; 592596, 2380489; 592389, 2380495; 592219, 2380531; 591908, 2380598; 591618, 2380639; 591380, 2380707; 590226, 2381090; 589766, 2381250; 589585, 2381276; 588725, 2381459; 589141, 2382625; 589622, 2382606; return to starting point.

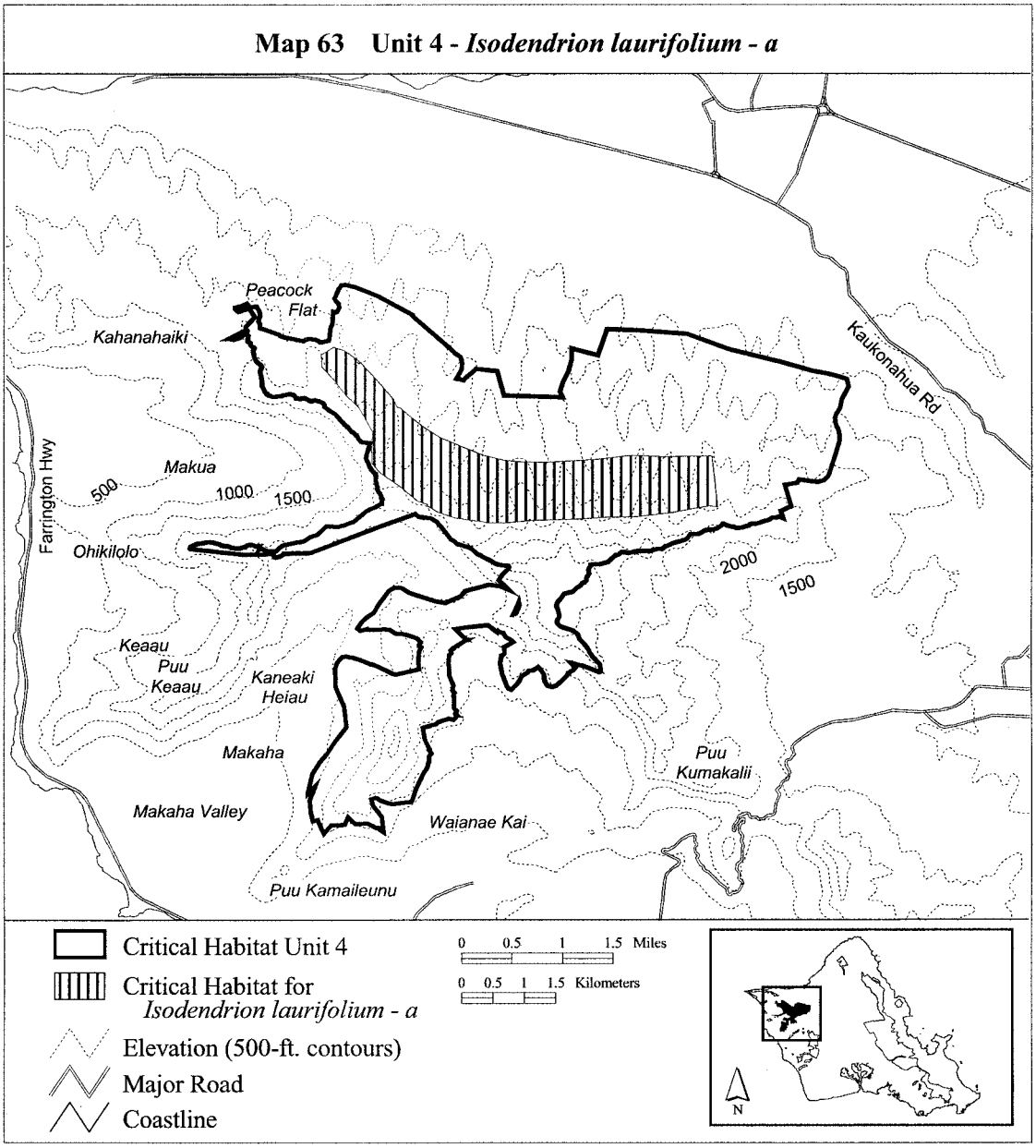
(ii) **Note:** Map 62 follows:



(63) Oahu 4—*Isodendrion laurifolium*—a (617 ha; 1,524 ac)

(i) Unit consists of the following 54 boundary points: Start at 586829, 2380741; 587186, 2380602; 587492, 2380524; 587782, 2380496; 588189, 2380491; 588963, 2380535; 589515, 2380602; 590027, 2380585; 590807, 2380591; 590891, 2379772; 590779, 2379788; 590445, 2379738; 590172, 2379677; 589854, 2379644; 589620, 2379616; 589408, 2379605; 589163, 2379610; 588728, 2379577; 588300, 2379566; 587959, 2379554; 587541, 2379515; 587268, 2379521; 586934, 2379566; 586716, 2379599; 586449, 2379694; 586276, 2379794; 586280, 2379814; 586137, 2379866; 585947, 2380006; 585830, 2380112; 585708, 2380201; 585546, 2380307; 585396, 2380474; 585385, 2380708; 585402, 2380981; 585302, 2381154; 585179, 2381382; 584973, 2381583; 584795, 2381811; 584594, 2382029; 584589, 2382213; 584789, 2382330; 584962, 2382280; 585073, 2382201; 585179, 2382129; 585307, 2381990; 585469, 2381817; 585625, 2381639; 585731, 2381505; 585798, 2381382; 585848, 2381366; 585965, 2381260; 586249, 2381037; 586489, 2380892; return to starting point.

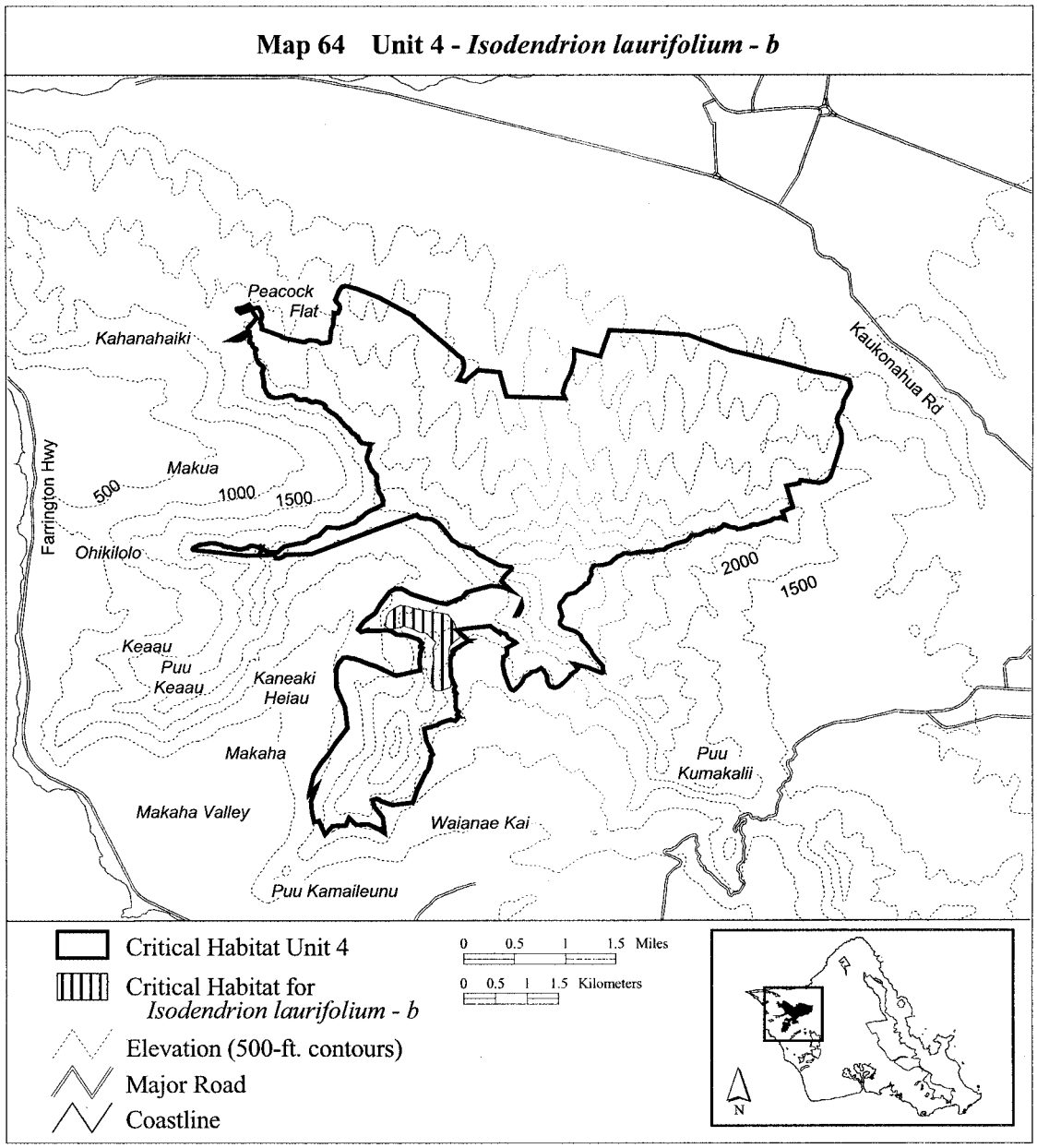
(ii) **Note:** Map 63 follows:



(64) Oahu 4—*Isodendrion laurifolium*—b (62 ha; 154 ac)

(i) Unit consists of the following 43 boundary points: Start at 586591, 2378074; 586586, 2378057; 586673, 2377968; 586668, 2377967; 586669, 2377967; 586771, 2377694; 586772, 2377693; 586771, 2377693; 586772, 2377690; 586750, 2377686; 586684, 2377637; 586618, 2377556; 586598, 2377498; 586591, 2377359; 586626, 2377192; 586622, 2377072; 586637, 2376972; 586637, 2376914; 586571, 2376879; 586479, 2376848; 586401, 2376848; 586331, 2376898; 586316, 2377018; 586328, 2377169; 586355, 2377339; 586339, 2377529; 586399, 2377621; 586326, 2377693; 586326, 2377694; 586235, 2377769; 586138, 2377784; 586014, 2377846; 585875, 2377885; 585782, 2377854; 585662, 2377827; 585573, 2377904; 585597, 2377935; 585612, 2378036; 585658, 2378121; 585743, 2378171; 585836, 2378217; 585948, 2378198; 586088, 2378152; return to starting point.

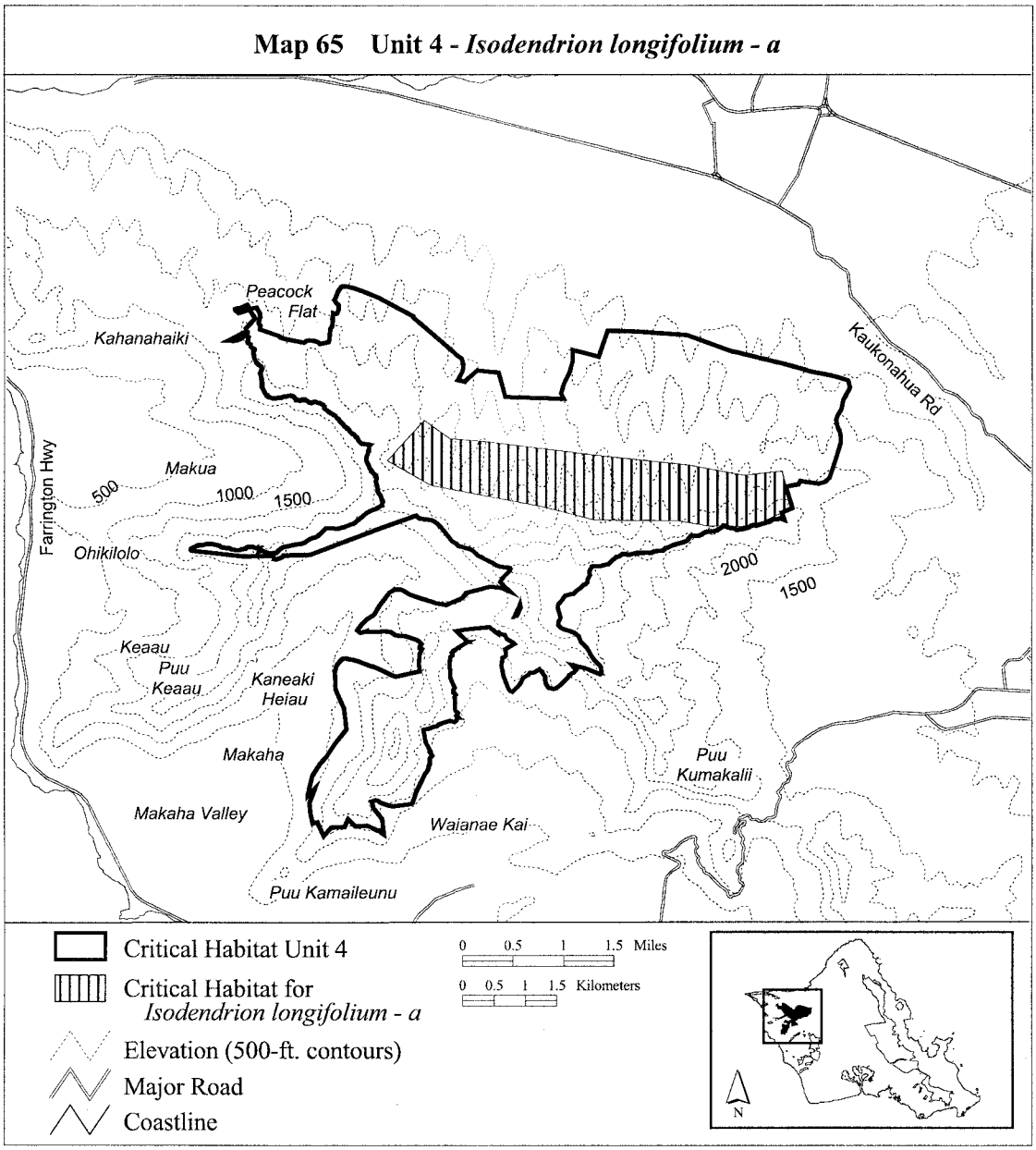
(ii) **Note:** Map 64 follows:



(65) Oahu 4—*Isodendrion longifolium*—a (552 ha; 1,363 ac)

(i) Unit consists of the following 18 boundary points: Start at 585636, 2380541; 586214, 2381188; 586627, 2380899; 587191, 2380857; 589008, 2380623; 590425, 2380472; 591292, 2380307; 591898, 2380376; 592063, 2379784; 591609, 2379563; 591251, 2379481; 590987, 2379504; 590755, 2379495; 590246, 2379577; 588938, 2379591; 588086, 2379811; 586764, 2380059; 586323, 2380142; return to starting point.

(ii) **Note:** Map 65 follows:

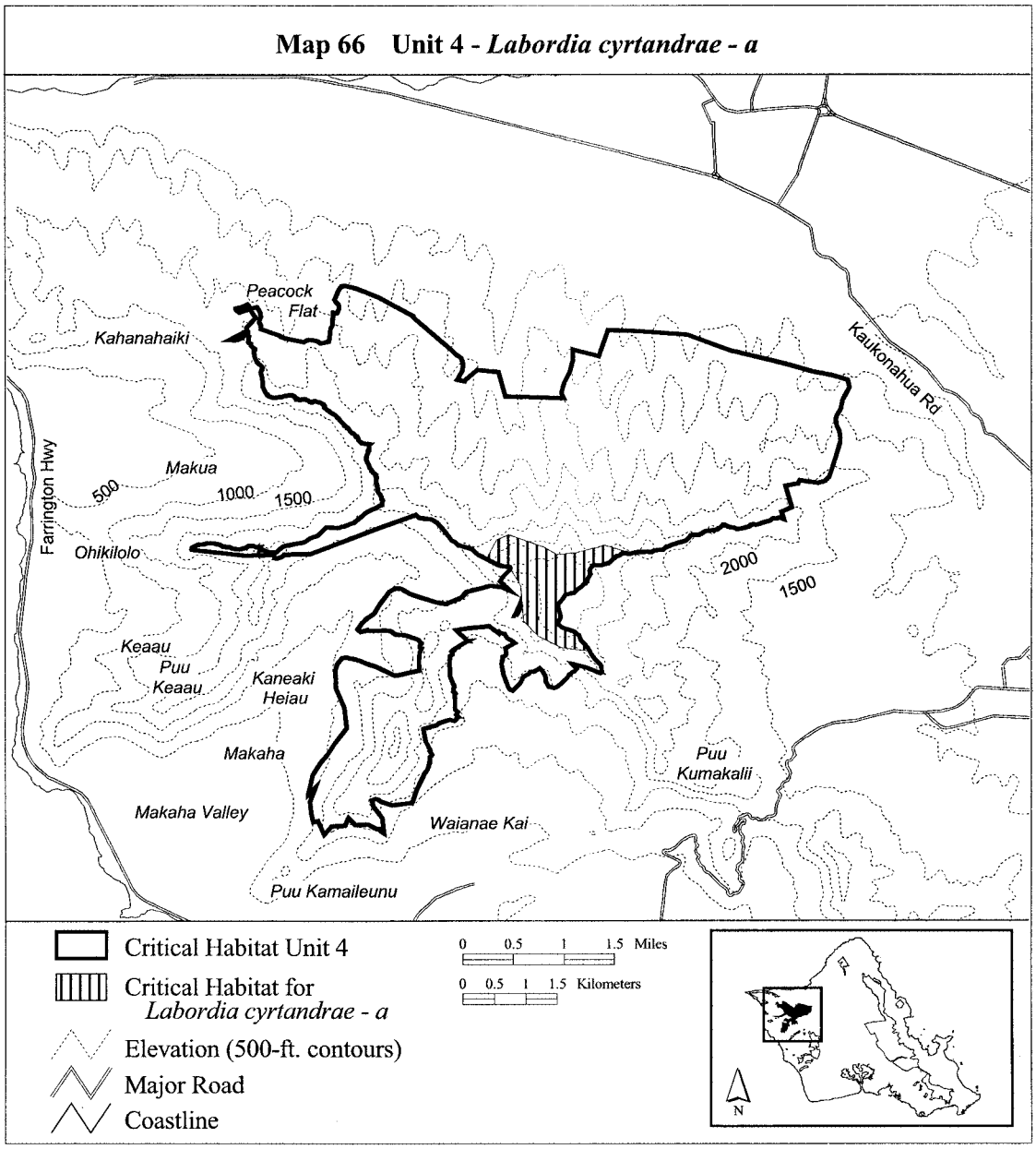


(66) Oahu 4—*Labordia cyrtandrae*—a (161 ha; 397 ac)

(i) Area consists of the following 114 boundary points: Start at 588702, 2378502; 588659, 2378471; 588616, 2378430; 588583, 2378413; 588562, 2378406; 588530, 2378399; 588483, 2378388; 588466, 2378385; 588465, 2378385; 588458, 2378380; 588394, 2378294; 588360, 2378255; 588348, 2378235; 588348, 2378234; 588343, 2378210; 588343, 2378187; 588343, 2378186; 588348, 2378161; 588348, 2378160; 588372, 2378097; 588383, 2378041; 588383, 2378026; 588379, 2378003; 588362, 2377972; 588350, 2377942; 588350, 2377941; 588352, 2377924; 588352, 2377923; 588360, 2377904; 588361, 2377903; 588368, 2377893; 588406, 2377863; 588407, 2377863; 588443, 2377848; 588444, 2377848; 588503, 2377826; 588587, 2377797; 588594, 2377793; 588594, 2377792; 588605, 2377788; 588624, 2377778; 588662, 2377749; 588673, 2377733; 588684, 2377709; 588691, 2377689; 588691, 2377688; 588708, 2377657; 588735, 2377626; 588736, 2377625; 588762, 2377601; 588787, 2377570; 588816, 2377534; 588841, 2377494; 588810, 2377480; 588752, 2377488; 588394, 2377535; 588024, 2377726; 587797, 2377965; 587750, 2378526; 587571, 2378836; 587213, 2378967; 587368, 2379265; 587559, 2379349; 588119, 2379146; 588322, 2379027; 588621, 2379051; 589098, 2379170; 589451, 2379064; 589446, 2379060; 589427, 2379046; 589424, 2379047; 589391, 2379048; 589370, 2379041; 589369, 2379041; 589348, 2379025; 589324, 2379009; 589303, 2379003; 589286, 2379001; 589285, 2379001; 589276, 2378998; 589275, 2378998; 589245, 2378974; 589217, 2378943; 589164, 2378898; 589149, 2378886; 589123, 2378879; 589060, 2378862; 589009, 2378857; 588910, 2378852; 588910, 2378851; 588899, 2378848; 588898, 2378848; 588887, 2378841; 588887, 2378840; 588862, 2378802; 588851, 2378772; 588851, 2378763; 588851, 2378746; 588855, 2378710; 588838, 2378677; 588825, 2378656; 588815, 2378615; 588815, 2378614; 588814, 2378597; 588767, 2378640; 588765, 2378640; 588695,

2378577; 588695, 2378576; 588694, 2378576; 588675, 2378552; 588667, 2378540; 588667, 2378538; 588686, 2378515; 588686, 2378514; return to starting point.

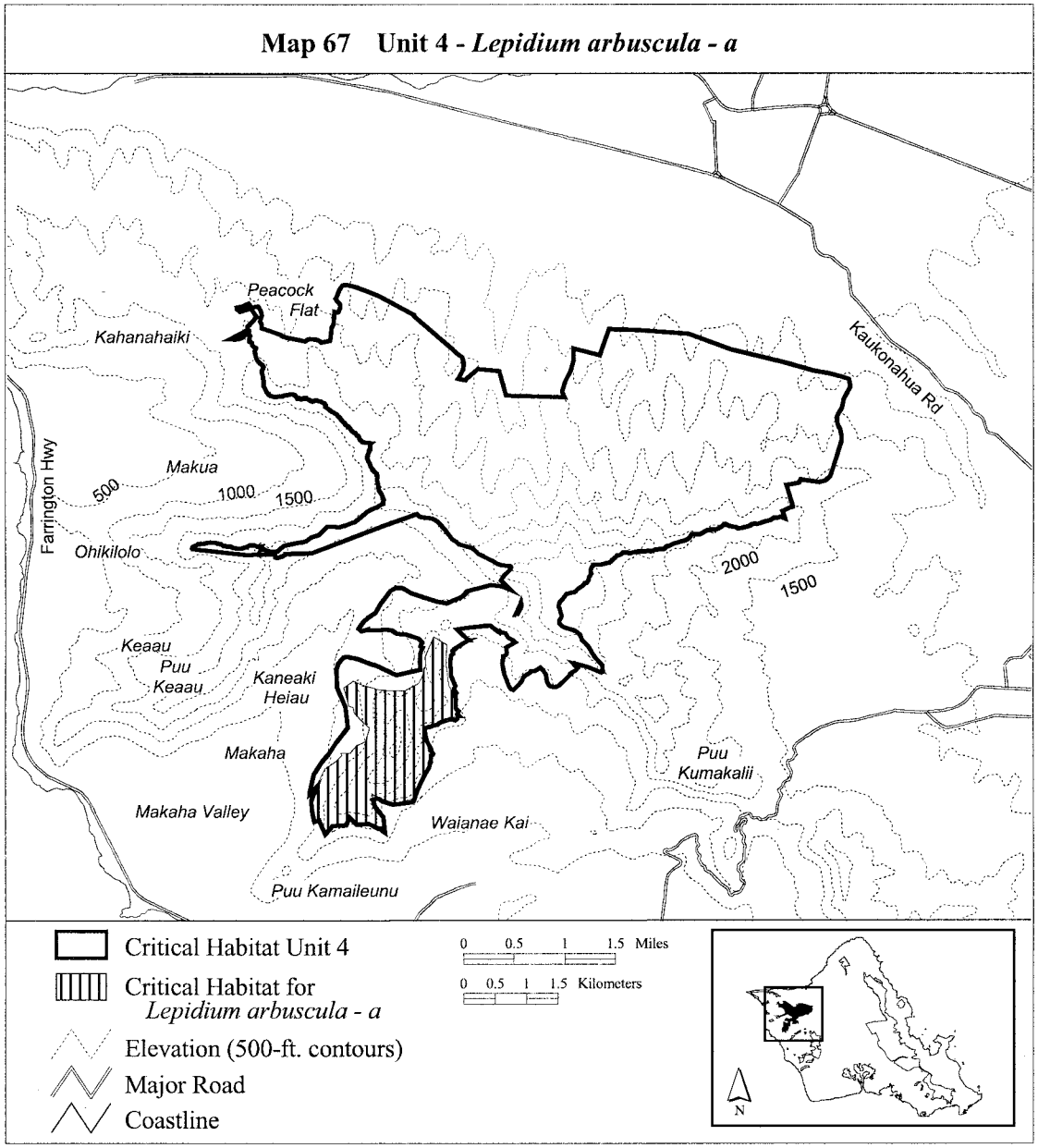
(ii) **Note:** Map 66 follows:



(67) Oahu 4—*Lepidium arbuscula*—a (329 ha; 813 ac)

(i) Unit consists of the following 59 boundary points: Start at 586225, 2377240; 586216, 2377374; 586354, 2377705; 586562, 2377571; 586551, 2377255; 586596, 2376916; 586697, 2376755; 586711, 2376435; 586714, 2376433; 586693, 2376424; 586634, 2376388; 586634, 2376389; 586454, 2376338; 586201, 2376249; 586302, 2375690; 586018, 2375108; 585683, 2375026; 585530, 2375075; 585368, 2375194; 585411, 2374997; 585551, 2374818; 585578, 2374579; 585526, 2374607; 585510, 2374636; 585509, 2374637; 585467, 2374638; 585325, 2374713; 585128, 2374699; 585020, 2374810; 584964, 2374691; 584752, 2374684; 584633, 2374546; 584531, 2374770; 584459, 2374749; 584427, 2374883; 584408, 2375073; 584493, 2375310; 584635, 2375594; 584777, 2375689; 584901, 2375803; 584881, 2375836; 585037, 2375840; 585035, 2375843; 585138, 2375964; 585193, 2375992; 585198, 2375992; 585198, 2375994; 585270, 2376030; 585337, 2376239; 585100, 2376476; 585072, 2376573; 585003, 2376595; 584927, 2376885; 585083, 2376990; 585195, 2376934; 585508, 2376845; 585899, 2376841; 586115, 2376952; 586157, 2377037; return to starting point.

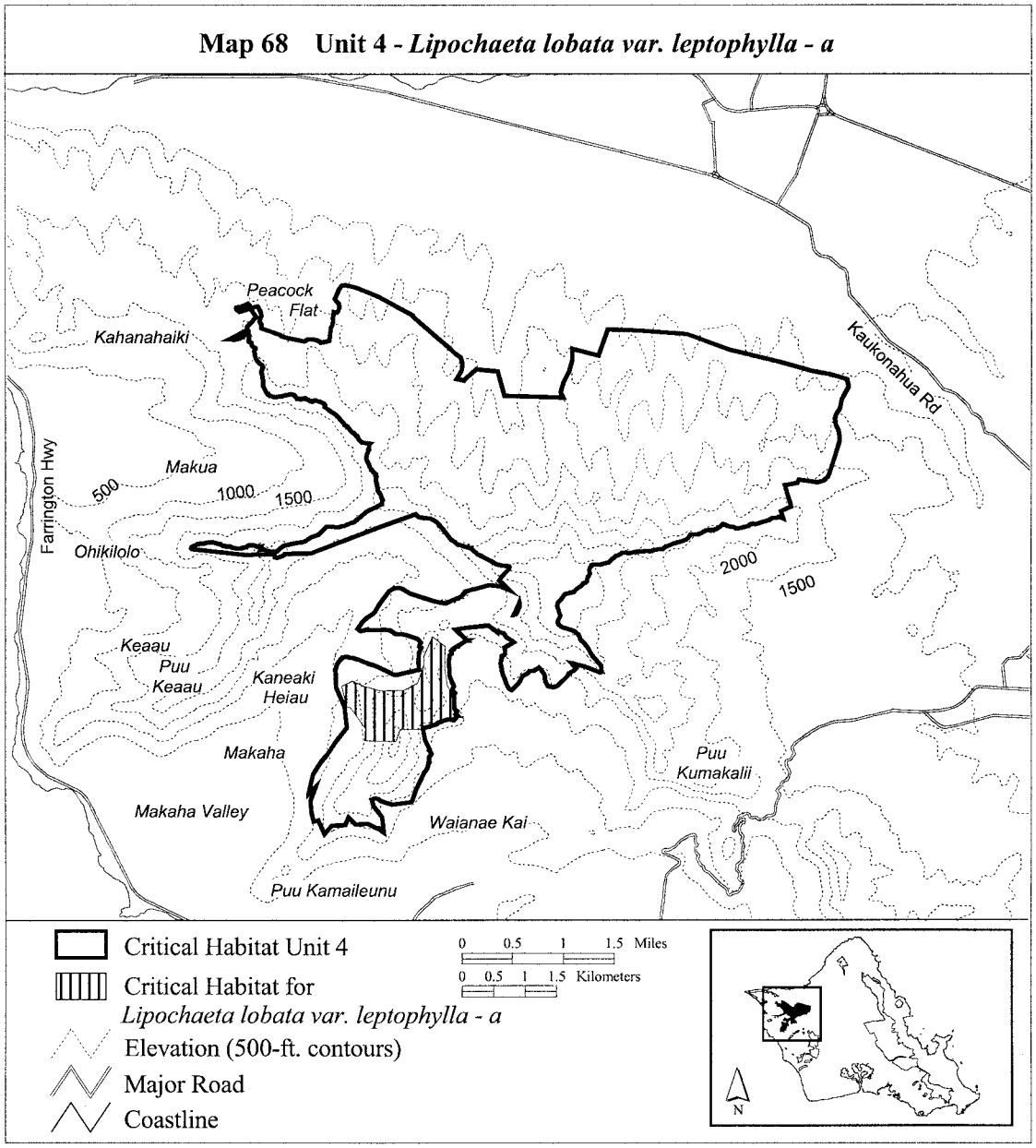
(ii) **Note:** Map 67 follows:



(68) Oahu 4—*Lipochaeta lobata* var. *leptophylla*—a (139 ha; 344 ac)

(i) Unit consists of the following 23 boundary points: Start at 586225, 2377399; 586356, 2377699; 586563, 2377545; 586548, 2377345; 586548, 2377199; 586594, 2376915; 586702, 2376738; 586702, 2376422; 586187, 2376230; 585840, 2376222; 585779, 2376030; 585271, 2376038; 585289, 2376232; 585094, 2376499; 585056, 2376568; 584986, 2376584; 584909, 2376907; 585079, 2376992; 585240, 2376922; 585525, 2376838; 585910, 2376845; 586117, 2376953; 586225, 2377253; return to starting point.

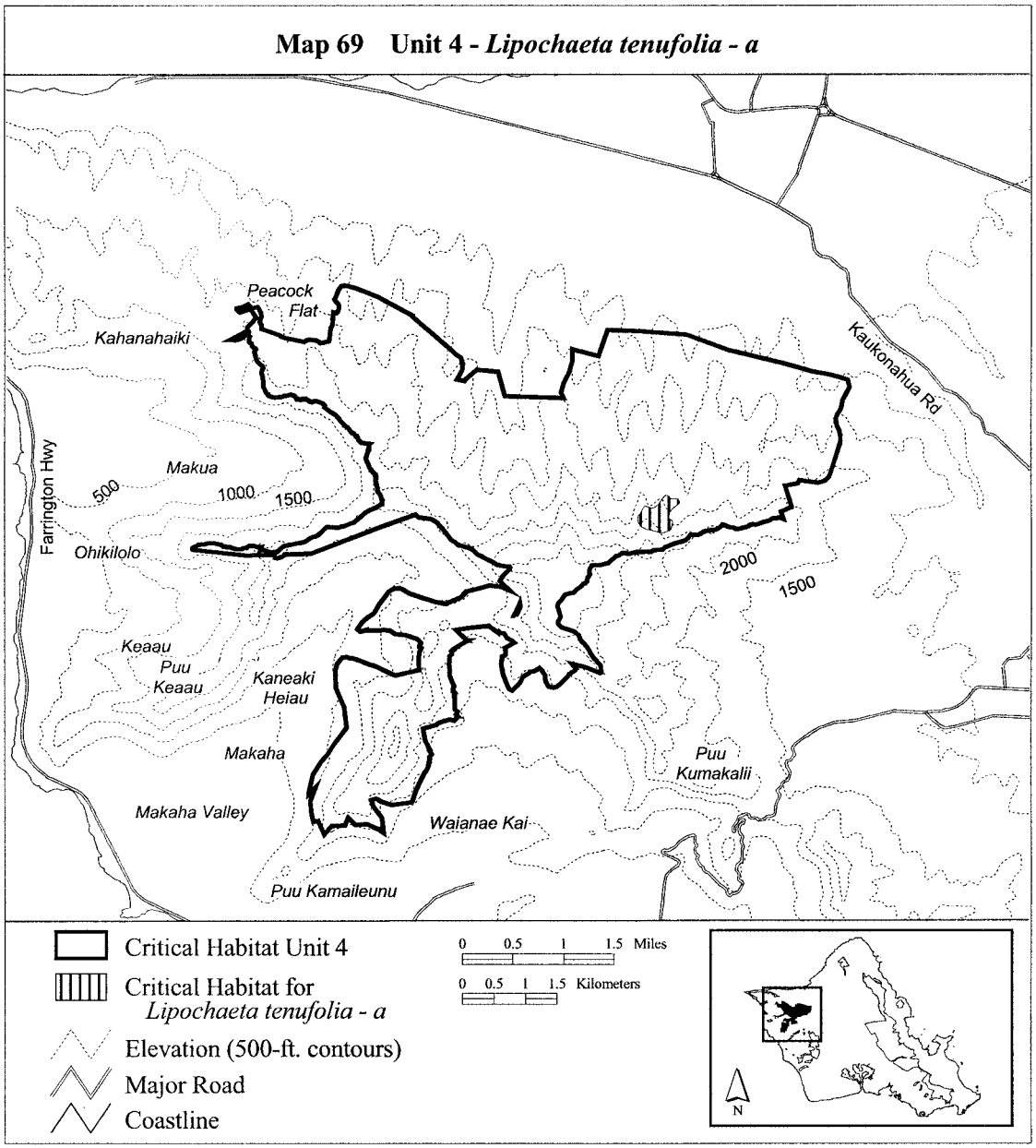
(ii) **Note:** Map 68 follows:



(69) Oahu 4—*Lipochaeta tenuifolia*—a (23 ha; 57 ac)

(i) Unit consists of the following 32 boundary points: Start at 590120, 2379962; 590149, 2379920; 590199, 2379920; 590266, 2379920; 590282, 2379874; 590282, 2379849; 590241, 2379812; 590179, 2379750; 590133, 2379692; 590125, 2379629; 590125, 2379596; 590174, 2379559; 590179, 2379513; 590145, 2379422; 590120, 2379401; 589996, 2379359; 589929, 2379388; 589850, 2379413; 589755, 2379426; 589713, 2379451; 589684, 2379463; 589643, 2379521; 589622, 2379584; 589630, 2379633; 589676, 2379700; 589705, 2379750; 589738, 2379795; 589825, 2379775; 589879, 2379762; 589958, 2379829; 590004, 2379899; 590071, 2379974; return to starting point.

(ii) **Note:** Map 69 follows:

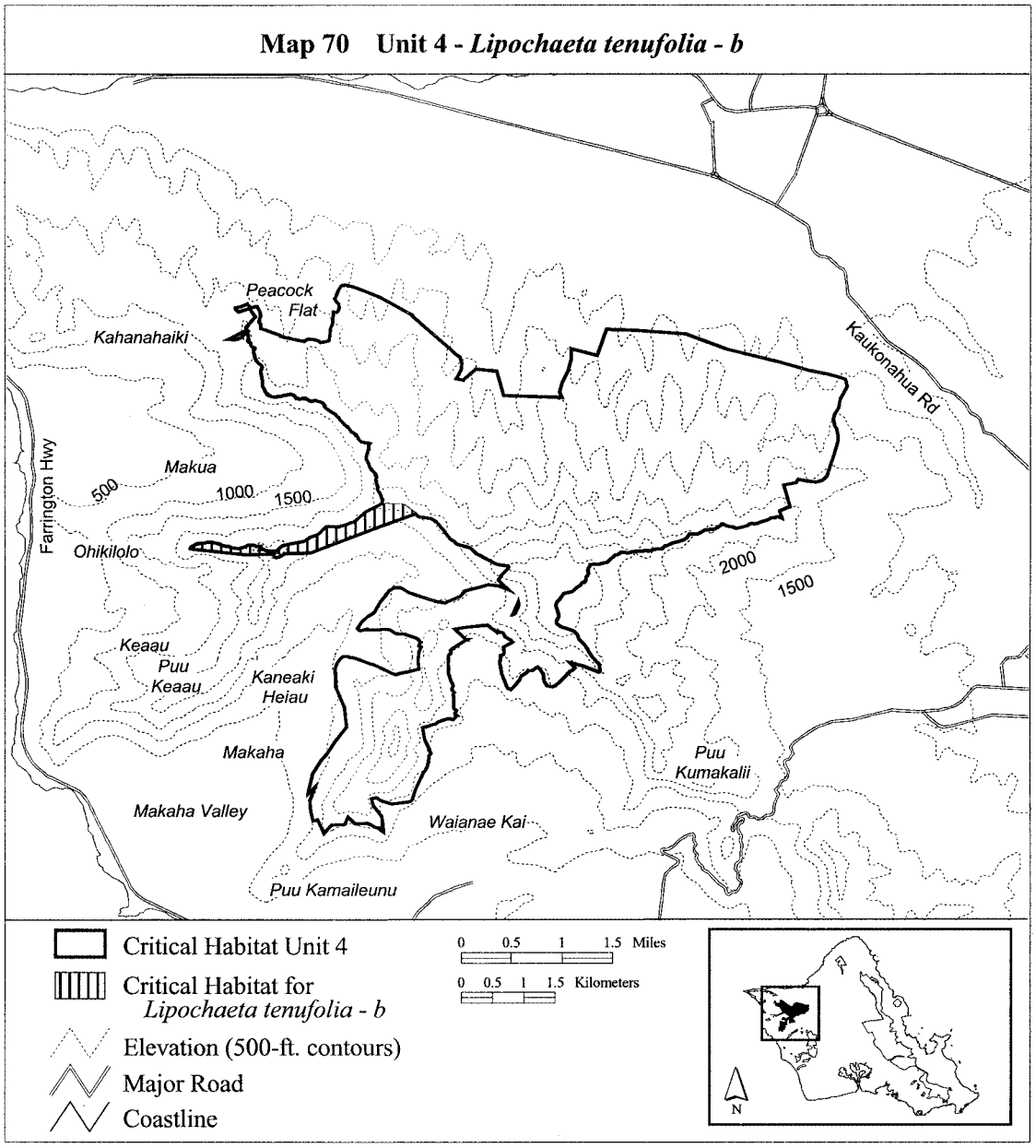


(70) Oahu 4—*Lipochaeta tenuifolia*—b (67 ha; 166 ac)

(i) Unit consists of the following 109 boundary points: Start at 585469, 2379778; 585483, 2379787; 585584, 2379839; 585909, 2379825; 586116, 2379671; 585534, 2379466; 584413, 2379036; 583371, 2379010; 582537, 2379101; 582523, 2379101; 582515, 2379109; 582526, 2379139; 582546, 2379144; 582547, 2379144; 582564, 2379150; 582564, 2379151; 582581, 2379157; 582597, 2379168; 582617, 2379177; 582636, 2379181; 582645, 2379183; 582656, 2379186; 582691, 2379191; 582710, 2379193; 582711, 2379193; 582744, 2379201; 582784, 2379205; 582809, 2379208; 582836, 2379208; 582861, 2379206; 582900, 2379202; 582936, 2379193; 582962, 2379185; 582982, 2379177; 583001, 2379166; 583017, 2379157; 583018, 2379156; 583040, 2379150; 583041, 2379150; 583062, 2379147; 583082, 2379147; 583108, 2379146; 583127, 2379141; 583141, 2379136; 583154, 2379131; 583179, 2379122; 583180, 2379122; 583211, 2379117; 583238, 2379112; 583261, 2379110; 583287, 2379111; 583322, 2379118; 583349, 2379124; 583371, 2379128; 583383, 2379131; 583383, 2379132; 583400, 2379142; 583418, 2379154; 583435, 2379162; 583448, 2379164; 583469, 2379167; 583485, 2379166; 583506, 2379162; 583534, 2379155; 583557, 2379148; 583558, 2379148; 583595, 2379145; 583614, 2379141; 583615, 2379141; 583629, 2379145; 583616, 2379115; 583606, 2379089; 583606, 2379088; 583606, 2379087; 583607, 2379087; 583608, 2379087; 583666, 2379100; 583695, 2379080; 583725, 2379070; 583726, 2379070; 583796, 2379060; 583876, 2379060; 583877, 2379060; 583877, 2379061; 583947, 2379131; 583977, 2379150; 584086, 2379180; 584226, 2379210; 584256, 2379210; 584326, 2379230; 584327, 2379230; 584417, 2379290; 584526, 2379330; 584527, 2379330; 584557, 2379350; 584657, 2379450; 584667, 2379460; 584836, 2379450; 584866, 2379450; 584867, 2379450; 584906, 2379470; 584936, 2379470; 584937, 2379470; 585107, 2379540; 585217, 2379630; 585297, 2379700; 585357,

2379740; 585456, 2379770; 585457, 2379770; return to starting point.

(ii) **Note:** Map 70 follows:

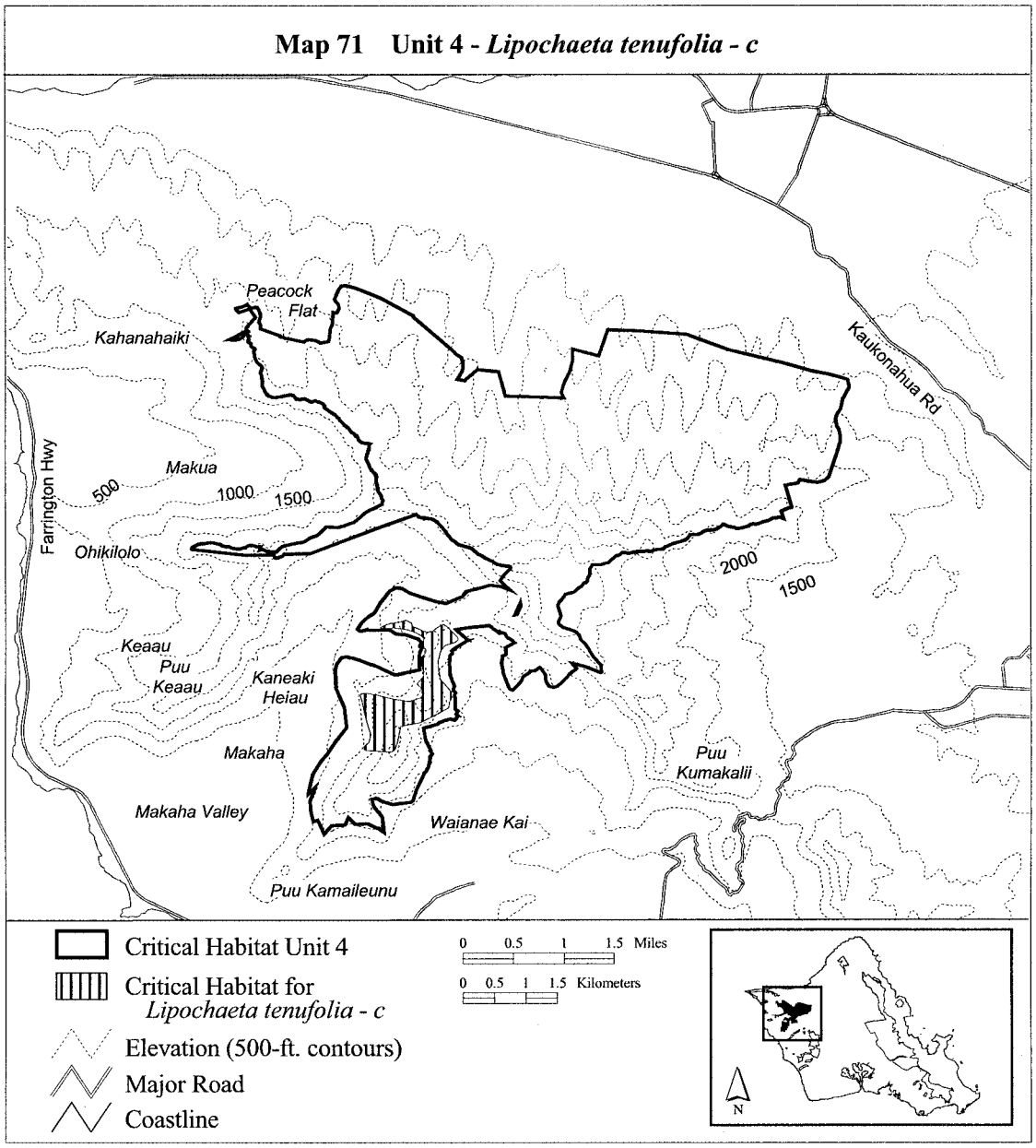


(71) Oahu 4—*Lipochaeta tenuifolia*—c (118 ha; 293 ac)

(i) Unit consists of the following 91 boundary points: Start at 585520, 2377857; 585626, 2377904; 585688, 2377923; 585760, 2377926; 585878, 2377957; 585925, 2377973; 586009, 2377932; 586030, 2377867; 586114, 2377836; 586202, 2377789; 586279, 2377773; 586351, 2377792; 586410, 2377839; 586460, 2377873; 586522, 2377898; 586575, 2377867; 586644, 2377801; 586737, 2377721; 586762, 2377661; 586737, 2377624; 586665, 2377602; 586553, 2377565; 586476, 2377468; 586435, 2377310; 586441, 2377163; 586469, 2377017; 586544, 2376942; 586641, 2376824; 586647, 2376715; 586616, 2376637; 586603, 2376569; 586376, 2376435; 586155, 2376332; 585946, 2376292; 585844, 2376264; 585816, 2376133; 585785, 2375981; 585788, 2375981; 585782, 2375967; 585781, 2375962; 585753, 2375890; 585710, 2375865; 585579, 2375868; 585448, 2375875; 585321, 2375881; 585274, 2375890; 585259, 2375909; 585262, 2375946; 585290, 2375968; 585343, 2376012; 585364, 2376096; 585364, 2376155; 585376, 2376121; 585336, 2376248; 585274, 2376485; 585237, 2376665; 585206, 2376756; 585218, 2376793; 585287, 2376799; 585448, 2376777; 585710, 2376712; 585981, 2376665; 586058, 2376690; 586171, 2376724; 586183, 2376768; 586177, 2376843; 586161, 2376896; 586105, 2376945; 586127, 2376973; 586167, 2377020; 586208, 2377064; 586205, 2377148; 586177, 2377241; 586143, 2377266; 586130, 2377310; 586139, 2377350; 586211, 2377406; 586239, 2377447; 586230, 2377509; 586205, 2377518; 586143, 2377543; 586143, 2377559; 586164,

2377593; 586205, 2377640; 586205, 2377689; 586161, 2377730; 586099, 2377767; 585974, 2377811; 585862, 2377829; 585747, 2377842; 585539, 2377833; return to starting point.

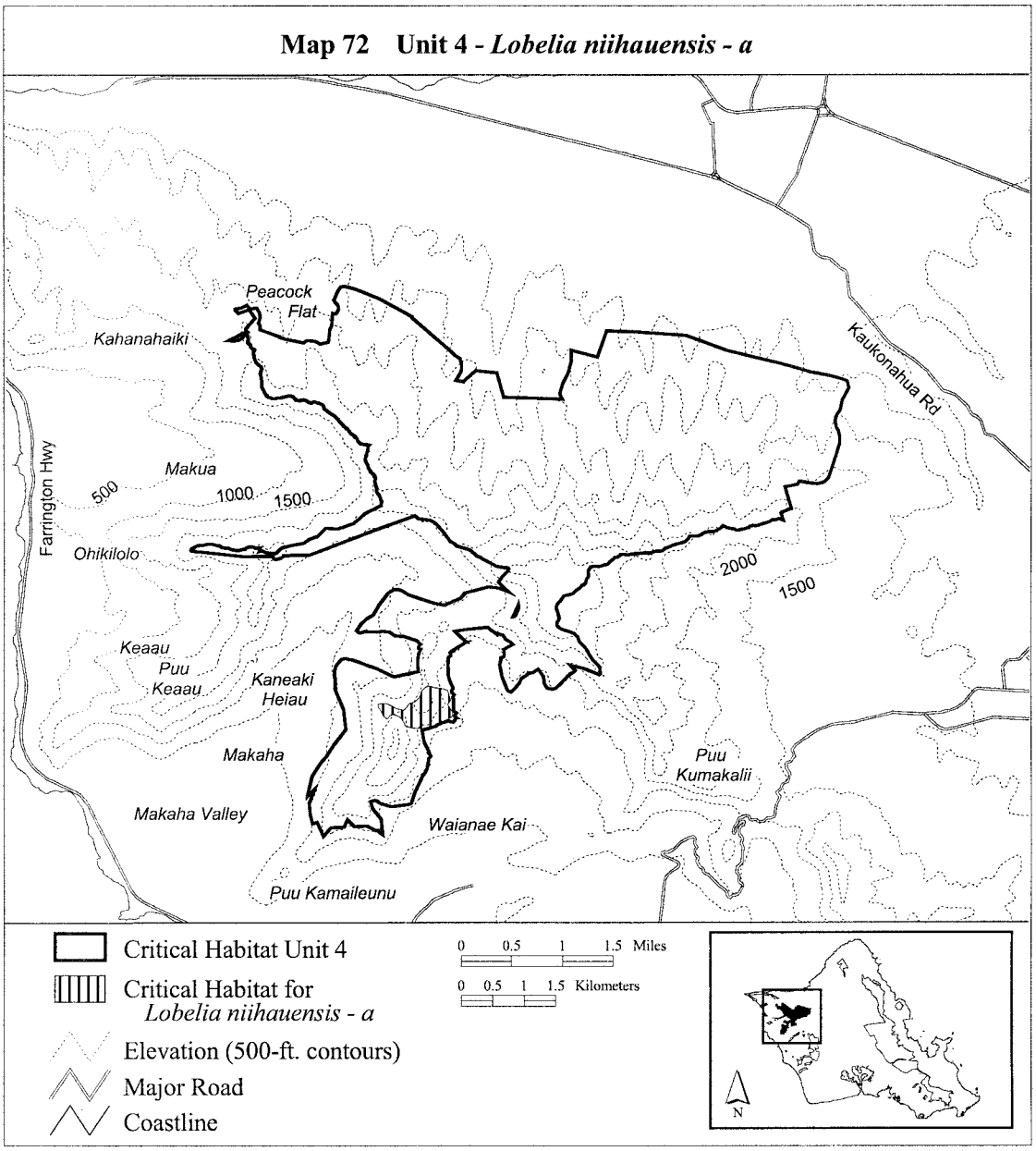
(ii) **Note:** Map 71 follows:



(72) Oahu 4—*Lobelia niihauensis*—a (44 ha; 108 ac)

(i) Unit consists of the following 40 boundary points: Start at 585508, 2376654; 585626, 2376661; 585701, 2376636; 585802, 2376586; 585905, 2376557; 585934, 2376575; 586016, 2376675; 586091, 2376696; 586156, 2376757; 586174, 2376804; 586199, 2376865; 586267, 2376926; 586295, 2376943; 586353, 2376936; 586399, 2376922; 586510, 2376911; 586618, 2376875; 586657, 2376714; 586618, 2376646; 586678, 2376550; 586696, 2376475; 586653, 2376432; 586542, 2376385; 586453, 2376339; 586328, 2376278; 586220, 2376267; 586045, 2376278; 585934, 2376313; 585912, 2376367; 585873, 2376432; 585823, 2376467; 585748, 2376492; 585701, 2376475; 585683, 2376449; 585655, 2376407; 585637, 2376424; 585587, 2376464; 585565, 2376528; 585522, 2376586; 585501, 2376621; return to starting point.

(ii) **Note:** Map 72 follows:



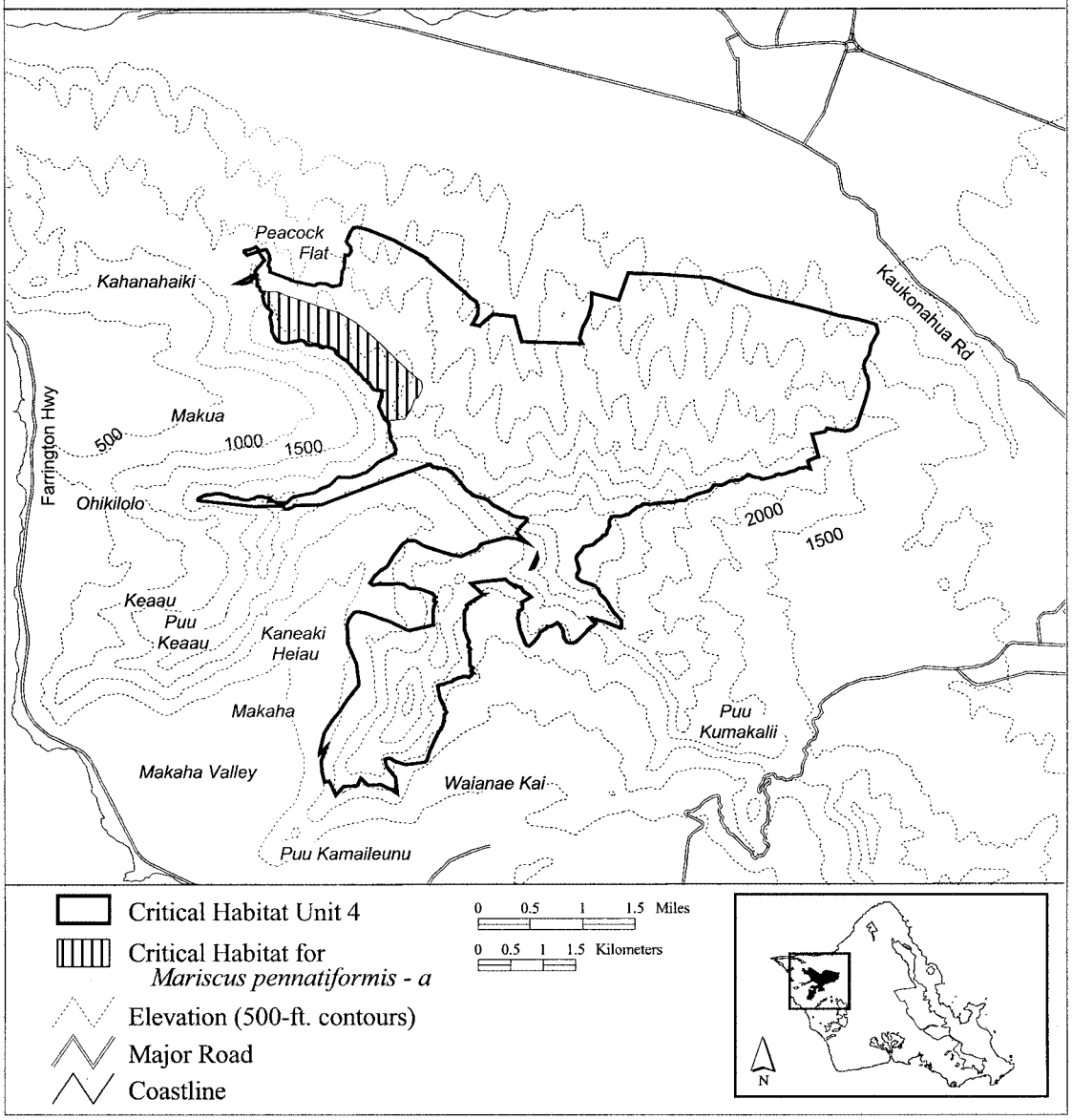
(73) Oahu 4—*Mariscus pennatiformis*—a (166 ha; 410 ac)

(i) Unit consists of the following 182 boundary points: Start at 583501, 2382343; 583539, 2382348; 583749, 2382330; 583883, 2382277; 584242, 2382158; 584464, 2382083; 584692, 2382012; 584946, 2381862; 585122, 2381716; 585294, 2381563; 585526, 2381335; 585687, 2381185; 585796, 2381069; 585949, 2380950; 585968, 2380878; 585960, 2380800; 585915, 2380703; 585855, 2380673; 585822, 2380590; 585781, 2380471; 585705, 2380366; 585604, 2380355; 585529, 2380347; 585405, 2380347; 585393, 2380361; 585375, 2380388; 585364, 2380407; 585353, 2380428; 585342, 2380452; 585330, 2380478; 585322, 2380497; 585318, 2380512; 585308, 2380533; 585299, 2380553; 585297, 2380570; 585300, 2380580; 585303, 2380592; 585309, 2380613; 585315, 2380636; 585327, 2380677; 585338, 2380712; 585339, 2380712; 585344, 2380738; 585346, 2380754; 585345, 2380767; 585345, 2380779; 585348, 2380789; 585348, 2380790; 585344, 2380798; 585344, 2380799; 585338, 2380802; 585329, 2380804; 585328, 2380804; 585308, 2380806; 585279, 2380811; 585245, 2380818; 585228, 2380821; 585208, 2380833; 585194, 2380847; 585183, 2380863; 585183, 2380864; 585167, 2380888; 585157, 2380904; 585138, 2380929; 585119, 2380952; 585119, 2380953; 585107, 2380962; 585106, 2380963; 585094, 2380968; 585078, 2380975; 585067, 2380980; 585061, 2380987; 585053, 2381000; 585039, 2381021; 585027, 2381040; 585011, 2381059; 584993, 2381074; 584993, 2381075; 584973, 2381090; 584954, 2381104; 584939, 2381117; 584923, 2381137; 584905, 2381157; 584891, 2381175; 584867, 2381205; 584852, 2381221; 584844, 2381230; 584843, 2381230; 584813, 2381261; 584796, 2381273; 584778, 2381284; 584774, 2381287; 584751, 2381303; 584728, 2381318; 584708, 2381329; 584690, 2381345; 584690, 2381346; 584676, 2381356; 584656, 2381369; 584654, 2381370; 584643, 2381382; 584639, 2381394; 584636, 2381408; 584633, 2381420; 584628, 2381430; 584618, 2381442; 584617,

2381442; 584601, 2381452; 584581, 2381462; 584562, 2381467; 584539, 2381475; 584519, 2381483; 584494, 2381489; 584485, 2381487; 584388, 2381533; 584179, 2381574; 584145, 2381575; 584130, 2381584; 584129, 2381584; 584104, 2381586; 584065, 2381583; 584038, 2381578; 584037, 2381578; 583831, 2381548; 583790, 2381574; 583729, 2381589; 583709, 2381612; 583707, 2381614; 583694, 2381639; 583685, 2381655; 583672, 2381685; 583659, 2381711; 583652, 2381731; 583651, 2381742; 583651, 2381757; 583651, 2381773; 583651, 2381789; 583651, 2381805; 583651, 2381806; 583649, 2381820; 583644, 2381847; 583642, 2381874; 583639, 2381896; 583638, 2381897; 583634, 2381907; 583631, 2381919; 583629, 2381934; 583630, 2381951; 583633, 2381969; 583638, 2381979; 583645, 2381993; 583645, 2381994; 583649, 2382013; 583649, 2382018; 583648, 2382029; 583647, 2382030; 583641, 2382045; 583640, 2382175; 583626, 2382059; 583610, 2382073; 583590, 2382091; 583570, 2382107; 583561, 2382120; 583552, 2382135; 583546, 2382153; 583536, 2382180; 583529, 2382214; 583523, 2382238; 583523, 2382239; 583518, 2382254; 583517, 2382264; 583517, 2382276; 583518, 2382287; 583521, 2382299; 583528, 2382305; 583535, 2382312; 583535, 2382313; 583535, 2382319; 583531, 2382326; 583523, 2382334; 583522, 2382334; 583511, 2382337; return to starting point.

(ii) **Note:** Map 73 follows:

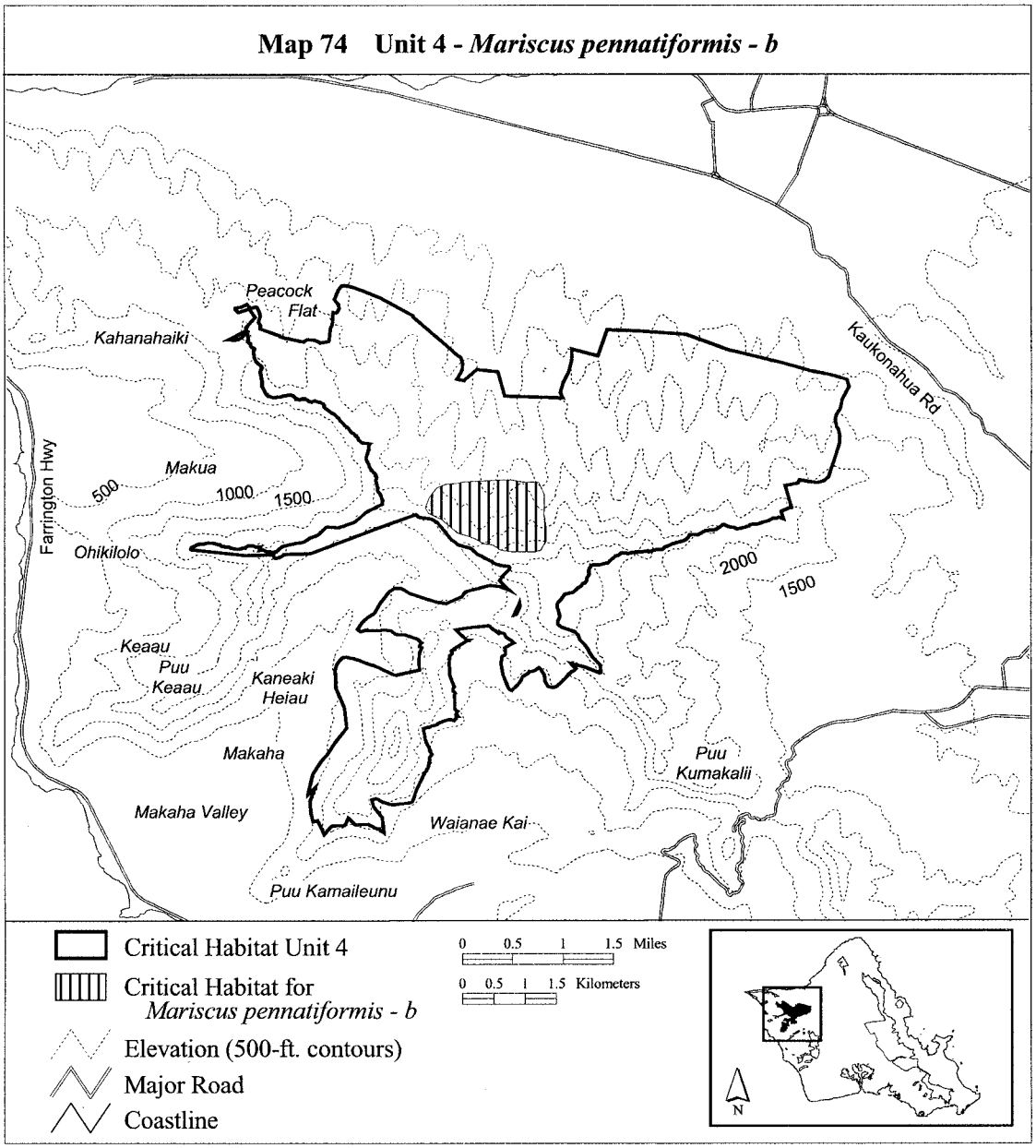
Map 73 Unit 4 - *Mariscus pennatiformis - a*



(74) Oahu 4—*Mariscus pennatiformis*—b (170 ha; 421 ac)

(i) Unit consists of the following 35 boundary points: Start at 588047, 2380182; 588144, 2379979; 588144, 2379793; 588131, 2379665; 588157, 2379510; 588165, 2379390; 588165, 2379280; 588165, 2379231; 588134, 2379169; 588090, 2379090; 587997, 2379063; 587874, 2379063; 587732, 2379068; 587617, 2379059; 587436, 2379094; 587325, 2379169; 587179, 2379192; 587029, 2379276; 586874, 2379329; 586799, 2379342; 586764, 2379364; 586653, 2379452; 586503, 2379581; 586286, 2379678; 586242, 2379771; 586308, 2379948; 586428, 2380089; 586557, 2380147; 586721, 2380160; 586889, 2380186; 587127, 2380200; 587295, 2380208; 587508, 2380222; 587614, 2380222; 587817, 2380178; return to starting point.

(ii) **Note:** Map 74 follows:

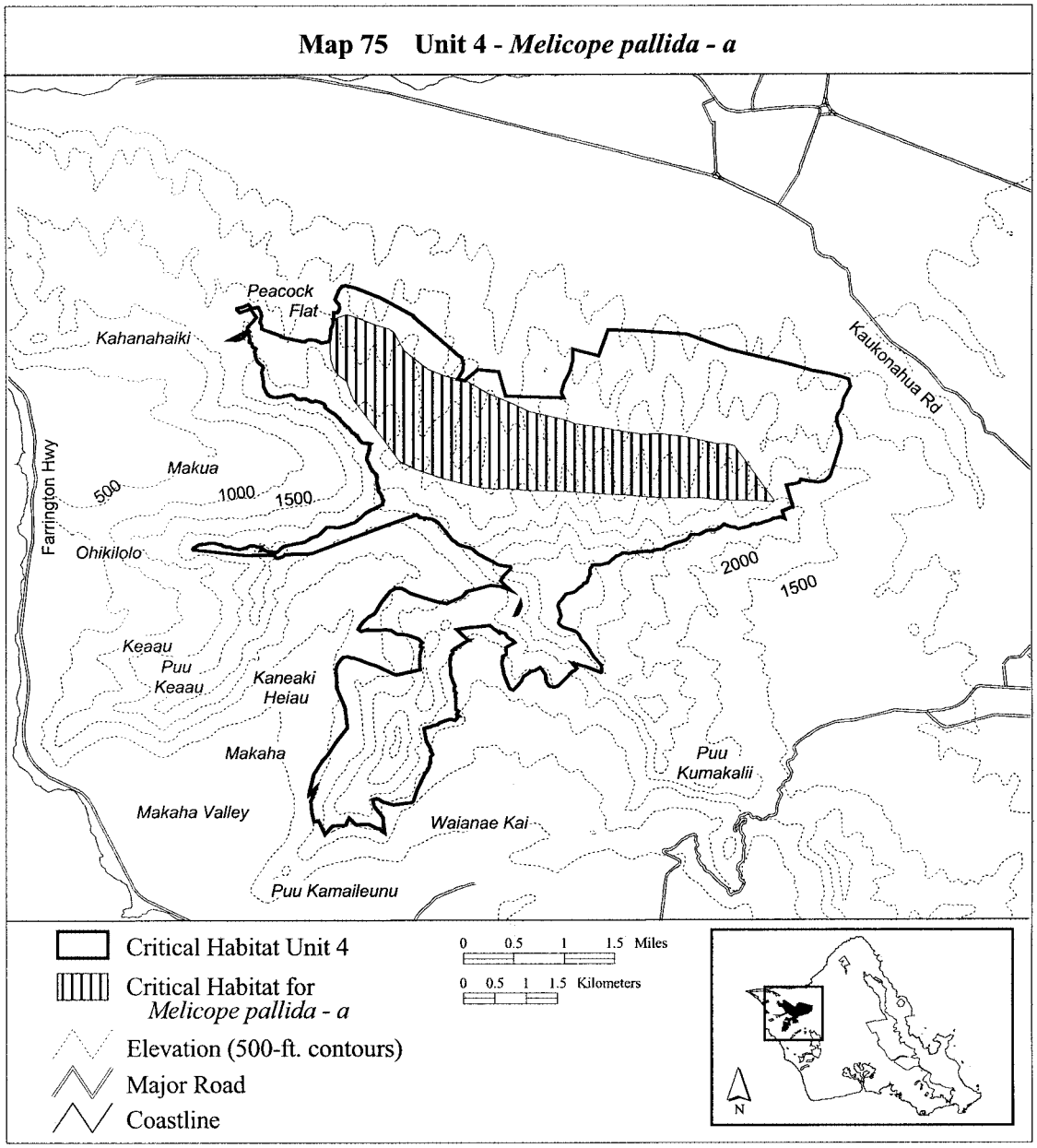


(75) Oahu 4—*Melicope pallida*—a (854 ha; 2,111 ac)

(i) Unit consists of the following 60 boundary points: Start at 589777, 2380936; 589797, 2380951; 589984, 2380951; 590370, 2380907; 590625, 2380855; 590896, 2380791; 591007, 2380799; 591152, 2380764; 591657, 2380042; 591778, 2379883; 591708, 2379867; 591489, 2379879; 590896, 2379887; 590645, 2379923; 590318, 2379927; 589996, 2379927; 589850, 2379946; 589851, 2379932; 589475, 2379972; 589084, 2379988; 588459, 2380033; 587823, 2380058; 587497, 2380083; 587377, 2380073; 587131, 2380093; 586901, 2380138; 586520, 2380233; 586079, 2380388; 585871, 2380488; 585869, 2380479; 585809, 2380534; 585548, 2380889; 585238, 2381315; 585107, 2381481; 585052, 2381586; 584977, 2381806; 584872, 2381891; 584777, 2381997; 584726, 2382157; 584716, 2382428; 584736, 2382653; 584812, 2382818; 584992, 2382873; 585177, 2382808; 585443, 2382708; 585653, 2382648; 585734,

2382583; 585794, 2382473; 585889, 2382302; 586009, 2382202; 586281, 2381985; 586535, 2381886; 586896, 2381796; 587227, 2381611; 587617, 2381441; 587888, 2381320; 588459, 2381180; 588619, 2381120; 589010, 2381065; 589376, 2381000; return to starting point.

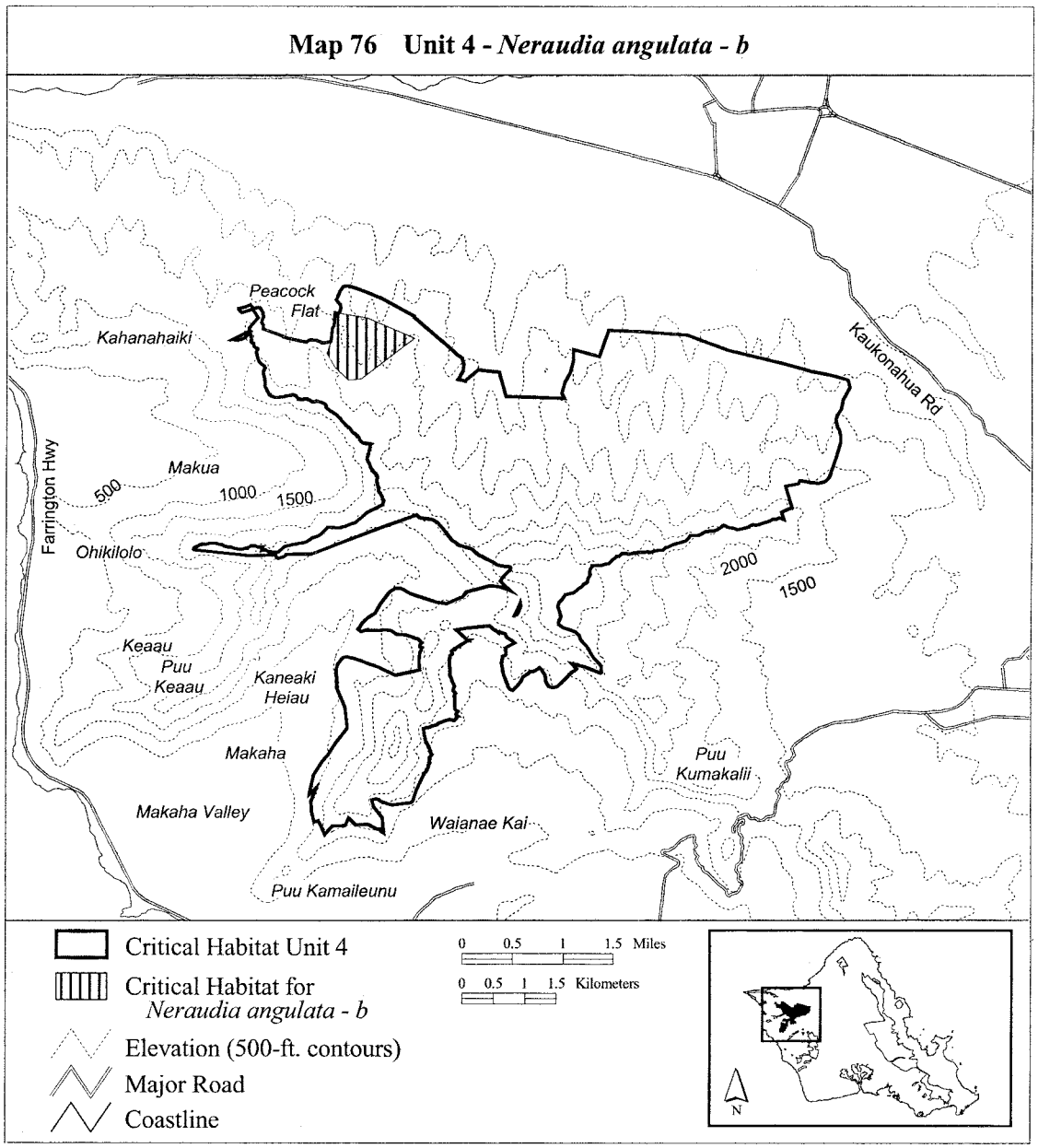
(ii) **Note:** Map 75 follows:



(76) Oahu 4—*Neraudia angulata*—b (90 ha; 222 ac)

(i) Unit consists of the following 8 boundary points: Start at 584778, 2382903; 585296, 2382829; 586055, 2382495; 585203, 2381848; 585000, 2381829; 584778, 2382033; 584648, 2382255; 584740, 2382533; return to starting point.

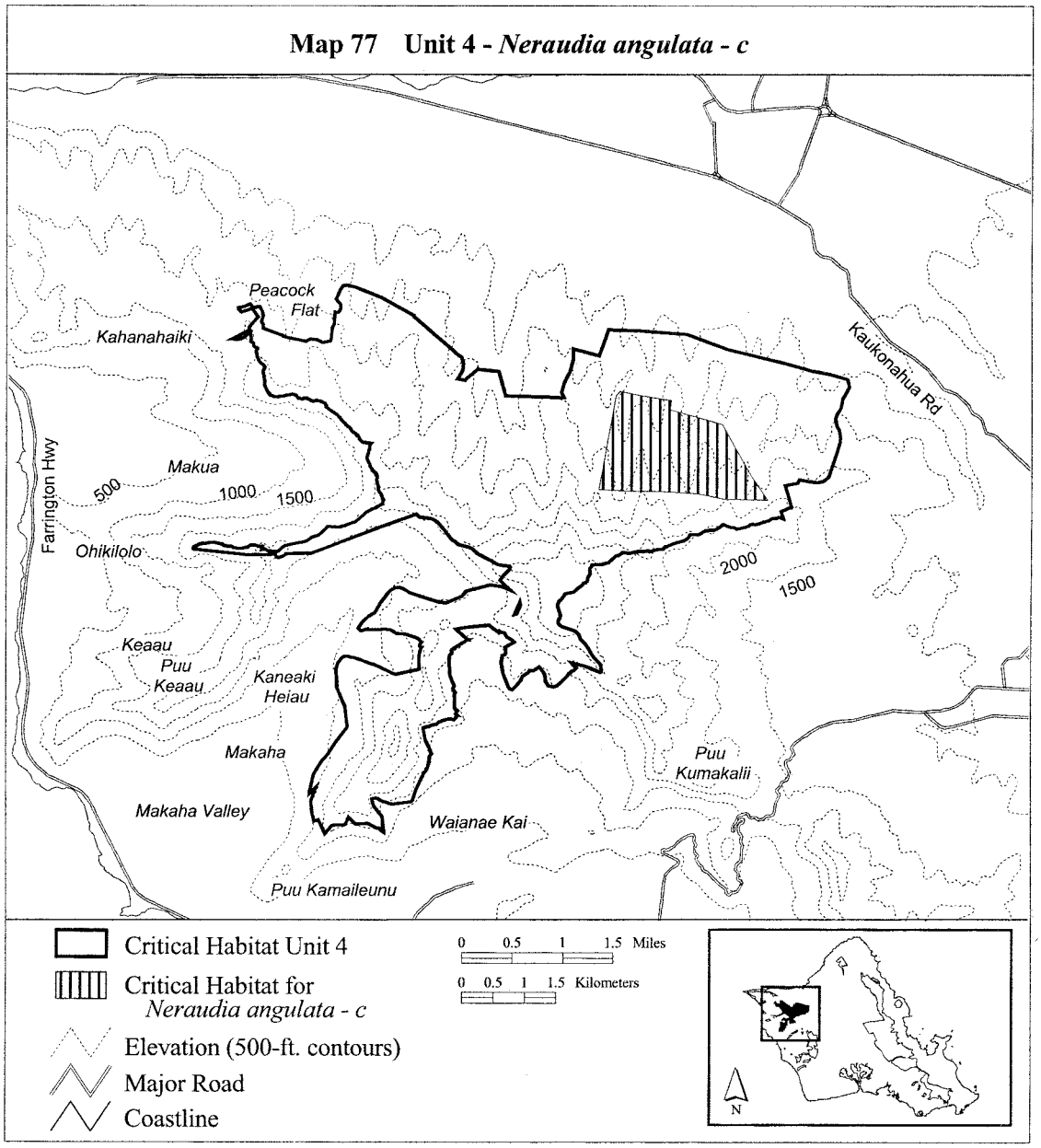
(ii) **Note:** Map 76 follows:



(77) Oahu 4—*Neraudia angulata*—c (298 ha; 736 ac)

(i) Unit consists of the following 14 boundary points: Start at 590133, 2381342; 590967, 2381106; 591416, 2380304; 591694, 2379888; 590985, 2379908; 590605, 2379986; 590337, 2380011; 589953, 2380039; 589541, 2380039; 588997, 2380062; 589266, 2381566; 589328, 2381633; 589651, 2381572; 590151, 2381490; return to starting point.

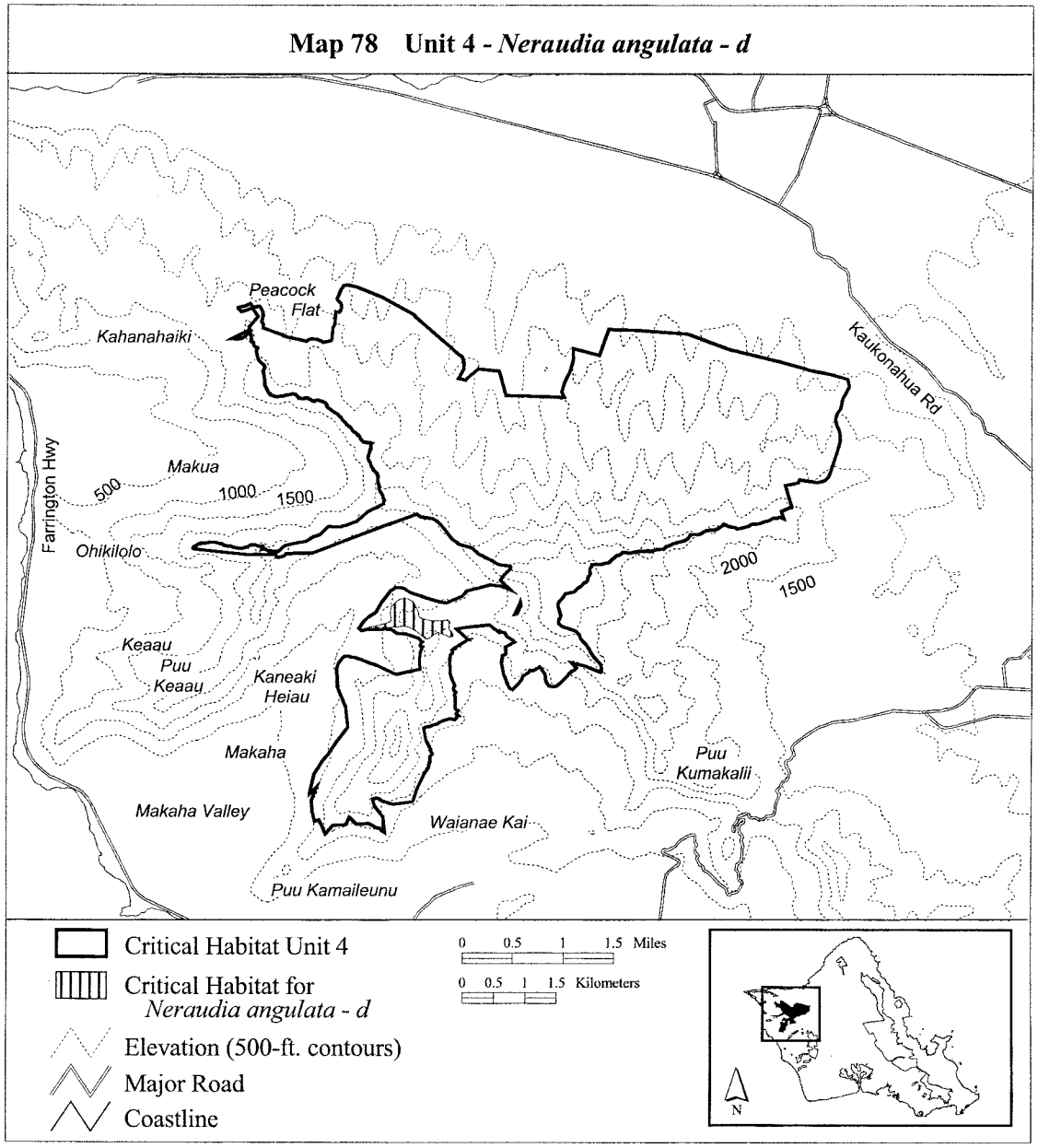
(ii) **Note:** Map 77 follows:



(78) Oahu 4—*Neraudia angulata*—d (33 ha; 81 ac)

(i) Unit consists of the following 54 boundary points: Start at 586062, 2378210; 586099, 2378126; 586119, 2378071; 586119, 2378029; 586159, 2377987; 586297, 2377953; 586383, 2377948; 586497, 2377955; 586574, 2377955; 586606, 2377950; 586606, 2377911; 586603, 2377854; 586603, 2377812; 586628, 2377790; 586653, 2377760; 586668, 2377728; 586660, 2377693; 586618, 2377681; 586569, 2377711; 586502, 2377740; 586421, 2377765; 586381, 2377738; 586339, 2377711; 586299, 2377676; 586255, 2377659; 586215, 2377676; 586159, 2377721; 586104, 2377760; 586067, 2377792; 586170, 2377800; 585986, 2377834; 585941, 2377856; 585865, 2377866; 585795, 2377859; 585736, 2377844; 585627, 2377849; 585504, 2377854; 585368, 2377827; 585321, 2377834; 585333, 2377856; 585373, 2377859; 585511, 2377889; 585623, 2377921; 585672, 2377938; 585677, 2377982; 585667, 2378019; 585657, 2378104; 585657, 2378103; 585682, 2378170; 585724, 2378225; 585793, 2378279; 585889, 2378321; 585954, 2378299; 586030, 2378259; return to starting point.

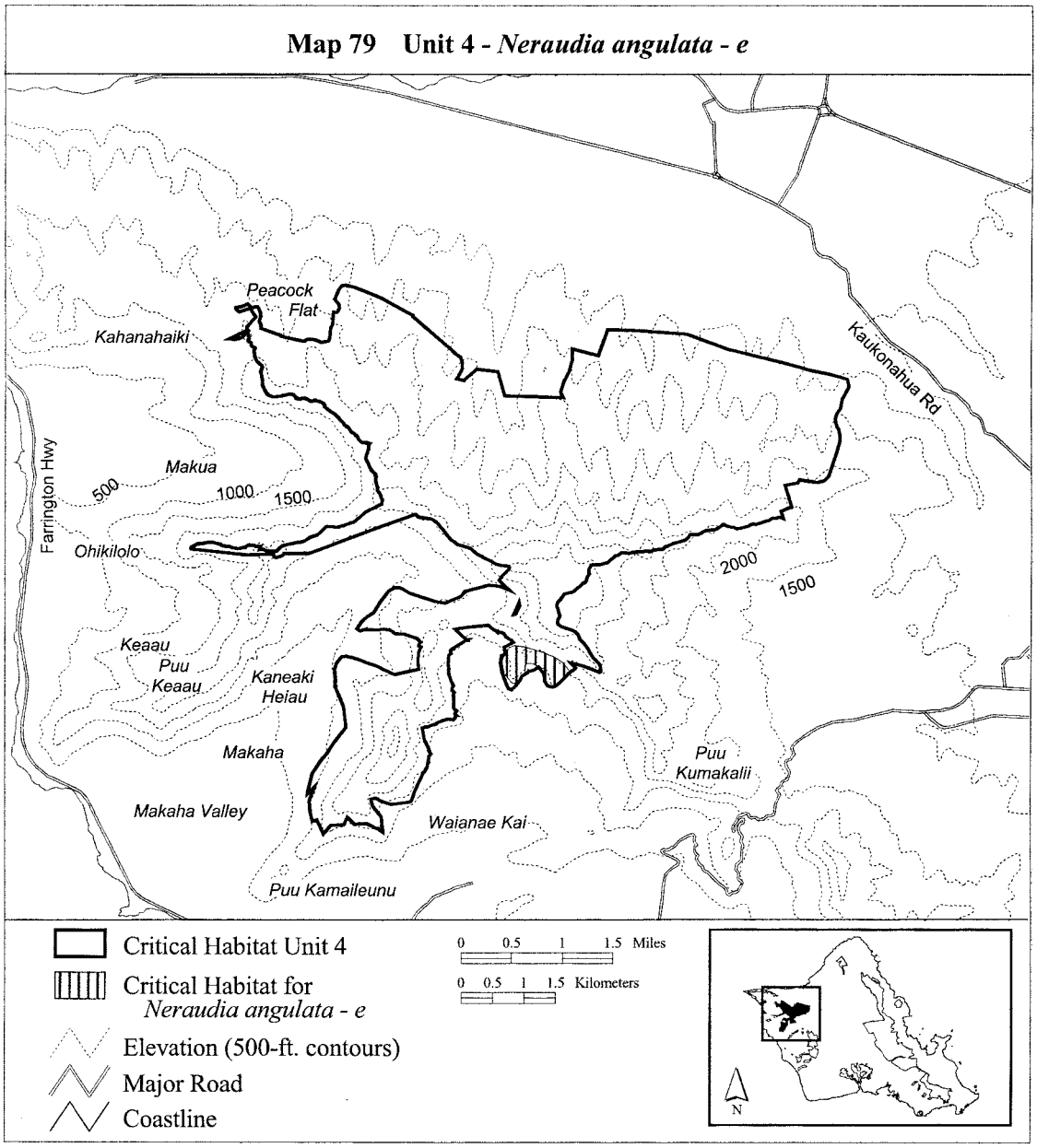
(ii) **Note:** Map 78 follows:



(79) Oahu 4—*Neraudia angulata*—e (40 ha; 98 ac)

(i) Unit consists of the following 36 boundary points: Start at 587733, 2377543; 587811, 2377534; 587910, 2377510; 587991, 2377480; 588125, 2377444; 588215, 2377414; 588302, 2377369; 588425, 2377291; 588473, 2377235; 588539, 2377142; 588500, 2377073; 588041, 2376971; 588335, 2376914; 588275, 2376893; 588194, 2376911; 588152, 2376980; 588137, 2377091; 588080, 2377181; 587991, 2377253; 587925, 2377271; 587847, 2377265; 587841, 2377196; 587832, 2377127; 587781, 2377104; 587727, 2376971; 587670, 2376950; 587625, 2376968; 587574, 2377022; 587508, 2377103; 587475, 2377262; 587475, 2377315; 587493, 2377375; 587520, 2377441; 587547, 2377480; 587592, 2377525; 587673, 2377552; return to starting point.

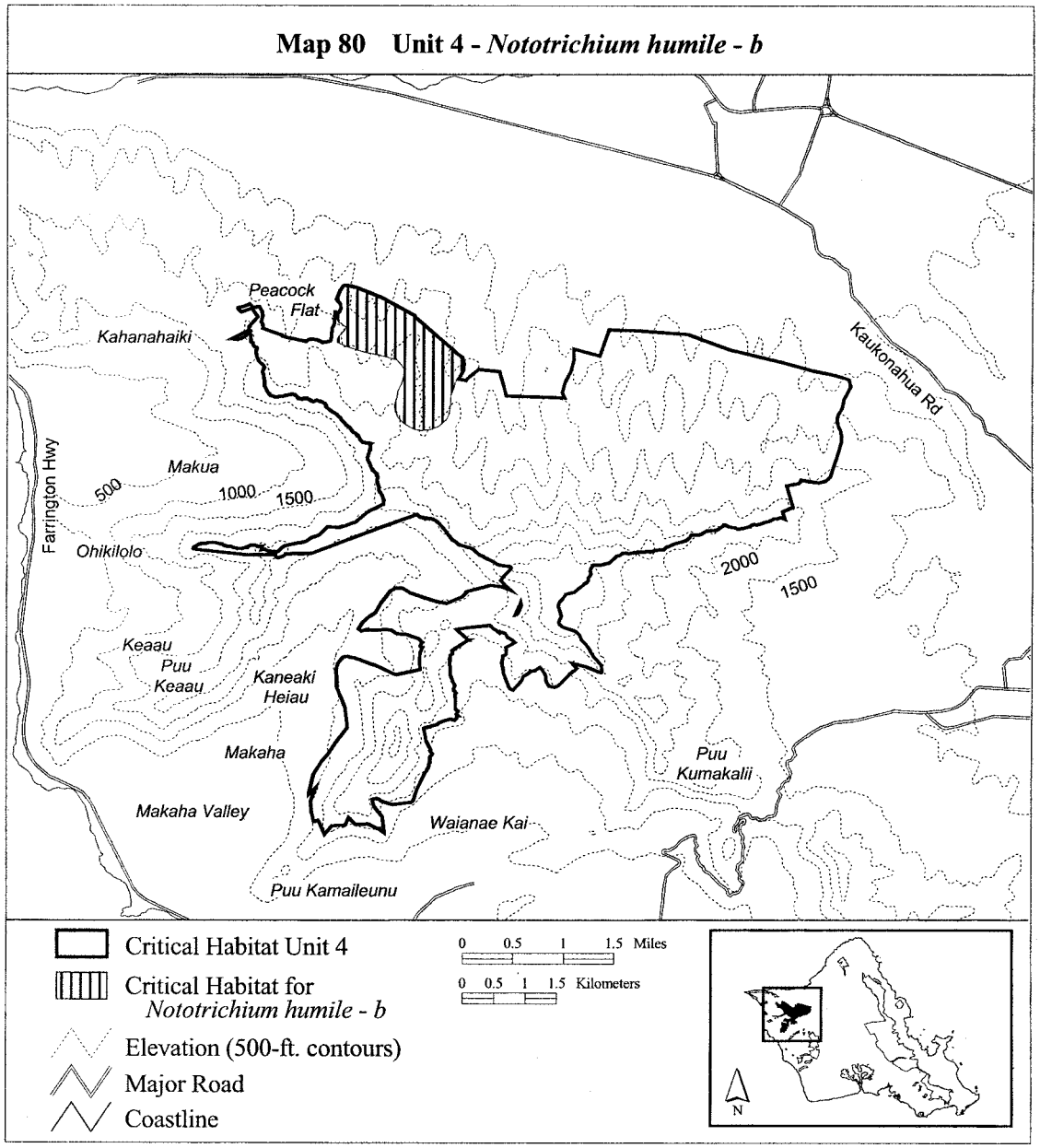
(ii) **Note:** Map 79 follows:



(80) Oahu 4—*Nototrichium humile*—b (230 ha; 568 ac)

(i) Unit consists of the following 60 boundary points: Start at 586045, 2382855; 586039, 2382820; 586045, 2382834; 586658, 2382294; 586720, 2382235; 586802, 2382184; 586833, 2382084; 586826, 2381980; 586761, 2381863; 586692, 2381770; 586672, 2381688; 586627, 2381574; 586613, 2381419; 586606, 2381330; 586589, 2381251; 586558, 2381192; 586437, 2381085; 586307, 2381023; 586159, 2381010; 586052, 2381030; 585973, 2381058; 585859, 2381137; 585773, 2381237; 585732, 2381333; 585721, 2381406; 585759, 2381536; 585783, 2381629; 585835, 2381746; 585866, 2381870; 585866, 2381994; 585842, 2382049; 585769, 2382137; 585756, 2382142; 585518, 2382211; 585257, 2382266; 584961, 2382349; 584809, 2382424; 584809, 2382462; 584830, 2382504; 584899, 2382583; 584933, 2382617; 584950, 2382652; 584950, 2382672; 584919, 2382693; 584875, 2382721; 584830, 2382741; 584809, 2382793; 584809, 2382844; 584840, 2382910; 584871, 2382975; 584864, 2383037; 584823, 2383068; 584802, 2383113; 584813, 2383154; 584857, 2383264; 584906, 2383326; 584974, 2383330; 585119, 2383295; 585257, 2383244; 585508, 2383141; return to starting point.

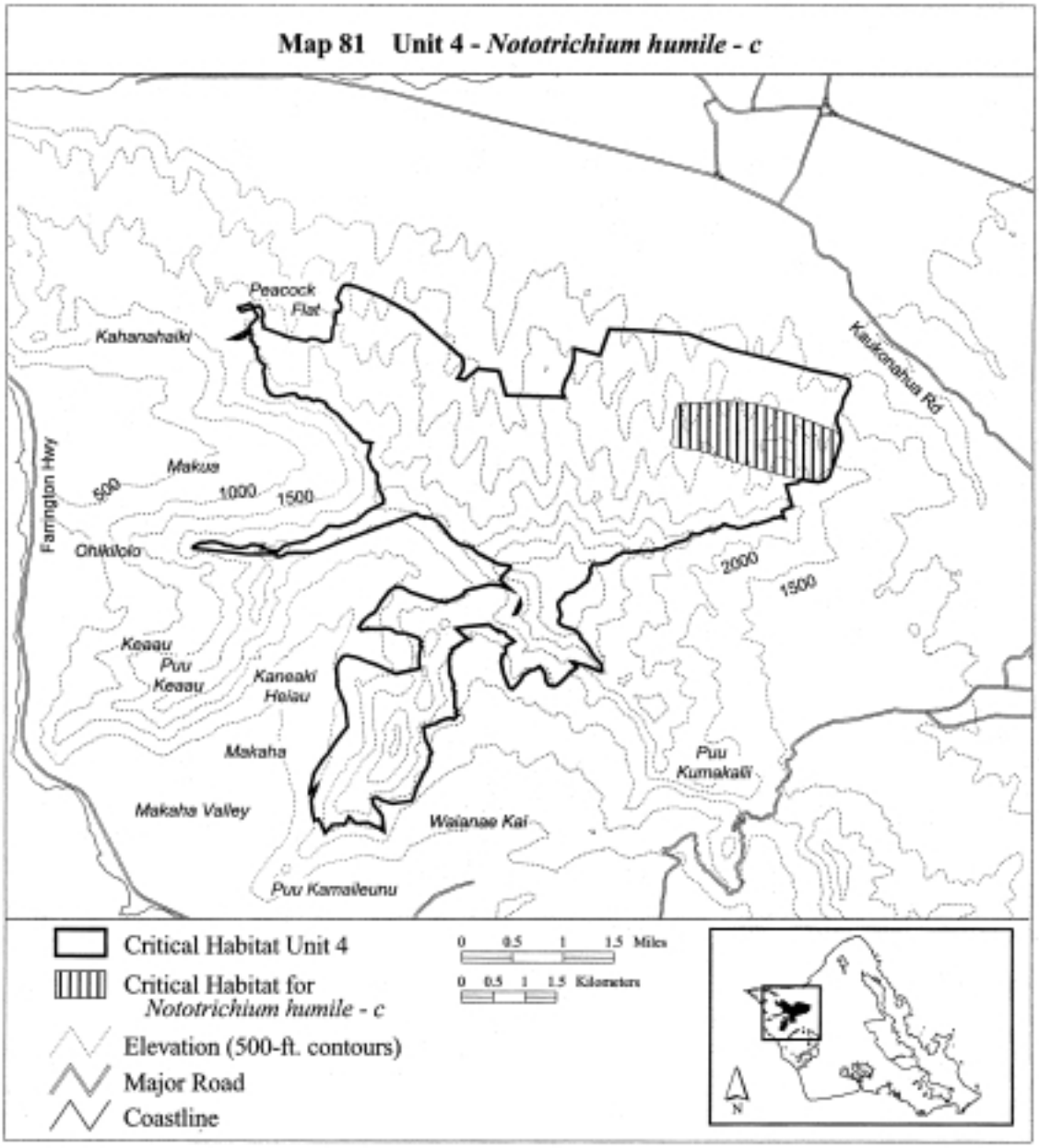
(ii) **Note:** Map 80 follows:



(81) Oahu 4—*Nototrichium humile*—c (237 ha; 586 ac)

(i) Unit consists of the following 29 boundary points: Start at 590280, 2381435; 591017, 2381472; 591362, 2381456; 591601, 2381407; 591990, 2381289; 592541, 2381079; 592785, 2380977; 592829, 2380868; 592829, 2380803; 592776, 2380617; 592683, 2380333; 592655, 2380260; 592582, 2380195; 592485, 2380175; 592351, 2380187; 592087, 2380232; 591844, 2380300; 591471, 2380398; 591102, 2380519; 590693, 2380657; 590555, 2380677; 590227, 2380722; 590138, 2380750; 590134, 2380815; 590166, 2380937; 590154, 2381139; 590190, 2381221; 590207, 2381322; 590235, 2381423; return to starting point.

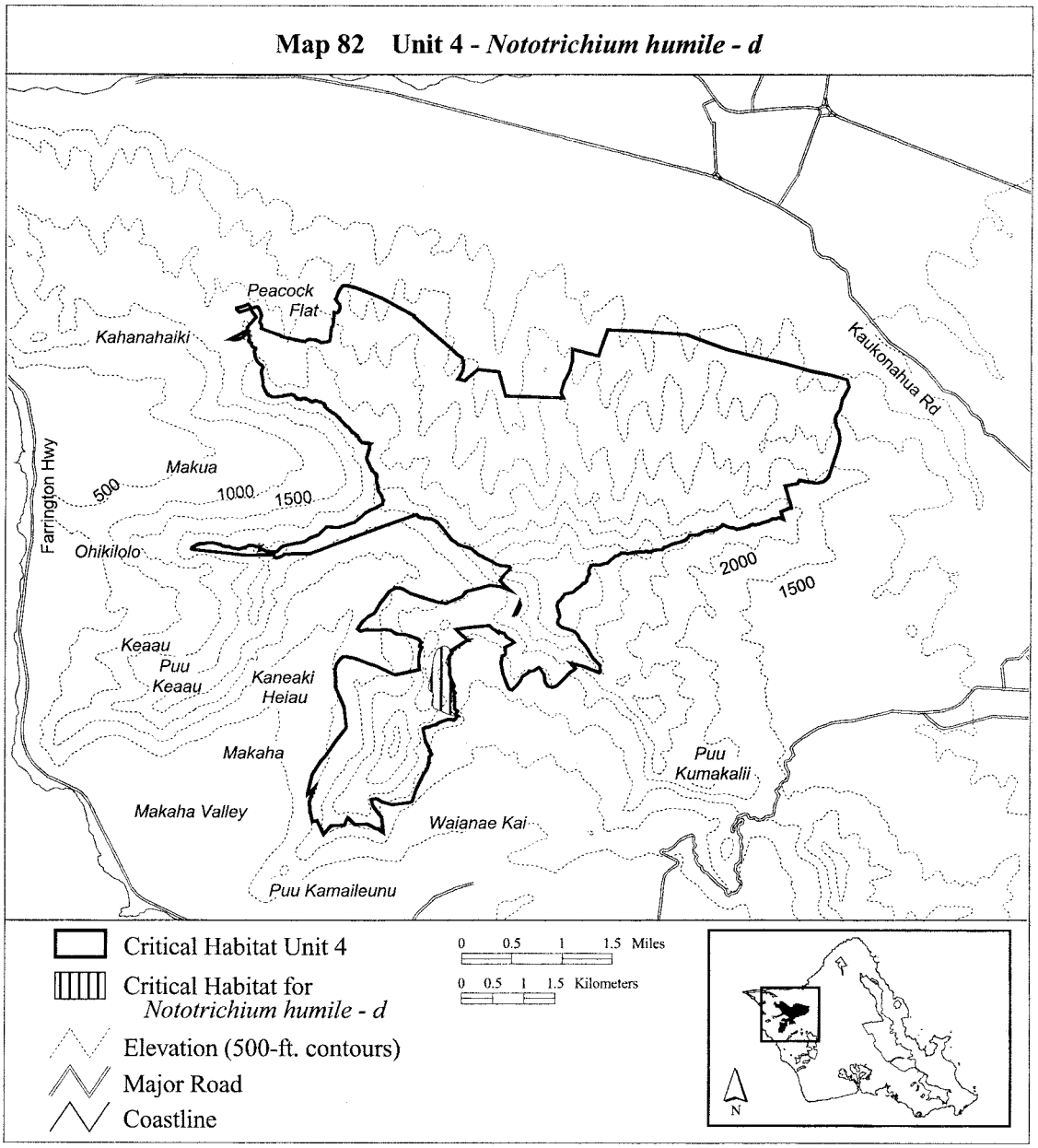
(ii) **Note:** Map 81 follows:



(82) Oahu 4—*Nototrichium humile*—d (30 ha; 75 ac)

(i) Unit consists of the following 62 boundary points: Start at 586425, 2377484; 586427, 2377501; 586520, 2377552; 586563, 2377551; 586598, 2377533; 586651, 2377487; 586658, 2377456; 586656, 2377428; 586593, 2377382; 586567, 2377321; 586581, 2377258; 586602, 2377207; 586616, 2377142; 586623, 2377093; 586669, 2376975; 586688, 2376938; 586693, 2376910; 586688, 2376891; 586679, 2376875; 586674, 2376860; 586676, 2376835; 586700, 2376824; 586712, 2376800; 586700, 2376763; 586690, 2376753; 586677, 2376744; 586679, 2376696; 586667, 2376665; 586653, 2376651; 586646, 2376614; 586653, 2376575; 586653, 2376544; 586653, 2376511; 586663, 2376498; 586688, 2376481; 586712, 2376454; 586712, 2376442; 586686, 2376439; 586635, 2376453; 586563, 2376482; 586477, 2376518; 586379, 2376561; 586367, 2376581; 586353, 2376609; 586339, 2376626; 586342, 2376658; 586358, 2376709; 586372, 2376744; 586367, 2376795; 586355, 2376812; 586327, 2376826; 586309, 2376845; 586295, 2376863; 586288, 2376886; 586292, 2376905; 586295, 2376940; 586316, 2377031; 586337, 2377100; 586337, 2377159; 586348, 2377258; 586374, 2377389; 586404, 2377456; return to starting point.

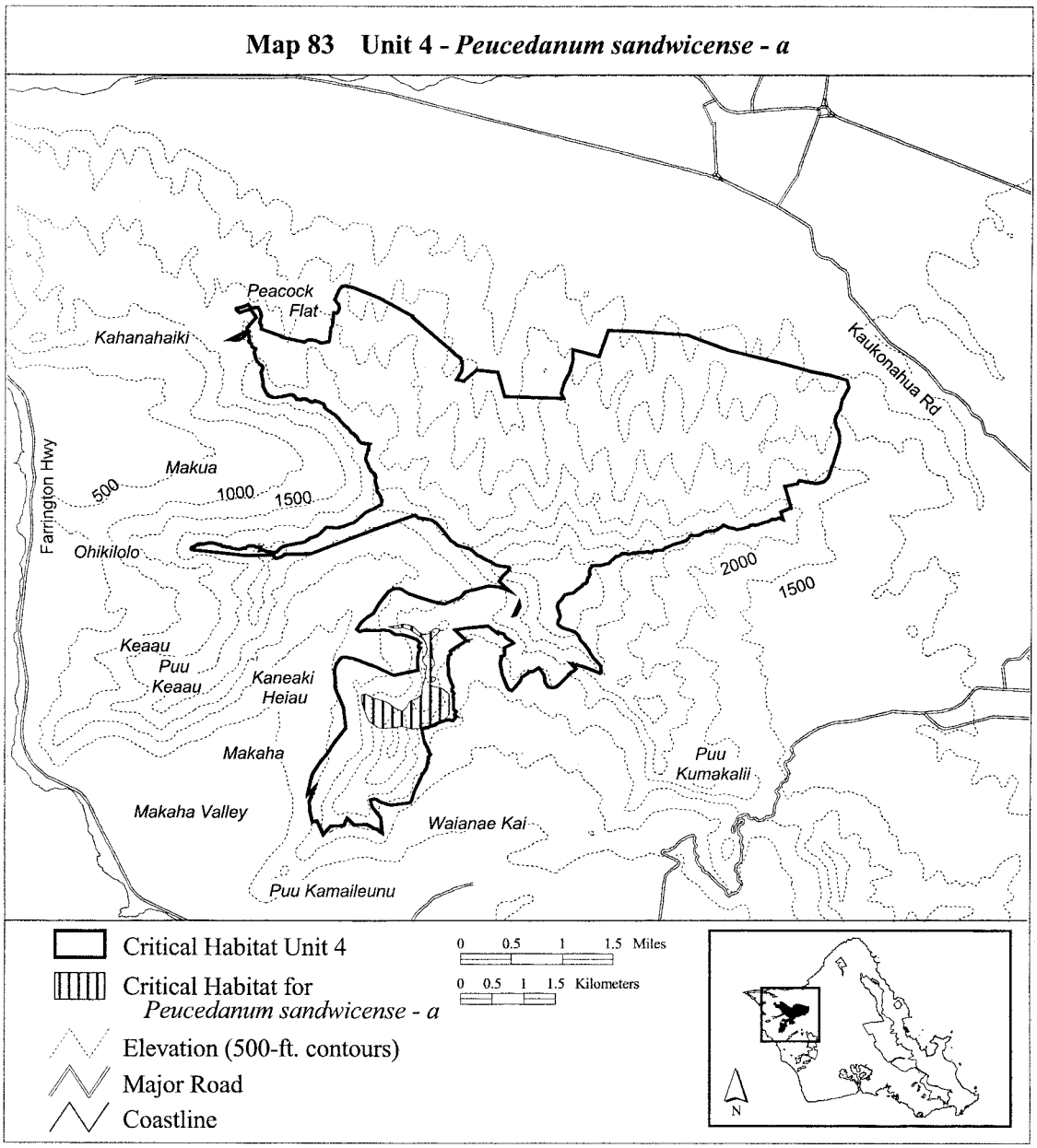
(ii) **Note**: Map 82 follows:



(83) Oahu 4—*Peucedanum sandwicense*—a (75 ha; 186 ac)

(i) Unit consists of the following 100 boundary points: Start at 585425, 2376724; 585534, 2376705; 585646, 2376668; 585722, 2376612; 585771, 2376573; 585821, 2376550; 585890, 2376523; 585926, 2376540; 585969, 2376596; 585999, 2376645; 586035, 2376695; 586137, 2376718; 586200, 2376784; 586206, 2376860; 586216, 2376932; 586253, 2377015; 586256, 2377127; 586266, 2377186; 586274, 2377236; 586243, 2377278; 586203, 2377338; 586236, 2377367; 586266, 2377427; 586286, 2377509; 586266, 2377582; 586239, 2377654; 586140, 2377737; 586012, 2377816; 585910, 2377852; 585831, 2377846; 585758, 2377842; 585712, 2377852; 585682, 2377872; 585831, 2377888; 585887, 2377905; 585926, 2377911; 586012, 2377888; 586071, 2377869; 586121, 2377806; 586157, 2377780; 586223, 2377747; 586279, 2377743; 586335, 2377773; 586371, 2377816; 586421, 2377846; 586477, 2377836; 586487, 2377819; 586474, 2377789; 586454, 2377760; 586431, 2377743; 586398, 2377727; 586378, 2377681; 586342, 2377641; 586365, 2377559; 586365, 2377529; 586371, 2377417; 586378, 2377358; 586404, 2377302; 586404, 2377265; 586404, 2377259; 586399, 2377257; 586368, 2377212; 586348, 2377163; 586345, 2377074; 586414, 2377054; 586431, 2377038; 586424, 2377021; 586388, 2376992; 586342, 2376972; 586335, 2376942; 586394, 2376912; 586464, 2376903; 586520, 2376883; 586602, 2376820; 586645, 2376790; 586645, 2376734; 586642, 2376639; 586642, 2376556; 586642, 2376474; 586609, 2376418; 586546, 2376375; 586450, 2376355; 586352, 2376299; 586312, 2376266; 586193, 2376246; 586045, 2376240; 585893, 2376273; 585847, 2376273; 585778, 2376260; 585590, 2376243; 585511, 2376256; 585425, 2376306; 585362, 2376368; 585326, 2376434; 585280, 2376550; 585250, 2376629; 585240, 2376698; 585240, 2376764; 585273, 2376790; 585313, 2376790; return to starting point.

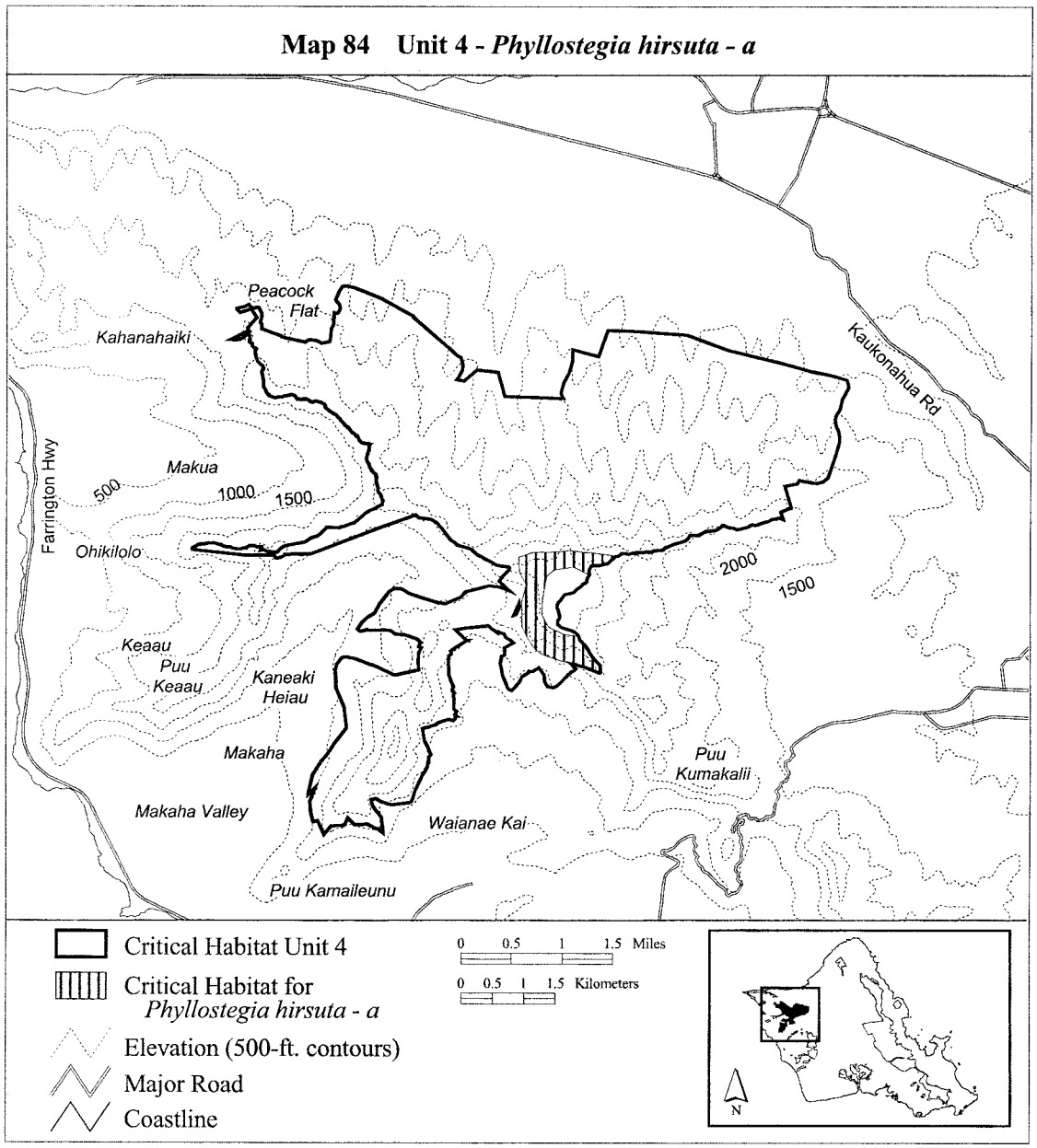
(ii) **Note:** Map 83 follows:



(84) Oahu 4—*Phyllostegia hirsuta*—a (114 ha; 282 ac)

(i) Unit consists of the following 75 boundary points: Start at 588849, 2378699; 588837, 2378713; 588731, 2378766; 588729, 2378762; 588606, 2378831; 588478, 2378811; 588296, 2378786; 588179, 2378678; 588110, 2378315; 588105, 2378060; 588218, 2377868; 588463, 2377750; 588677, 2377723; 588684, 2377709; 588691, 2377689; 588691, 2377688; 588708, 2377657; 588735, 2377626; 588736, 2377625; 588762, 2377601; 588787, 2377570; 588816, 2377534; 588848, 2377484; 588857, 2377459; 588858, 2377458; 588877, 2377428; 588894, 2377402; 588911, 2377378; 588912, 2377378; 589020, 2377256; 589028, 2377236; 589171, 2377144; 589039, 2377141; 589026, 2377130; 588768, 2377229; 588439, 2377308; 588125, 2377421; 587997, 2377514; 587864, 2377696; 587791, 2377873; 587791, 2378138; 587791, 2378285; 587845, 2378487; 587845, 2378561; 587741, 2378747; 587732, 2378978; 587958, 2379062; 588360, 2379076; 588542, 2379091; 588860, 2379052; 588866, 2379066; 589269, 2379008; 589288, 2379001; 589286, 2379001; 589285, 2379001; 589276, 2378998; 589275, 2378998; 589245, 2378974; 589217, 2378943; 589164, 2378898; 589149, 2378886; 589123, 2378879; 589060, 2378862; 589009, 2378857; 588910, 2378852; 588910, 2378851; 588899, 2378848; 588898, 2378848; 588887, 2378841; 588887, 2378840; 588862, 2378802; 588851, 2378772; 588851, 2378763; 588851, 2378746; 588855, 2378710; return to starting point.

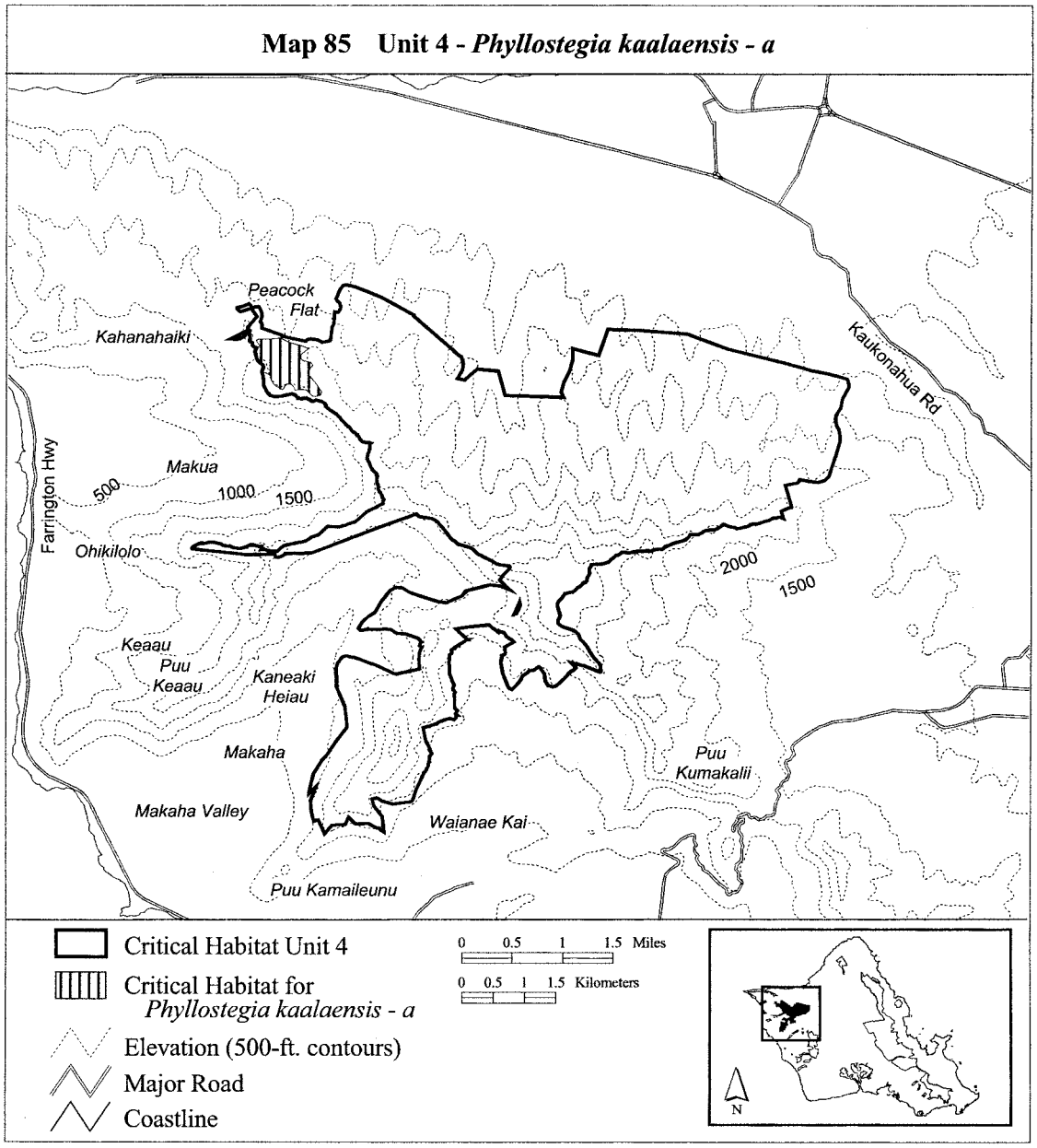
(ii) **Note:** Map 84 follows:



(85) Oahu 4—*Phyllostegia kaalaensis*—a (57 ha; 141 ac)

(i) Unit consists of the following 79 boundary points: Start at 583531, 2382445; 583582, 2382469; 583735, 2382475; 583912, 2382492; 584051, 2382414; 584180, 2382380; 584235, 2382373; 584358, 2382316; 584293, 2382251; 584242, 2382203; 584245, 2382149; 584289, 2382118; 584378, 2382101; 584415, 2382077; 584436, 2382170; 584388, 2381986; 584371, 2381928; 584381, 2381877; 584439, 2381805; 584510, 2381724; 584572, 2381629; 584561, 2381574; 584504, 2381554; 584436, 2381550; 584371, 2381612; 584327, 2381649; 584276, 2381666; 584225, 2381663; 584153, 2381642; 584129, 2381707; 584085, 2381741; 584024, 2381741; 583993, 2381720; 583976, 2381676; 583959, 2381663; 583925, 2381663; 583895, 2381690; 583864, 2381703; 583827, 2381731; 583800, 2381765; 583772, 2381816; 583762, 2381884; 583687, 2381921; 583629, 2381945; 583630, 2381951; 583633, 2381969; 583638, 2381979; 583645, 2381993; 583645, 2381994; 583649, 2382013; 583649, 2382018; 583648, 2382029; 583647, 2382030; 583641, 2382045; 583640, 2382045; 583626, 2382059; 583625, 2382059; 583610, 2382073; 583590, 2382091; 583570, 2382107; 583561, 2382120; 583552, 2382135; 583546, 2382153; 583536, 2382180; 583529, 2382214; 583523, 2382238; 583523, 2382239; 583518, 2382254; 583517, 2382264; 583517, 2382276; 583518, 2382287; 583521, 2382299; 583528, 2382305; 583535, 2382312; 583535, 2382313; 583535, 2382317; 583544, 2382316; 583592, 2382339; 583582, 2382377; return to starting point.

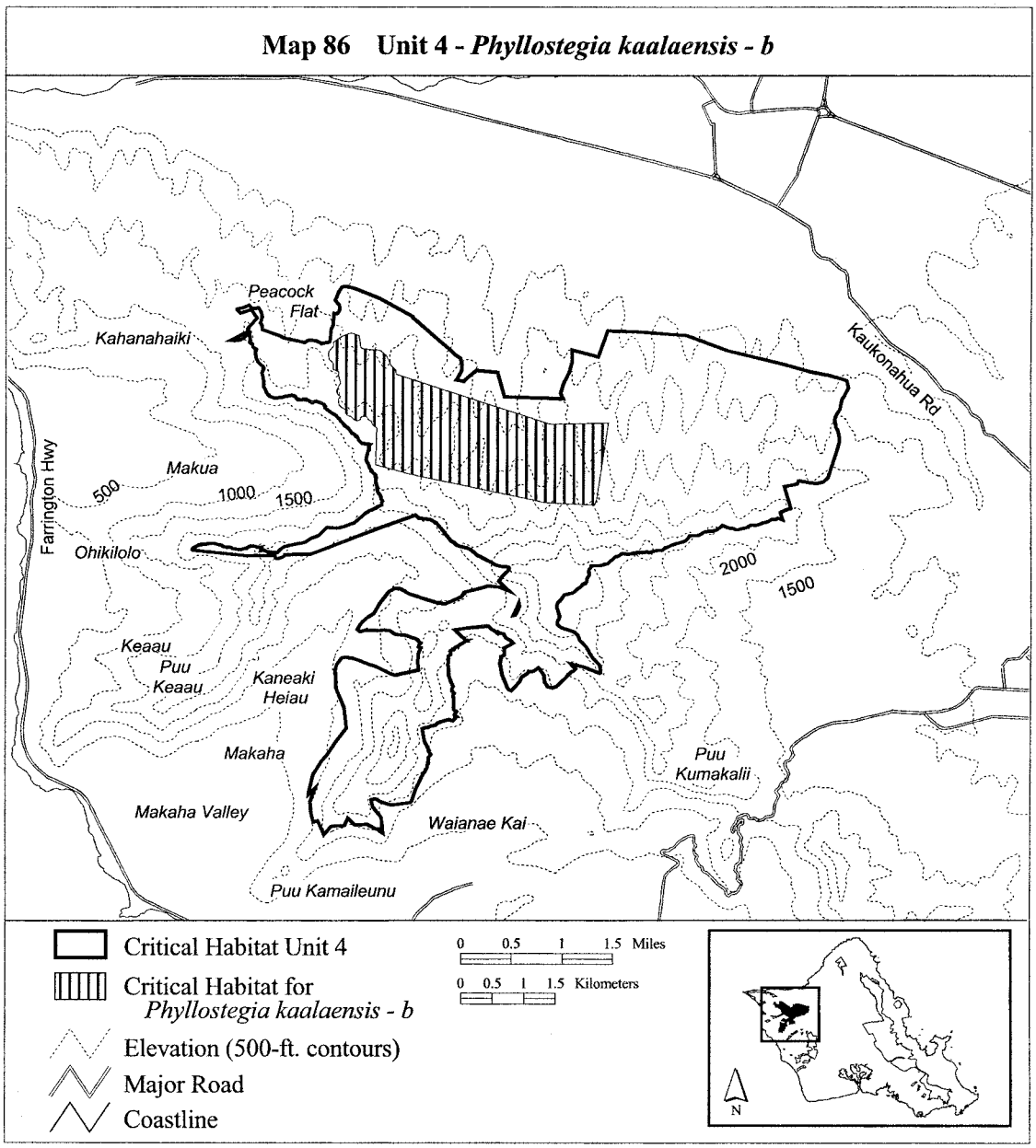
(ii) **Note:** Map 85 follows:



(86) Oahu 4—*Phyllostegia kaalaensis*—b (589 ha; 1,455 ac)

(i) Unit consists of the following 58 boundary points: Start at 585195, 2382431; 585205, 2382373; 585239, 2382339; 585396, 2382316; 585467, 2382316; 585538, 2382299; 585613, 2382234; 585657, 2382142; 585688, 2382081; 585766, 2381992; 585778, 2381927; 588229, 2381124; 589161, 2381146; 588965, 2379889; 588943, 2379824; 588164, 2379867; 585976, 2380322; 585455, 2380474; 585471, 2381065; 585447, 2381088; 585402, 2381112; 585385, 2381142; 585375, 2381176; 585331, 2381200; 585304, 2381244; 585260, 2381251; 585222, 2381248; 585202, 2381203; 585151, 2381173; 585107, 2381197; 585062, 2381244; 585001, 2381265; 584960, 2381305; 584960, 2381363; 584909, 2381390; 584858, 2381431; 584851, 2381516; 584889, 2381571; 584845, 2381598; 584817, 2381652; 584841, 2381707; 584882, 2381758; 584882, 2381809; 584848, 2381904; 584865, 2381965; 584766, 2382006; 584766, 2382091; 584749, 2382128; 584702, 2382173; 584685, 2382241; 584702, 2382292; 584766, 2382370; 584773, 2382438; 584838, 2382489; 584919, 2382530; 585025, 2382581; 585083, 2382581; 585175, 2382540; return to starting point.

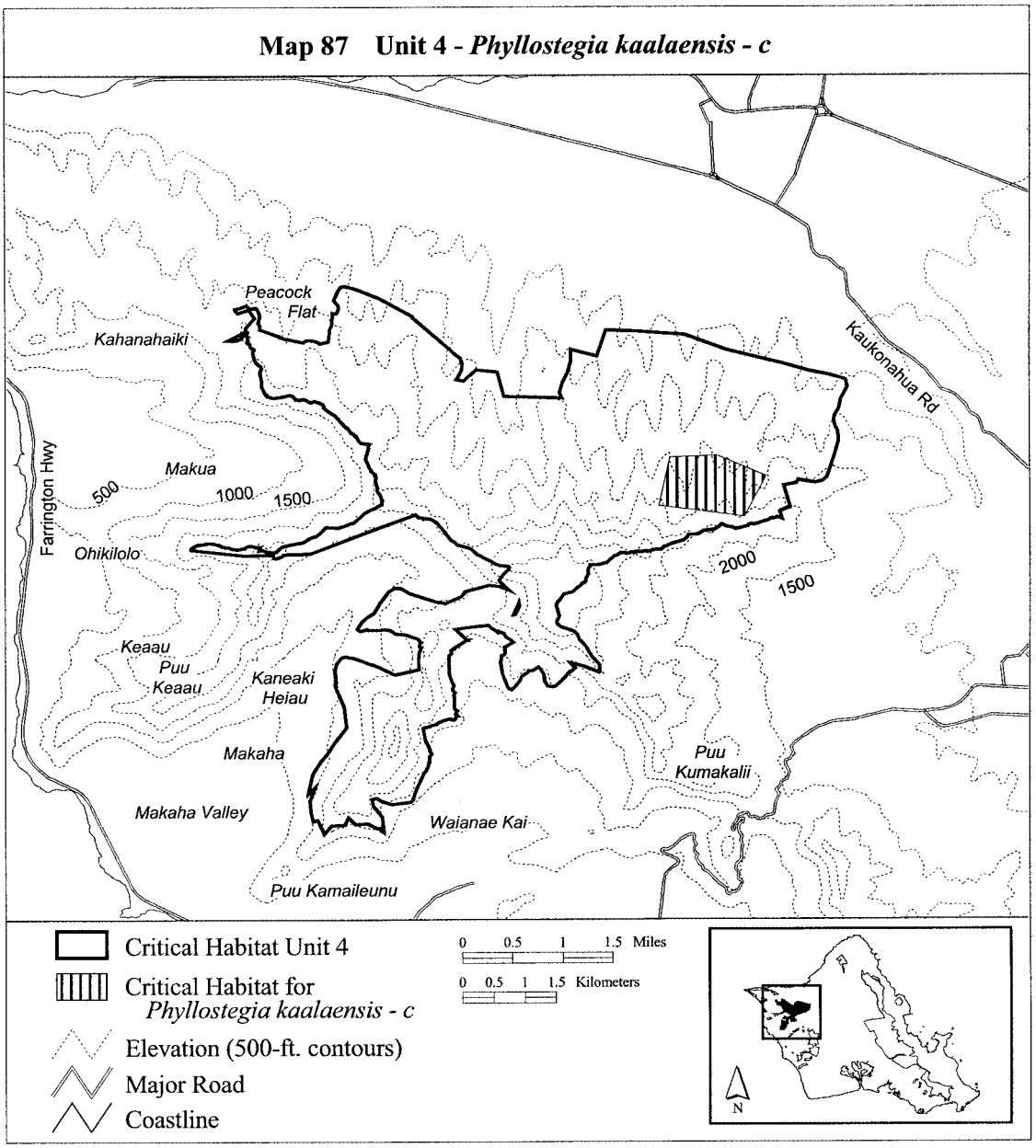
(ii) **Note:** Map 86 follows:



(87) Oahu 4—Phyllostegia kaalaensis—c (123 ha; 317 ac)

(i) Unit consists of the following 6 boundary points: Start at 589983, 2379802; 590157, 2380582; 590915, 2380104; 591695, 2380279; 591348, 2379629; 590157, 2379781; return to starting point.

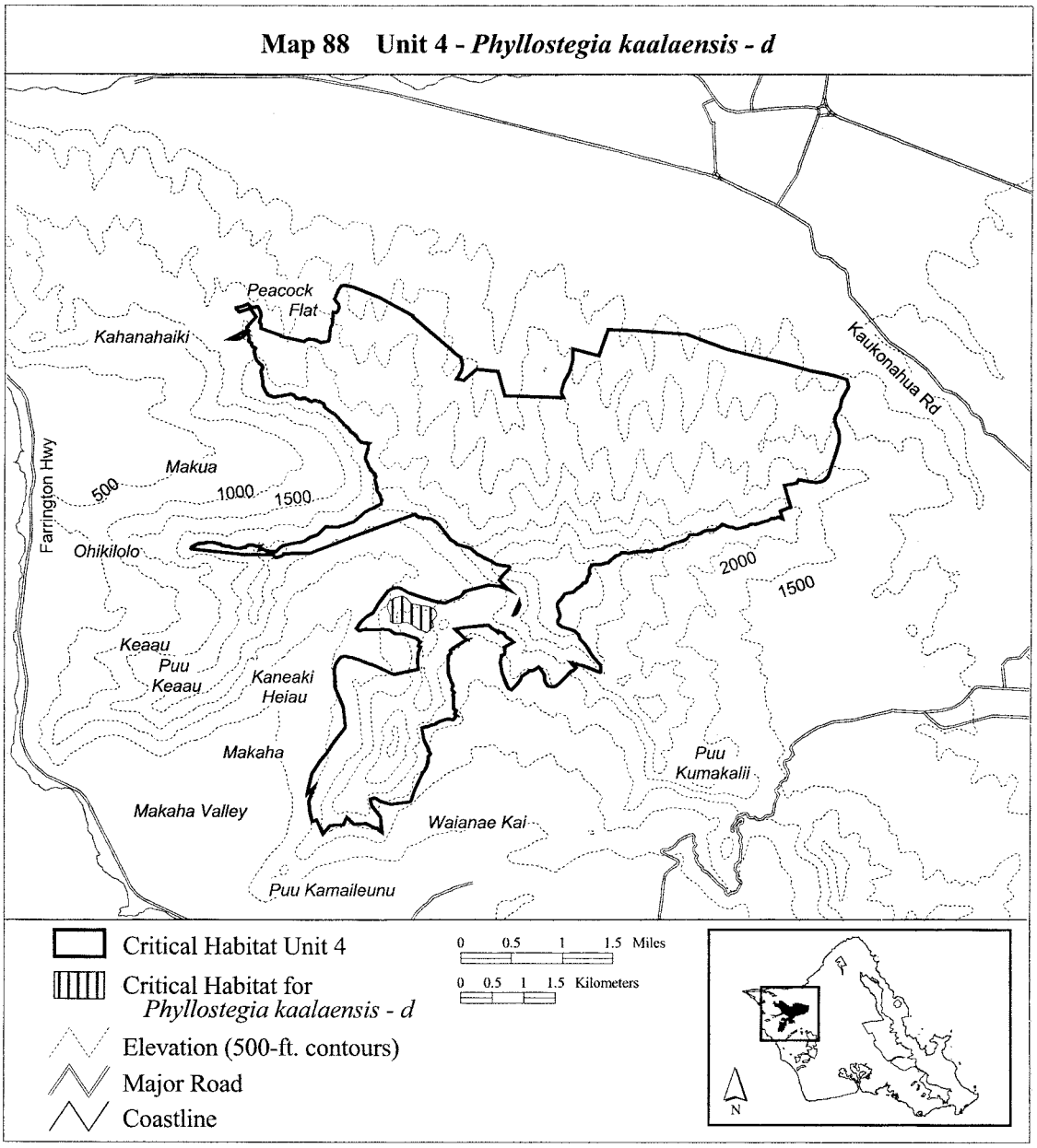
(ii) **Note:** Map 87 follows:



(88) Oahu 4—*Phyllostegia kaalaensis*—d (28 ha; 69 ac)

(i) Unit consists of the following 24 boundary points: Start at 586029, 2378224; 586338, 2378174; 586402, 2378136; 586433, 2378075; 586437, 2378026; 586410, 2377988; 586372, 2377946; 586391, 2377851; 586364, 2377824; 586292, 2377767; 586151, 2377809; 586105, 2377847; 586037, 2377893; 585972, 2377931; 585843, 2377908; 585744, 2377912; 585698, 2377946; 585694, 2378052; 585668, 2378121; 585652, 2378201; 585691, 2378273; 585789, 2378323; 585896, 2378353; 585961, 2378315; return to starting point.

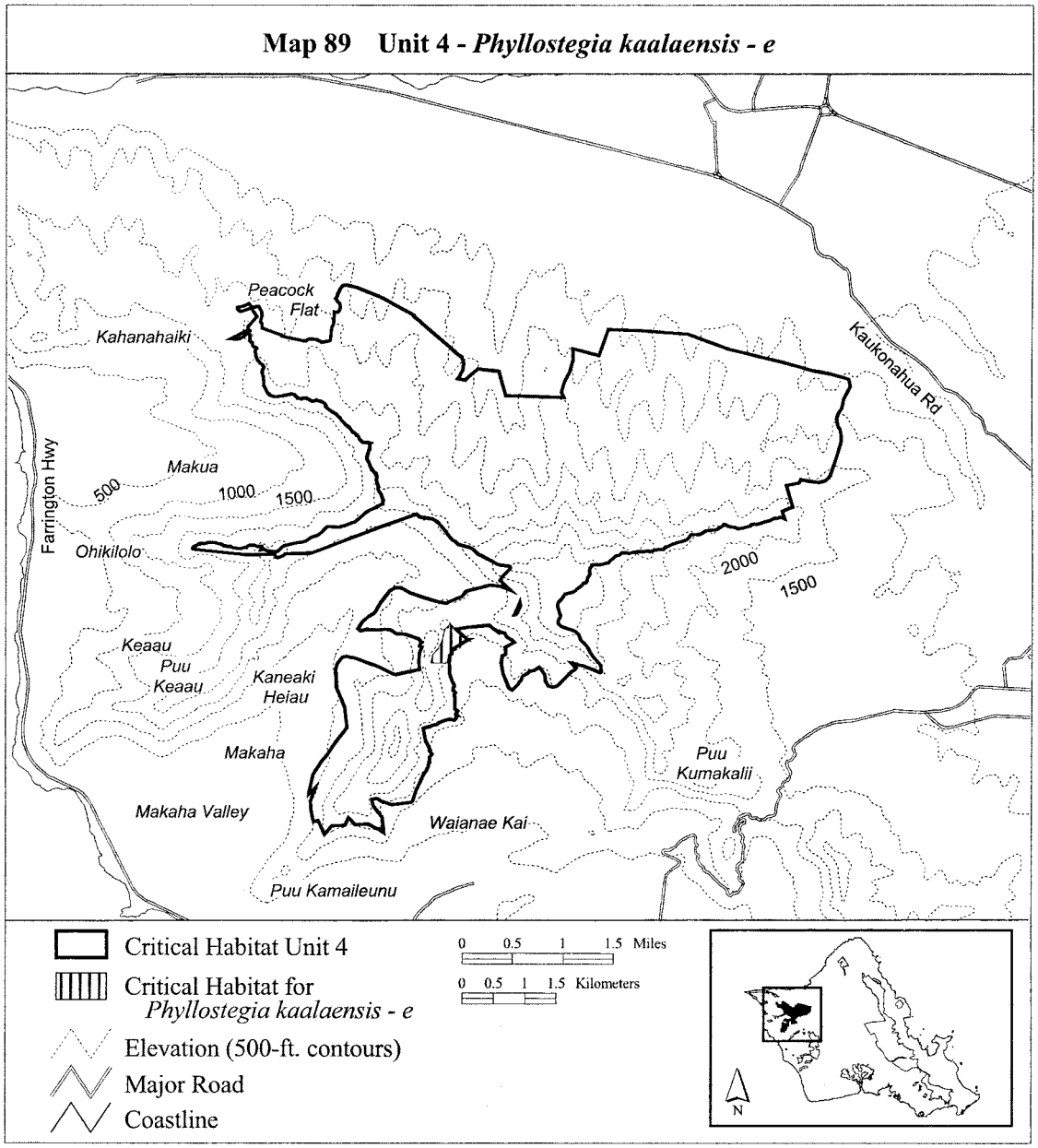
(ii) **Note:** Map 88 follows:



(89) Oahu 4—*Phyllostegia kaalaensis*—e (16 ha; 39 ac)

(i) Unit consists of the following 20 boundary points: Start at 586900, 2377643; 586901, 2377642; 586889, 2377636; 586880, 2377632; 586685, 2377514; 586685, 2377503; 586677, 2377497; 586668, 2377496; 586612, 2377415; 586592, 2377326; 586593, 2377324; 586590, 2377318; 586579, 2377274; 586326, 2377285; 586348, 2377411; 586438, 2377509; 586507, 2377643; 586540, 2377810; 586637, 2377900; 586905, 2377647; return to starting point.

(ii) **Note:** Map 89 follows:

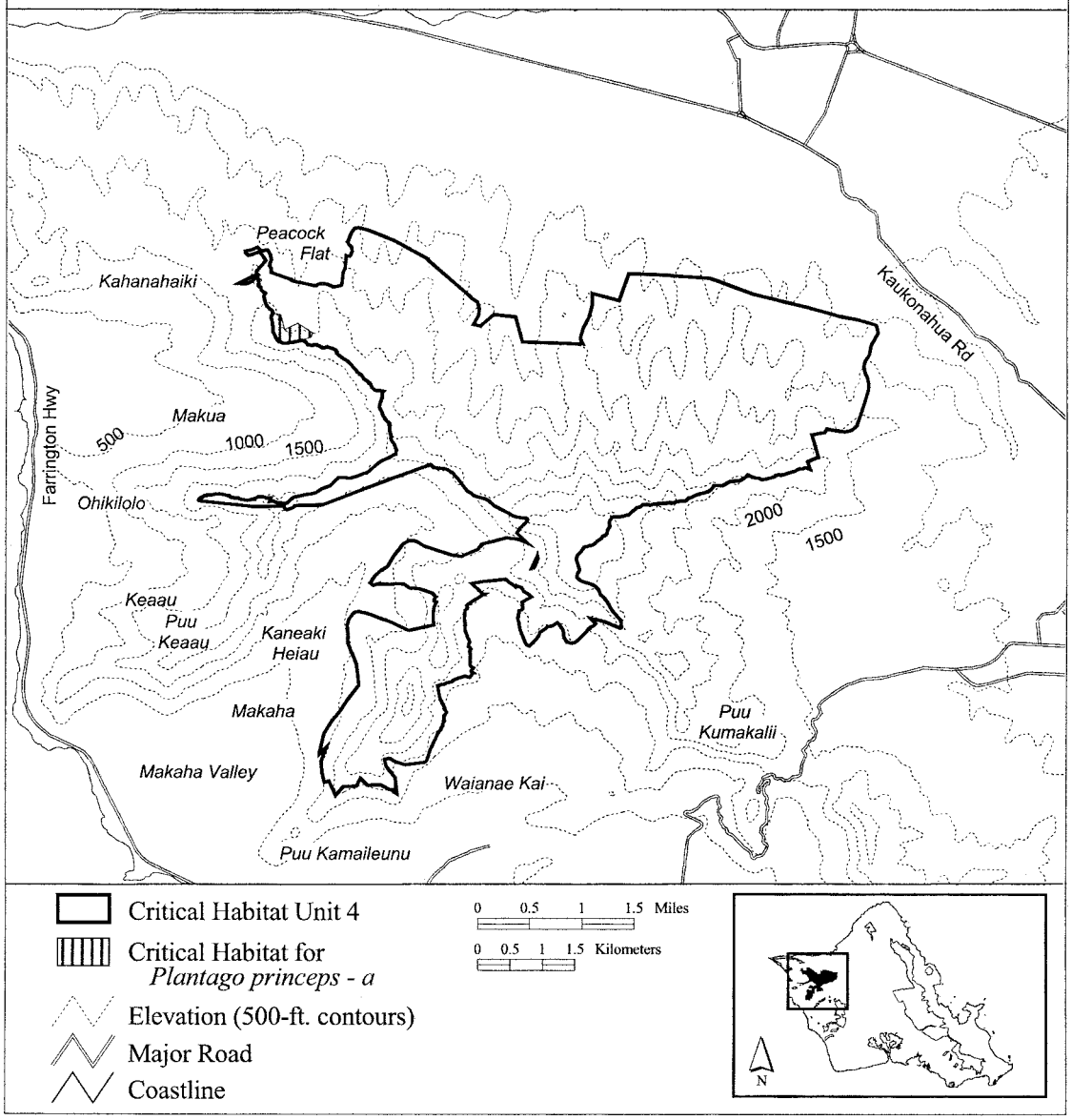


(90) Oahu 4—*Plantago princeps*—a (15 ha; 37 ac)

(i) Unit consists of the following 33 boundary points: Start at 583649, 2382009; 583774, 2381990; 583830, 2381756; 584042, 2381856; 584265, 2381711; 584242, 2381633; 584075, 2381589; 583819, 2381566; 583676, 2381676; 583672, 2381685; 583659, 2381711; 583652, 2381731; 583651, 2381742; 583651, 2381757; 583651, 2381773; 583651, 2381774; 583651, 2381789; 583651, 2381805; 583651, 2381806; 583649, 2381820; 583644, 2381847; 583642, 2381874; 583639, 2381896; 583638, 2381897; 583634, 2381907; 583631, 2381919; 583629, 2381930; 583629, 2381945; 583630, 2381951; 583633, 2381969; 583638, 2381979; 583645, 2381993; 583645, 2381994; return to starting point.

(ii) **Note:** Map 90 follows:

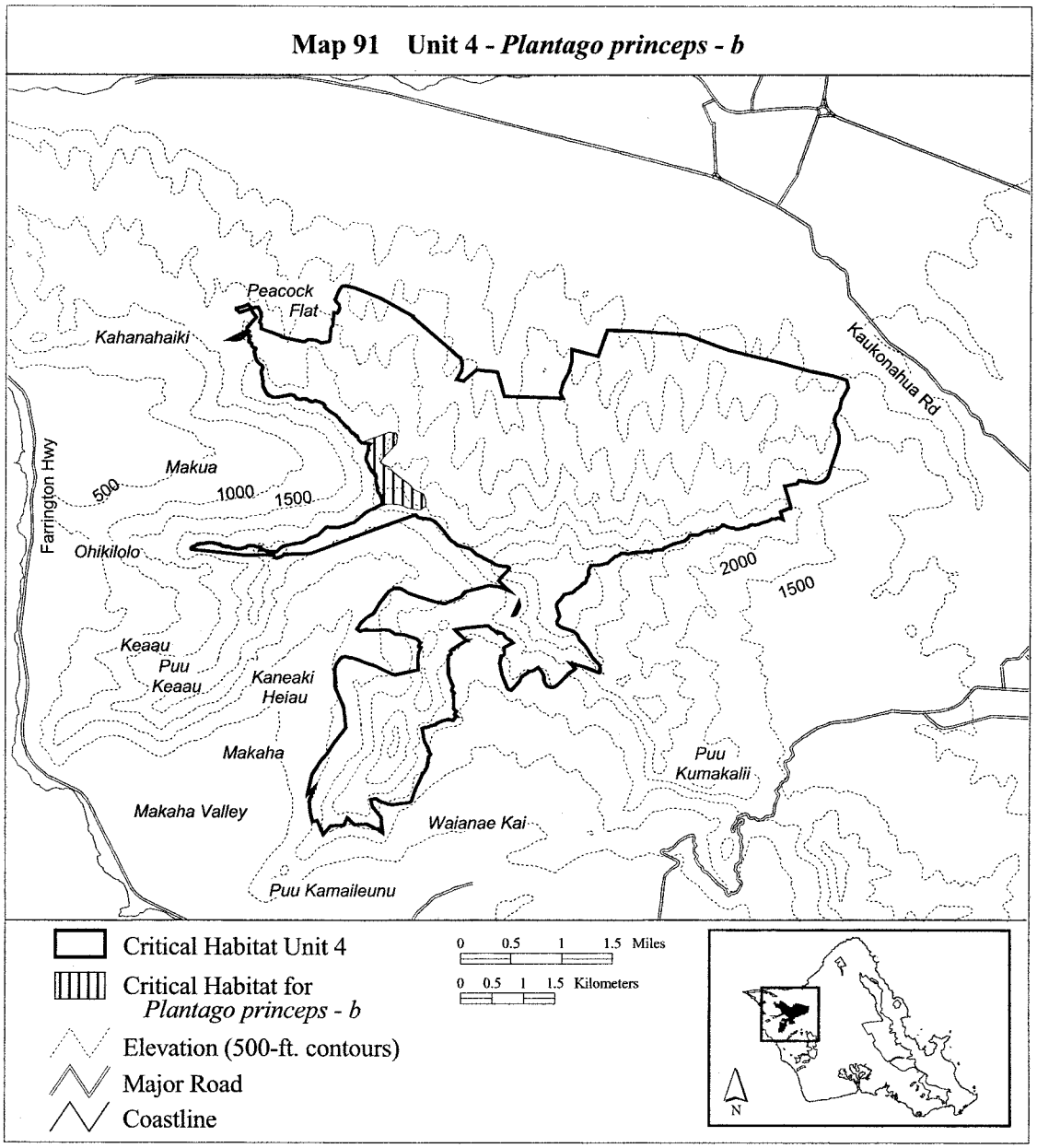
Map 90 Unit 4 - *Plantago princeps - a*



(91) Oahu 4—*Plantago princeps*—b (53 ha; 130 ac)

(i) Unit consists of the following 103 boundary points: Start at 585306, 2380537; 585297, 2380570; 585300, 2380580; 585303, 2380592; 585309, 2380613; 585315, 2380636; 585327, 2380677; 585338, 2380712; 585339, 2380712; 585344, 2380738; 585346, 2380754; 585345, 2380767; 585345, 2380779; 585348, 2380789; 585348, 2380790; 585344, 2380798; 585344, 2380799; 585338, 2380802; 585329, 2380804; 585328, 2380804; 585308, 2380806; 585279, 2380811; 585245, 2380818; 585228, 2380821; 585222, 2380825; 585222, 2380826; 585273, 2380841; 585474, 2380914; 585671, 2380987; 585774, 2380979; 585798, 2380918; 585786, 2380806; 585636, 2380648; 585535, 2380529; 585522, 2380526; 585525, 2380496; 585675, 2380429; 585698, 2380393; 585835, 2380275; 585966, 2380171; 586081, 2380063; 586216, 2379998; 586255, 2379886; 586259, 2379805; 586166, 2379736; 585997, 2379759; 585835, 2379824; 585685, 2379836; 585615, 2379836; 585621, 2379827; 585482, 2379787; 585547, 2379830; 585547, 2379831; 585548, 2379831; 585558, 2379891; 585558, 2379892; 585557, 2379892; 585548, 2379922; 585550, 2379928; 585550, 2379929; 585549, 2379929; 585549, 2379930; 585548, 2379930; 585547, 2379930; 585546, 2379929; 585545, 2379931; 585539, 2379943; 585531, 2379963; 585523, 2379982; 585522, 2379982; 585511, 2380001; 585498, 2380021; 585488, 2380040; 585483, 2380053; 585478, 2380071; 585475, 2380089; 585476, 2380103; 585474, 2380125; 585474, 2380128; 585472, 2380137; 585468, 2380149; 585465, 2380160; 585461, 2380173; 585457, 2380185; 585456, 2380203; 585456, 2380223; 585459, 2380252; 585459, 2380269; 585456, 2380281; 585451, 2380295; 585443, 2380310; 585430, 2380325; 585430, 2380326; 585408, 2380344; 585393, 2380361; 585375, 2380388; 585364, 2380407; 585353, 2380428; 585342, 2380452; 585330, 2380478; 585322, 2381797; 585318, 2380512; 585308, 2380533; return to starting point.

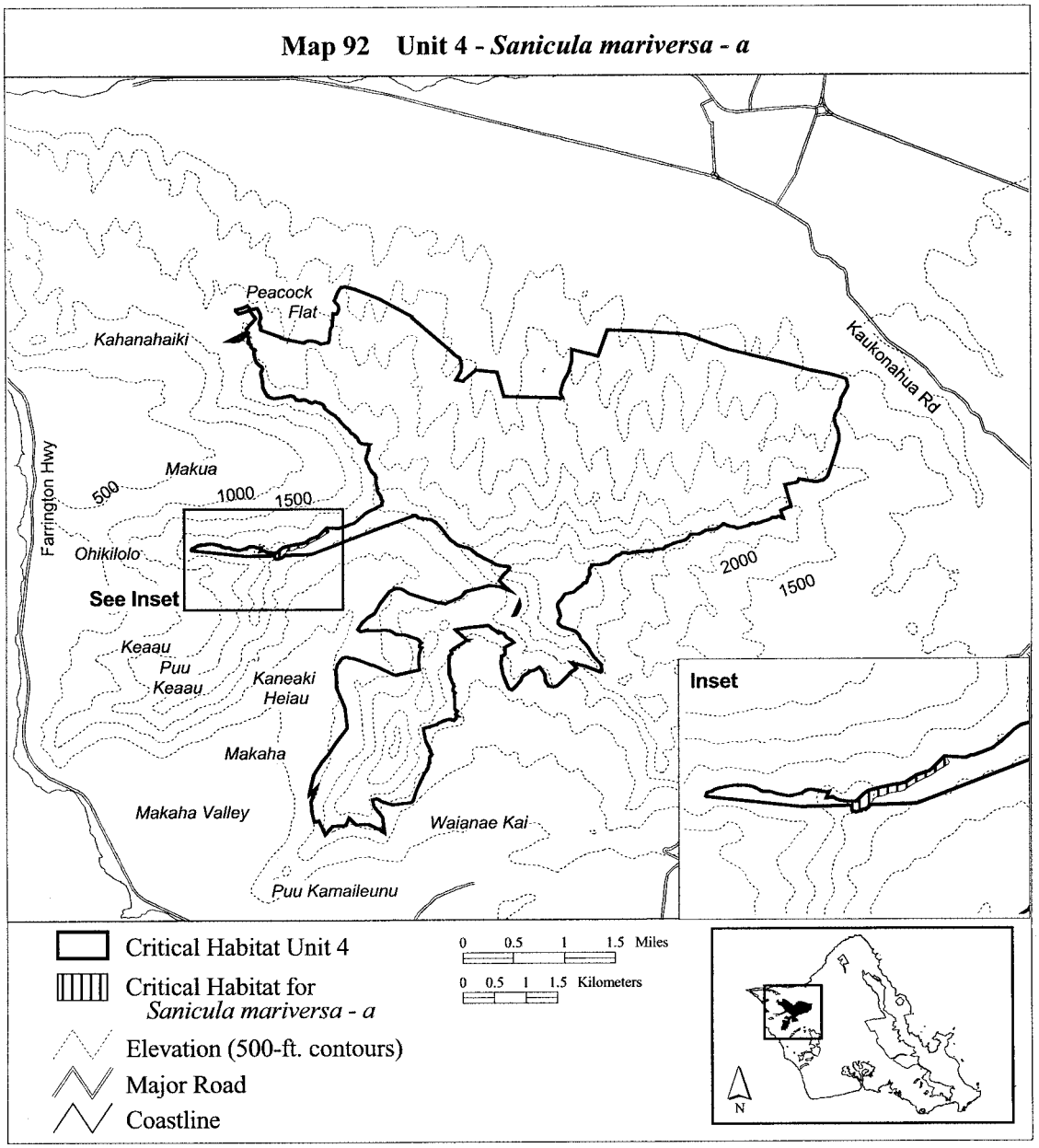
(ii) **Note:** Map 91 follows:



(92) Oahu 4—*Sanicula mariversa*—a (7 ha; 17 ac)

(i) Unit consists of the following 41 boundary points: Start at 584679, 2379459; 584686, 2379451; 584711, 2379404; 584703, 2379389; 584671, 2379369; 584614, 2379339; 584561, 2379299; 584536, 2379282; 584467, 2379252; 584407, 2379220; 584349, 2379185; 584305, 2379157; 584272, 2379145; 584188, 2379132; 584133, 2379110; 584043, 2379088; 584011, 2379043; 583988, 2379005; 583966, 2378990; 583936, 2378985; 583876, 2378960; 583839, 2378973; 583836, 2378998; 583835, 2379022; 583854, 2379060; 583876, 2379060; 583877, 2379060; 583877, 2379061; 583947, 2379131; 583977, 2379150; 584086, 2379180; 584226, 2379210; 584256, 2379210; 584326, 2379230; 584327, 2379230; 584417, 2379290; 584526, 2379330; 584527, 2379330; 584557, 2379350; 584657, 2379450; 584667, 2379460; return to starting point.

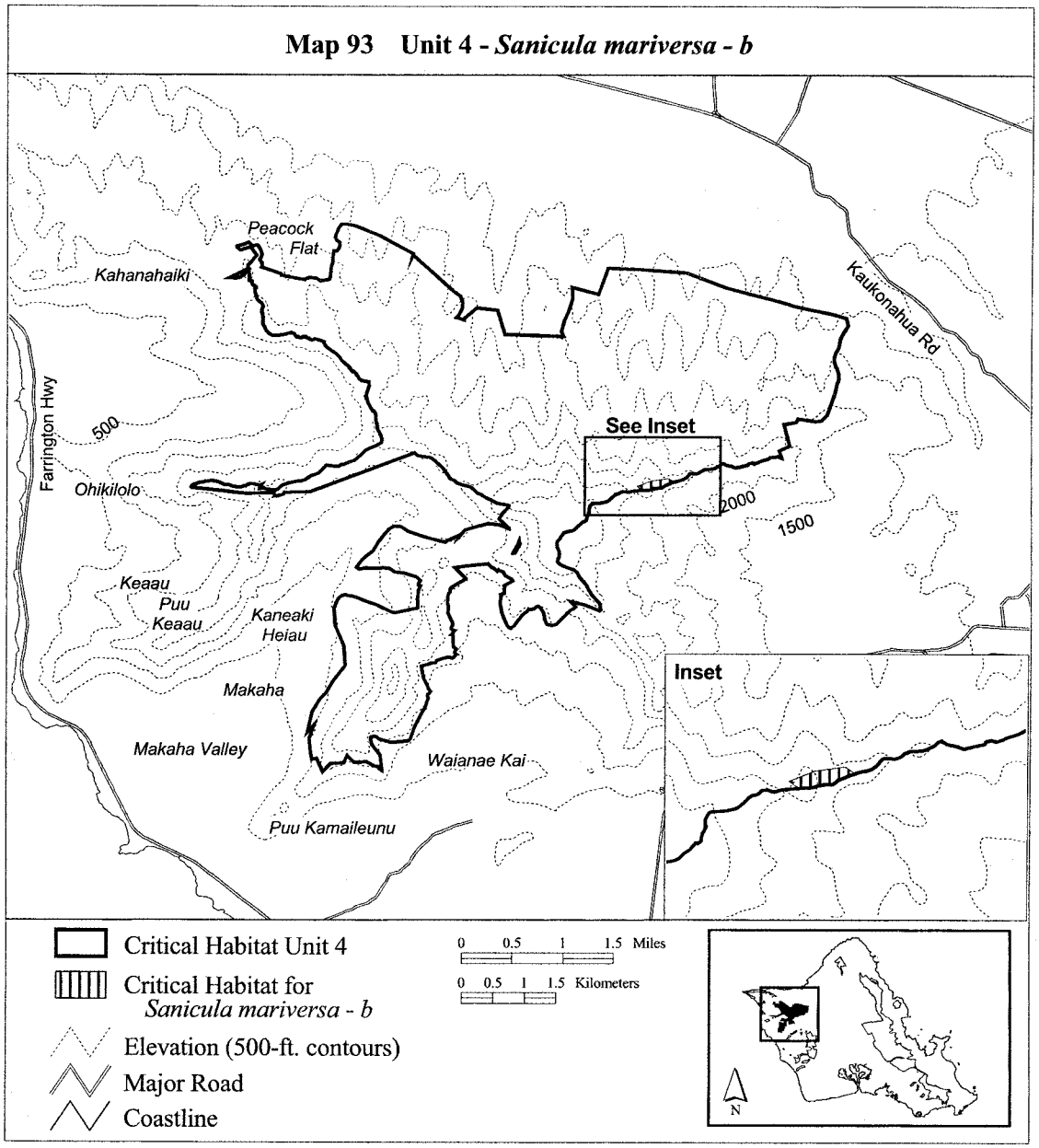
(ii) **Note:** Map 92 follows:



(93) Oahu 4—*Sanicula mariversa*—b (6 ha; 15 ac)

(i) Unit consists of the following 23 boundary points: Start at 589618, 2379132; 589854, 2379223; 590128, 2379259; 590218, 2379199; 590191, 2379191; 590084, 2379149; 590076, 2379145; 590067, 2379142; 590066, 2379141; 590039, 2379117; 590020, 2379104; 590012, 2379101; 589944, 2379099; 589907, 2379095; 589906, 2379095; 589881, 2379089; 589839, 2379075; 589839, 2379074; 589806, 2379068; 589790, 2379069; 589787, 2379069; 589747, 2379069; 589709, 2379066; return to starting point.

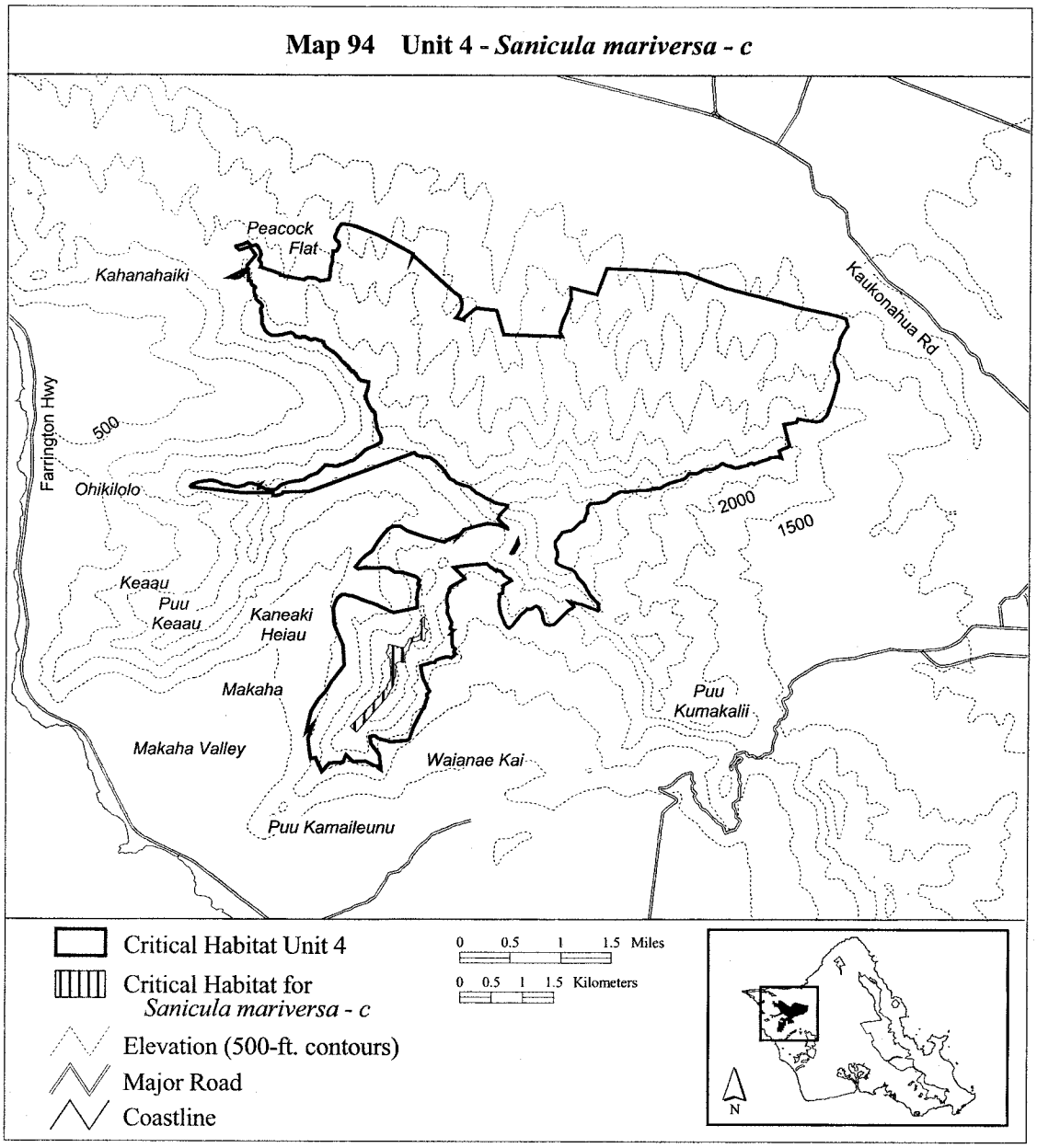
(ii) **Note:** Map 93 follows:



(94) Oahu 4—*Sanicula mariversa*—c (25 ha; 61 ac)

(i) Unit consists of the following 88 boundary points: Start at 586207, 2376926; 586193, 2376956; 586223, 2377006; 586254, 2377017; 586277, 2377004; 586255, 2376972; 586259, 2376901; 586261, 2376860; 586261, 2376842; 586298, 2376818; 586316, 2376808; 586300, 2376783; 586275, 2376759; 586272, 2376738; 586272, 2376692; 586273, 2376654; 586268, 2376631; 586241, 2376652; 586200, 2376659; 586162, 2376649; 586136, 2376633; 586082, 2376633; 586039, 2376593; 586011, 2376533; 586005, 2376472; 585975, 2376466; 585966, 2376447; 585962, 2376420; 585936, 2376400; 585928, 2376382; 585928, 2376361; 585944, 2376343; 585948, 2376325; 585948, 2376300; 585939, 2376293; 585914, 2376293; 585878, 2376298; 585855, 2376298; 585819, 2376282; 585805, 2376250; 585807, 2376209; 585800, 2376163; 585798, 2376102; 585791, 2376045; 585773, 2376004; 585766, 2375966; 585777, 2375927; 585746, 2375871; 585712, 2375825; 585700, 2375789; 585648, 2375707; 585601, 2375655; 585181, 2375180; 585083, 2375264; 585553, 2375761; 585592, 2375809; 585632, 2375845; 585664, 2375896; 585673, 2375941; 585719, 2376014; 585721, 2376068; 585726, 2376111; 585723, 2376172; 585721, 2376216; 585714, 2376259; 585718, 2376332; 585700, 2376370; 585669, 2376415; 585648, 2376438; 585664, 2376484; 585687, 2376509; 585680, 2376558; 585671, 2376575; 585685, 2376579; 585723, 2376577; 585791, 2376558; 585848, 2376541; 585911, 2376525; 585937, 2376531; 585984, 2376591; 586007, 2376665; 586028, 2376683; 586082, 2376686; 586136, 2376699; 586166, 2376711; 586182, 2376751; 586200, 2376777; 586209, 2376817; return to starting point.

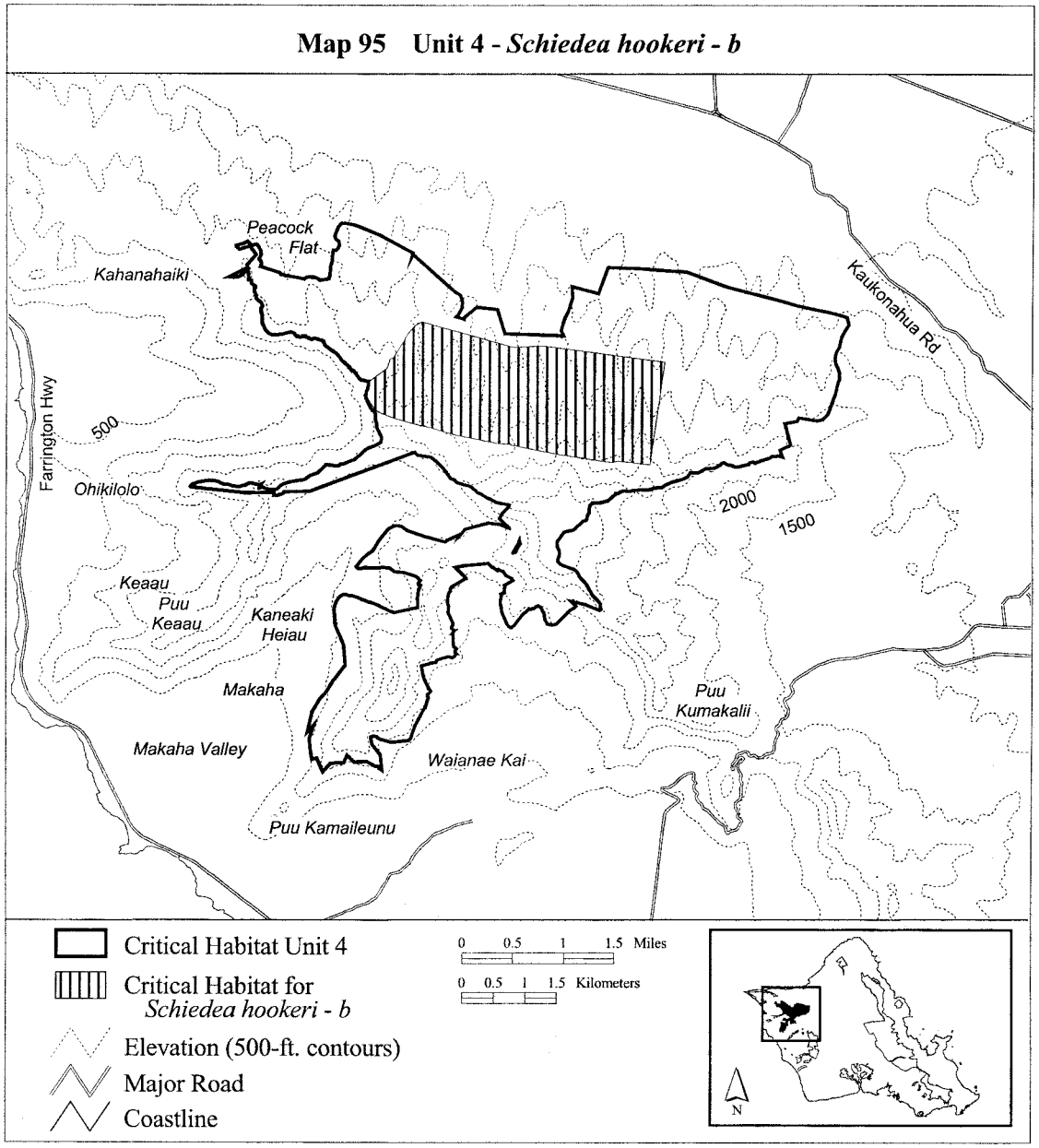
(ii) **Note:** Map 94 follows:



(95) Oahu 4—*Schiedea hookeri*—b (711 ha; 1,756 ac)

(i) Unit consists of the following 37 boundary points: Start at 585348, 2380789; 585645, 2381015; 585688, 2381163; 585739, 2381171; 585894, 2381417; 585985, 2381572; 586082, 2381691; 586191, 2381756; 586314, 2381731; 587656, 2381348; 587656, 2381345; 588119, 2381369; 590050, 2381108; 589819, 2379466; 589452, 2379514; 589308, 2379532; 589228, 2379500; 589029, 2379532; 588401, 2379630; 587999, 2379702; 587612, 2379785; 587612, 2379793; 587384, 2379814; 586747, 2379937; 586309, 2380060; 586081, 2380114; 585767, 2380205; 585499, 2380313; 585383, 2380444; 585318, 2380559; 585331, 2380689; 585338, 2380712; 585339, 2380712; 585344, 2380738; 585346, 2380754; 585345, 2380767; 585345, 2380779; return to starting point.

(ii) **Note:** Map 95 follows:

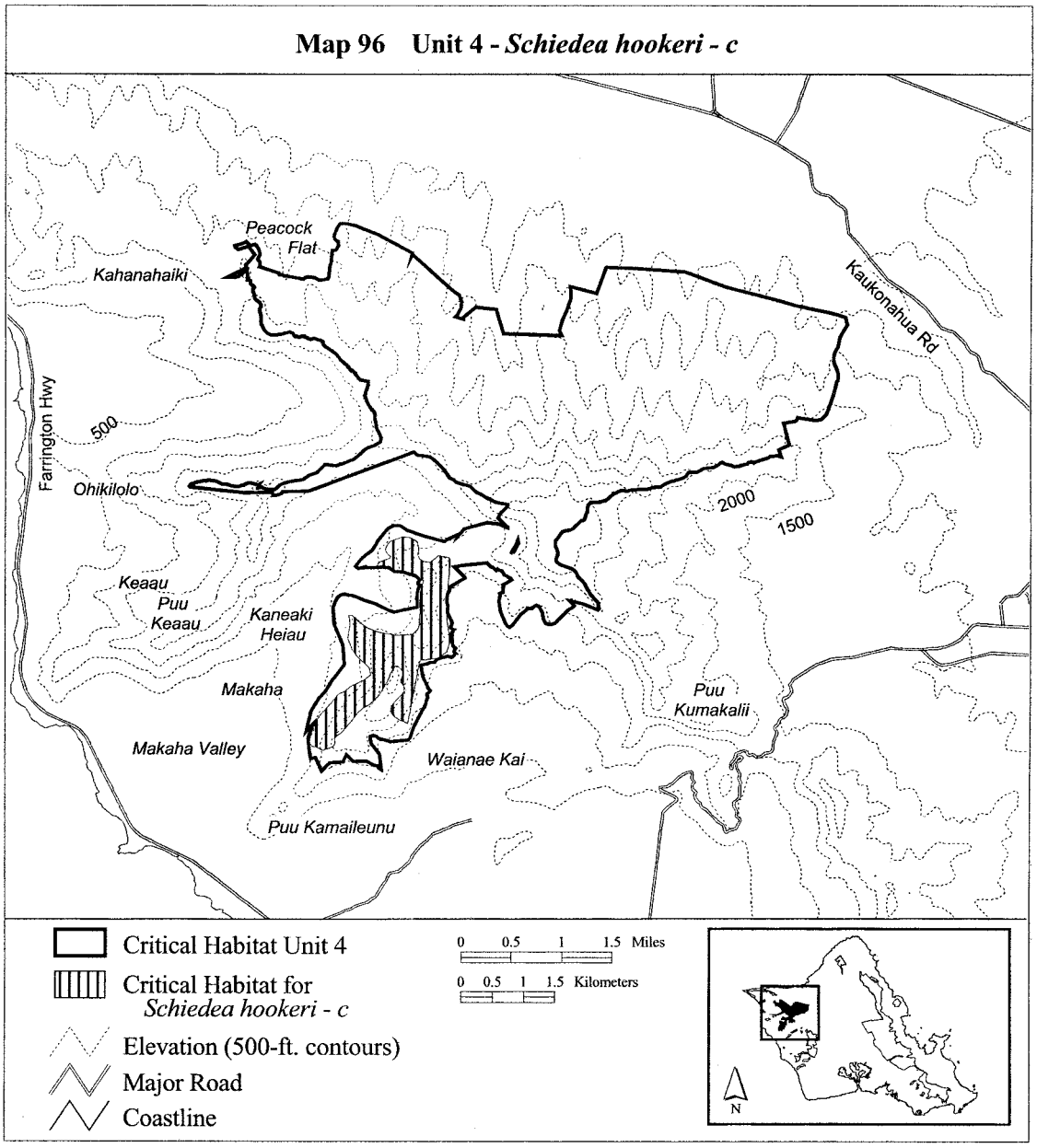


(96) Oahu 4—*Schiedea hookeri*—c (247 ha; 612 ac)

(i) Unit consists of the following 109 boundary points: Start at 586341, 2377892; 586395, 2377926; 586472, 2377998; 586539, 2377993; 586654, 2377965; 586664, 2377897; 586654, 2377768; 586640, 2377566; 586621, 2377369; 586597, 2377138; 586606, 2376989; 586635, 2376797; 586683, 2376692; 586659, 2376572; 586611, 2376451; 586568, 2376418; 586462, 2376351; 586204, 2376318; 586175, 2376255; 585995, 2375312; 585867, 2375366; 585760, 2375443; 585723, 2375506; 585727, 2375589; 585800, 2375669; 585900, 2375779; 585936, 2375813; 585930, 2375906; 585870, 2375979; 585900, 2376066; 585903, 2376149; 585860, 2376212; 585797, 2376231; 585767, 2376169; 585717, 2376116; 585693, 2376033; 585660, 2375953; 585567, 2375799; 585497, 2375719; 585403, 2375623; 585290, 2375553; 585213, 2375496; 585120, 2375363; 585044, 2375283; 584960, 2375173; 584867, 2375116; 584830, 2375070; 584837, 2375006; 584817, 2374953; 584764, 2374923; 584647, 2374886; 584554, 2374933; 584477, 2374946; 584427, 2375016; 584467, 2375153; 584524, 2375320; 584634, 2375486; 584794, 2375649; 584894, 2375779; 584984, 2375823; 585097, 2375906; 585283, 2375989; 585403, 2376086; 585383, 2376189; 585287, 2376292; 585174, 2376389; 585100, 2376502; 585037, 2376662; 585064, 2376869; 585067, 2376959; 585047, 2377042; 585097, 2377175; 585170, 2376985; 585227, 2376932; 585362, 2376832; 585396, 2376821; 585549, 2376768; 585790, 2376716; 585939, 2376730; 586073, 2376740; 586145, 2376807; 586174, 2376884; 586174, 2376965; 586184, 2377081; 586184, 2377263; 586193, 2377417; 586236, 2377600; 586107, 2377672; 585914, 2377734; 585770, 2377748; 585680, 2377807; 585653, 2377810; 585498, 2377832; 585520, 2377883; 585631, 2377934; 585700, 2377952; 585717, 2377986; 585661, 2378033; 585627, 2378089; 585653, 2378166; 585708, 2378230; 585807, 2378264; 585897, 2378303; 586051, 2378286; 586141, 2378217; 586167, 2378106; 586145,

2378012; 586179, 2377943; 586239, 2377909; return to starting point.

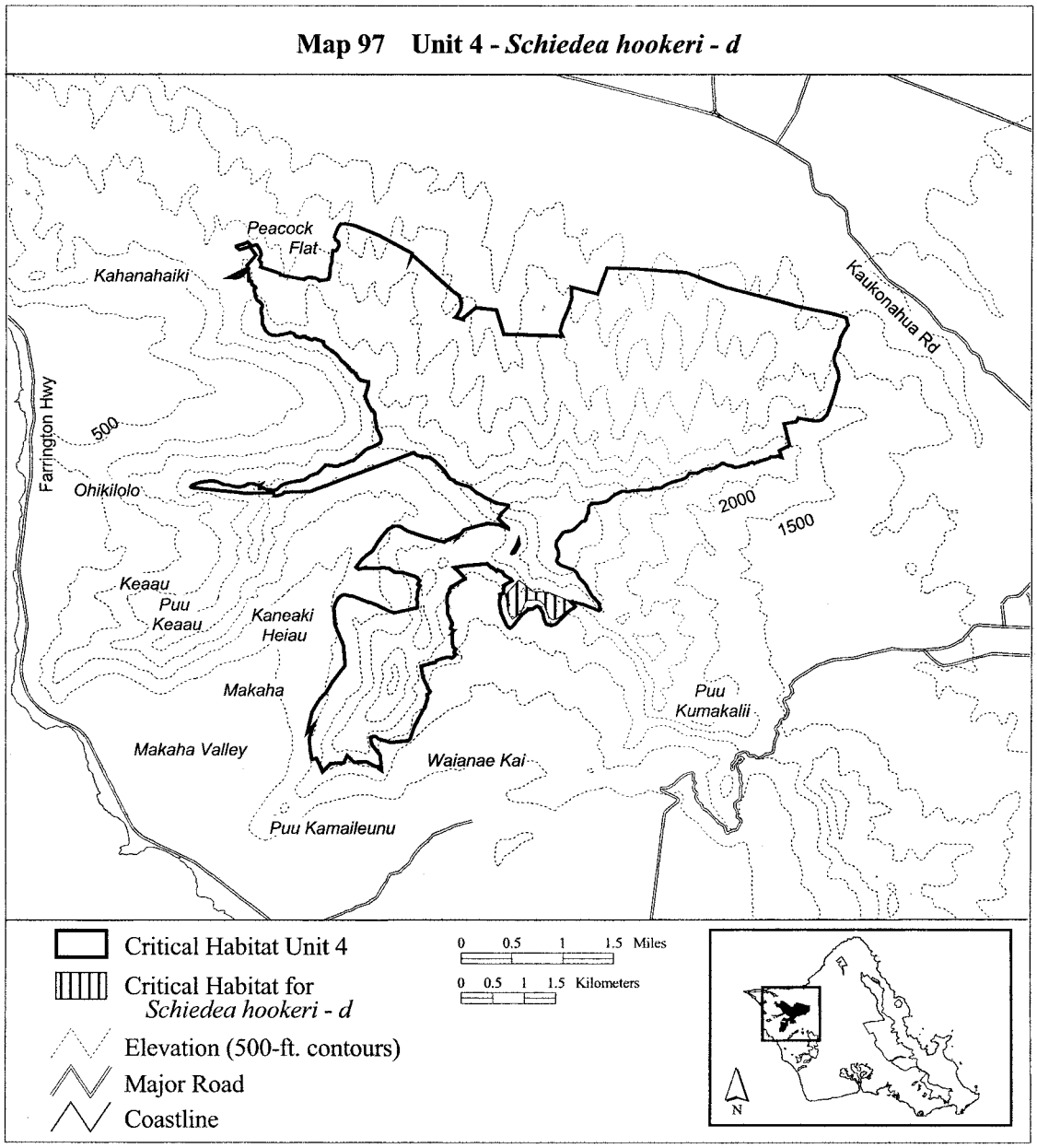
(ii) **Note:** Map 96 follows:



(97) Oahu 4—*Schiedea hookeri*—d (31 ha; 78 ac)

(i) Unit consists of the following 25 boundary points: Start at 587754, 2377619; 587985, 2377441; 588235, 2377417; 588403, 2377355; 588566, 2377283; 588643, 2377196; 588614, 2377167; 588470, 2377095; 588427, 2377047; 588355, 2376994; 588288, 2376985; 588230, 2377033; 588172, 2377162; 588163, 2377220; 588095, 2377292; 587990, 2377302; 587870, 2377297; 587826, 2377196; 587788, 2377105; 587740, 2377047; 587653, 2376994; 587596, 2377066; 587577, 2377177; 587562, 2377283; 587543, 2377379; return to starting point.

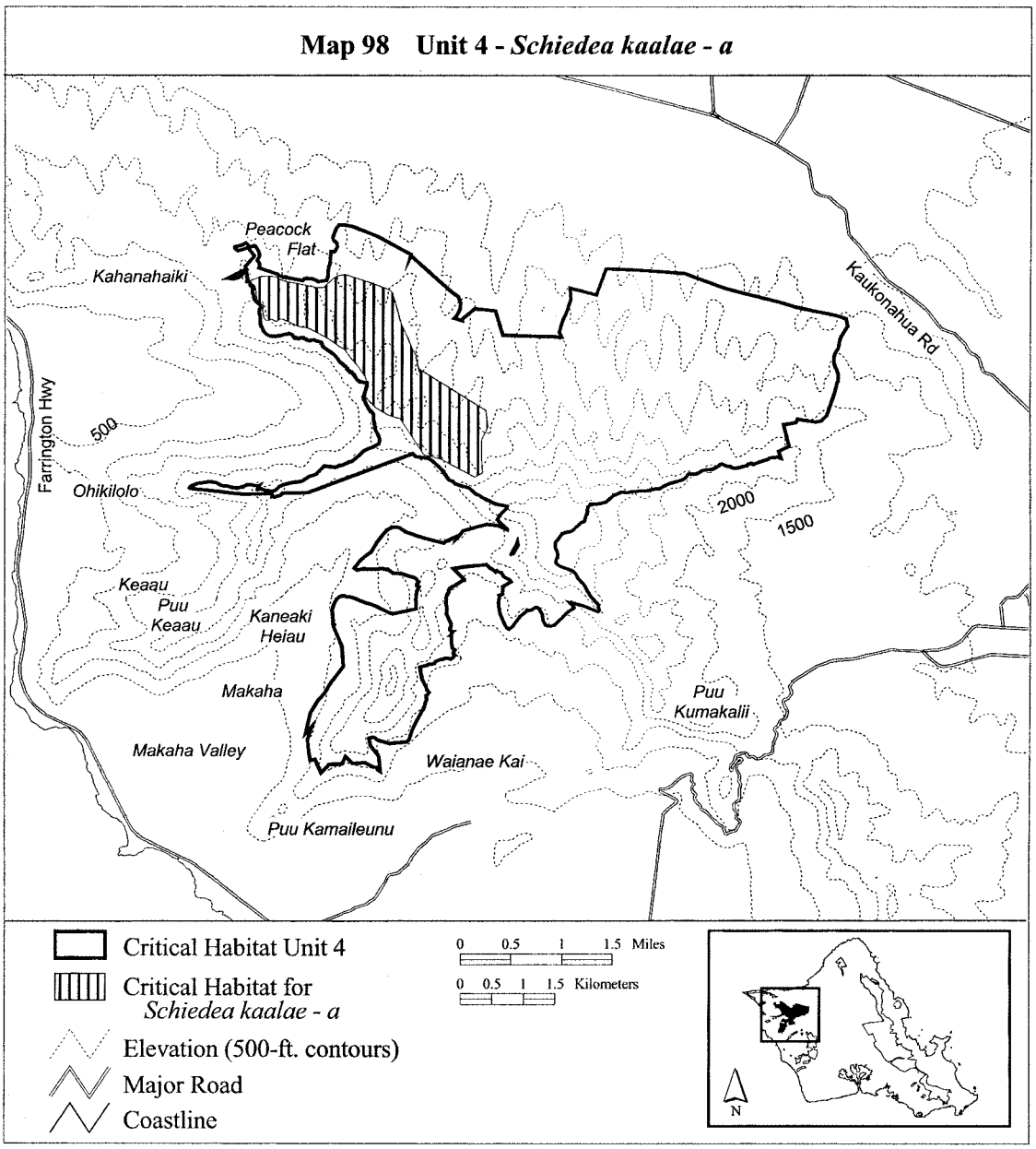
(ii) **Note:** Map 97 follows:



(98) Oahu 4—*Schiedea kaalae*—a (425 ha; 151 ac)

(i) Unit consists of the following 77 boundary points: Start at 585318, 2380589; 585359, 2380791; 585317, 2380901; 585201, 2381075; 585118, 2381169; 585045, 2381260; 584989, 2381336; 584997, 2381334; 584903, 2381389; 584744, 2381502; 584542, 2381618; 584429, 2381669; 584252, 2381704; 584107, 2381768; 584010, 2381816; 583957, 2381814; 583919, 2381792; 583898, 2381781; 583852, 2381806; 583817, 2381816; 583774, 2381800; 583742, 2381795; 583702, 2381846; 583688, 2381956; 583691, 2382045; 583643, 2382066; 583616, 2382109; 583586, 2382157; 583573, 2382233; 583565, 2382308; 583551, 2382361; 583514, 2382383; 583484, 2382437; 583562, 2382464; 583651, 2382496; 583766, 2382504; 583903, 2382493; 583967, 2382455; 584029, 2382429; 584239, 2382394; 584403, 2382353; 584543, 2382327; 584645, 2382327; 584683, 2382348; 584739, 2382399; 584830, 2382482; 584887, 2382512; 585005, 2382536; 585351, 2382429; 585717, 2382289; 585716, 2382286; 585752, 2382241; 585768, 2382198; 585824, 2382023; 585886, 2381779; 585980, 2381556; 586066, 2381360; 586117, 2381263; 586160, 2381102; 586187, 2381003; 586185, 2380994; 586194, 2381018; 587237, 2380368; 587270, 2380095; 587173, 2379878; 587172, 2379589; 587188, 2379357; 587068, 2379293; 586522, 2379581; 586266, 2379646; 585873, 2380239; 585834, 2380237; 585753, 2380262; 585675, 2380288; 585603, 2380334; 585495, 2380404; 585383, 2380509; return to starting point.

(ii) **Note:** Map 98 follows:

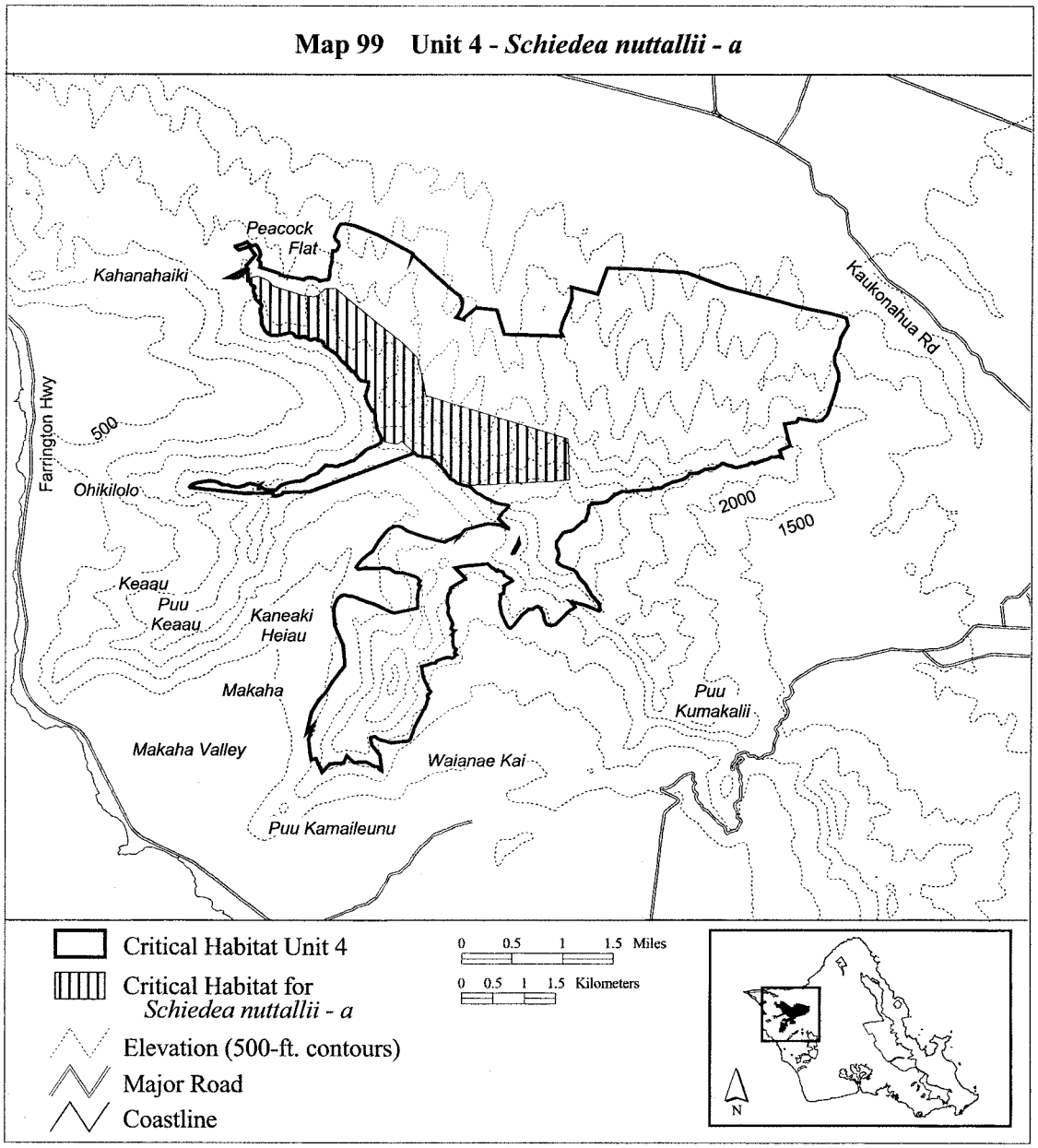


(99) Oahu 4—*Schiedea nuttallii*—a (527 ha; 1,303 ac)

(i) Unit consists of the following 248 boundary points: Start at 583882, 2381544; 583879, 2381544; 583760, 2381566; 583747, 2381571; 583730, 2381588; 583709, 2381612; 583707, 2381614; 583694, 2381639; 583685, 2381655; 583672, 2381685; 583659, 2381711; 583652, 2381731; 583651, 2381742; 583651, 2381757; 583651, 2381773; 583651, 2381789; 583651, 2381805; 583651, 2381806; 583649, 2381820; 583644, 2381847; 583642, 2381874; 583639, 2381896; 583638, 2381897; 583634, 2381907; 583631, 2381919; 583629, 2381934; 583630, 2381951; 583633, 2381969; 583638, 2381979; 583645, 2381993; 583645, 2381994; 583649, 2382013; 583649, 2382018; 583648, 2382029; 583647, 2382030; 583641, 2382045; 583640, 2382045; 583626, 2382059; 583610, 2382073; 583590, 2382091; 583570, 2382107; 583561, 2382120; 583552, 2382135; 583546, 2382153; 583536, 2382180; 583529, 2382214; 583523, 2382238; 583518, 2382254; 583517, 2382264; 583517, 2382276; 583518, 2382287; 583521, 2382299; 583528, 2382305; 583535, 2382312; 583535, 2382313; 583535, 2382319; 583531, 2382326; 583523, 2382334; 583522, 2382334; 583511, 2382337; 583498, 2382345; 583497, 2382345; 583486, 2382351; 583477, 2382362; 583474, 2382370; 583475, 2382383; 583475, 2382397; 583474, 2382404; 583474, 2382405; 583469, 2382411; 583468, 2382411; 583457, 2382416; 583443, 2382421; 583435, 2382424; 583430, 2382430; 583429, 2382440; 583430, 2382454; 583564, 2382494; 583605, 2382494; 583766, 2382417; 583833, 2382339; 583972, 2382293; 584282, 2382190; 584463, 2382159; 584546, 2382190; 584670, 2382298; 584825, 2382303; 585042, 2382122; 585408, 2381813; 585857, 2381456; 586121, 2381203; 586229, 2380760; 586265, 2380574; 586263, 2380570; 586271, 2380579; 588524, 2379889; 588546, 2379230; 588163, 2379202; 586906, 2379133; 586653, 2379250; 586421, 2379576; 586132, 2379620; 585877, 2379851; 585856, 2379830; 585789, 2379804; 585567, 2379851; 585554,

2379870; 585558, 2379891; 585558, 2379892; 585557, 2379892; 585548, 2379922; 585550, 2379928; 585550, 2379929; 585549, 2379929; 585549, 2379930; 585548, 2379930; 585547, 2379930; 585546, 2379929; 585545, 2379931; 585539, 2379943; 585531, 2379963; 585523, 2379982; 585522, 2379982; 585511, 2380001; 585498, 2380021; 585488, 2380040; 585483, 2380053; 585478, 2380071; 585475, 2380089; 585476, 2380103; 585474, 2380125; 585474, 2380128; 585472, 2380137; 585468, 2380149; 585465, 2380159; 585474, 2380228; 585469, 2380290; 585446, 2380303; 585443, 2380310; 585430, 2380325; 585430, 2380326; 585418, 2380335; 585393, 2380361; 585375, 2380388; 585364, 2380407; 585353, 2380428; 585342, 2380452; 585330, 2380478; 585322, 2381797; 585318, 2380512; 585308, 2380533; 585305, 2380540; 585309, 2380616; 585315, 2380636; 585327, 2380677; 585338, 2380712; 585339, 2380712; 585344, 2380738; 585346, 2380754; 585345, 2380767; 585345, 2380779; 585348, 2380789; 585348, 2380790; 585344, 2380798; 585344, 2380799; 585338, 2380802; 585329, 2380804; 585328, 2380804; 585308, 2380806; 585279, 2380811; 585245, 2380818; 585233, 2380820; 585181, 2380867; 585167, 2380888; 585157, 2380904; 585138, 2380929; 585119, 2380952; 585119, 2380953; 585107, 2380962; 585106, 2380963; 585094, 2380968; 585078, 2380975; 585067, 2380980; 585061, 2380987; 585053, 2381000; 585039, 2381021; 585027, 2381040; 585011, 2381059; 584993, 2381074; 584993, 2381075; 584973, 2381090; 584954, 2381104; 584939, 2381117; 584923, 2381137; 584905, 2381157; 584891, 2381175; 584867, 2381205; 584852, 2381221; 584844, 2381230; 584843, 2381230; 584813, 2381261; 584796, 2381273; 584778, 2381284; 584774, 2381287; 584751, 2381303; 584728, 2381318; 584708, 2381329; 584693, 2381342; 584638, 2381399; 584636, 2381408; 584633, 2381420; 584628, 2381430; 584618, 2381442; 584617, 2381442; 584601, 2381452; 584581, 2381462; 584562, 2381467; 584539, 2381475; 584519, 2381483; 584494, 2381489; 584478, 2381486; 584462, 2381479; 584401, 2381484; 584383, 2381494; 584357, 2381507; 584350, 2381511; 584325, 2381523; 584324, 2381523; 584310, 2381528; 584309, 2381528; 584291, 2381527; 584290, 2381527; 584281, 2381521; 584275, 2381516; 584266, 2381511; 584260, 2381511; 584181, 2381531; 584167, 2381553; 584150, 2381572; 584130, 2381584; 584129, 2381584; 584104, 2381586; 584065, 2381583; 584021, 2381575; 583992, 2381567; 583957, 2381557; 583934, 2381555; 583897, 2381549; return to starting point.

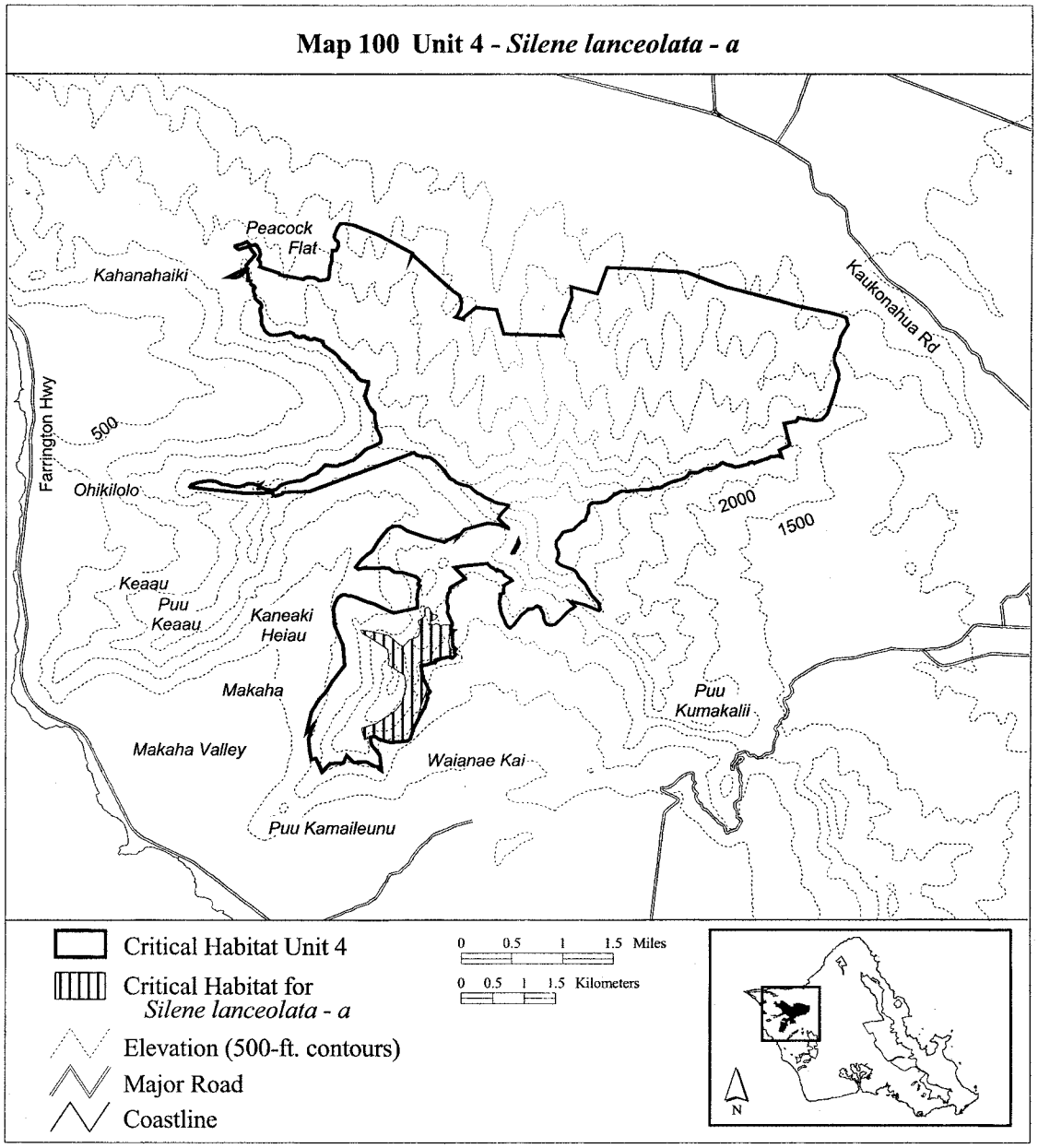
(ii) **Note:** Map 99 follows:



(100) Oahu 4—*Silene lanceolata*—a (113 ha; 280 ac)

(i) Unit consists of the following 70 boundary points: Start at 585235, 2376822; 585462, 2376783; 585696, 2376727; 585781, 2376649; 585867, 2376571; 585916, 2376560; 585987, 2376620; 586016, 2376666; 586090, 2376680; 586157, 2376709; 586179, 2376805; 586182, 2376876; 586154, 2376950; 586164, 2376975; 586242, 2377032; 586267, 2377099; 586264, 2377163; 586321, 2377180; 586349, 2377141; 586395, 2377071; 586430, 2377067; 586462, 2377039; 586427, 2376996; 586342, 2376957; 586345, 2376918; 586395, 2376900; 586416, 2376911; 586448, 2376922; 586505, 2376897; 586562, 2376904; 586594, 2376904; 586657, 2376904; 586661, 2376851; 586682, 2376819; 586718, 2376798; 586657, 2376755; 586657, 2376712; 586633, 2376631; 586650, 2376585; 586668, 2376532; 586714, 2376489; 586735, 2376450; 586735, 2376404; 586696, 2376365; 586579, 2376400; 586519, 2376383; 586477, 2376376; 586413, 2376344; 586402, 2376308; 586186, 2376269; 586179, 2376162; 586312, 2375895; 586186, 2375546; 586127, 2375360; 586029, 2375074; 586003, 2375053; 585710, 2375018; 585450, 2375122; 585302, 2375070; 585257, 2375248; 585502, 2375327; 585800, 2375531; 585889, 2375650; 585963, 2375910; 585941, 2376095; 585673, 2376266; 585696, 2376326; 585666, 2376512; 585450, 2376653; 585264, 2376764; return to starting point.

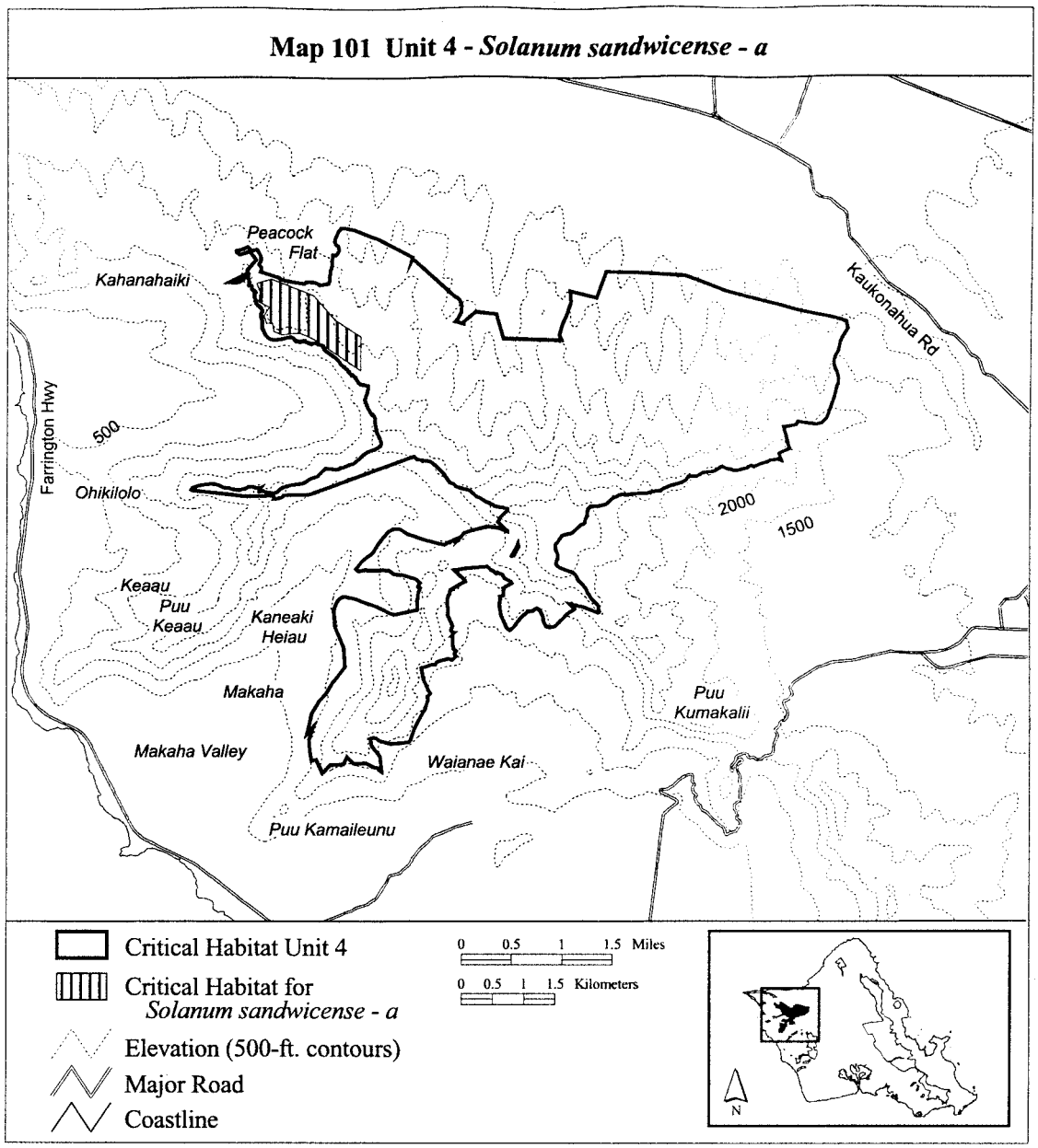
(ii) **Note:** Map 100 follows:



(101) Oahu 4—*Solanum sandwicense*—a (105 ha; 258 ac)

(i) Unit consists of the following 16 boundary points: Start at 583559, 2382457; 583792, 2382513; 584478, 2382255; 584821, 2381863; 585232, 2381588; 585232, 2381049; 584471, 2381551; 584245, 2381655; 583969, 2381631; 583841, 2381680; 583810, 2381814; 583718, 2381808; 583675, 2381925; 583767, 2382072; 583590, 2382151; 583608, 2382317; return to starting point.

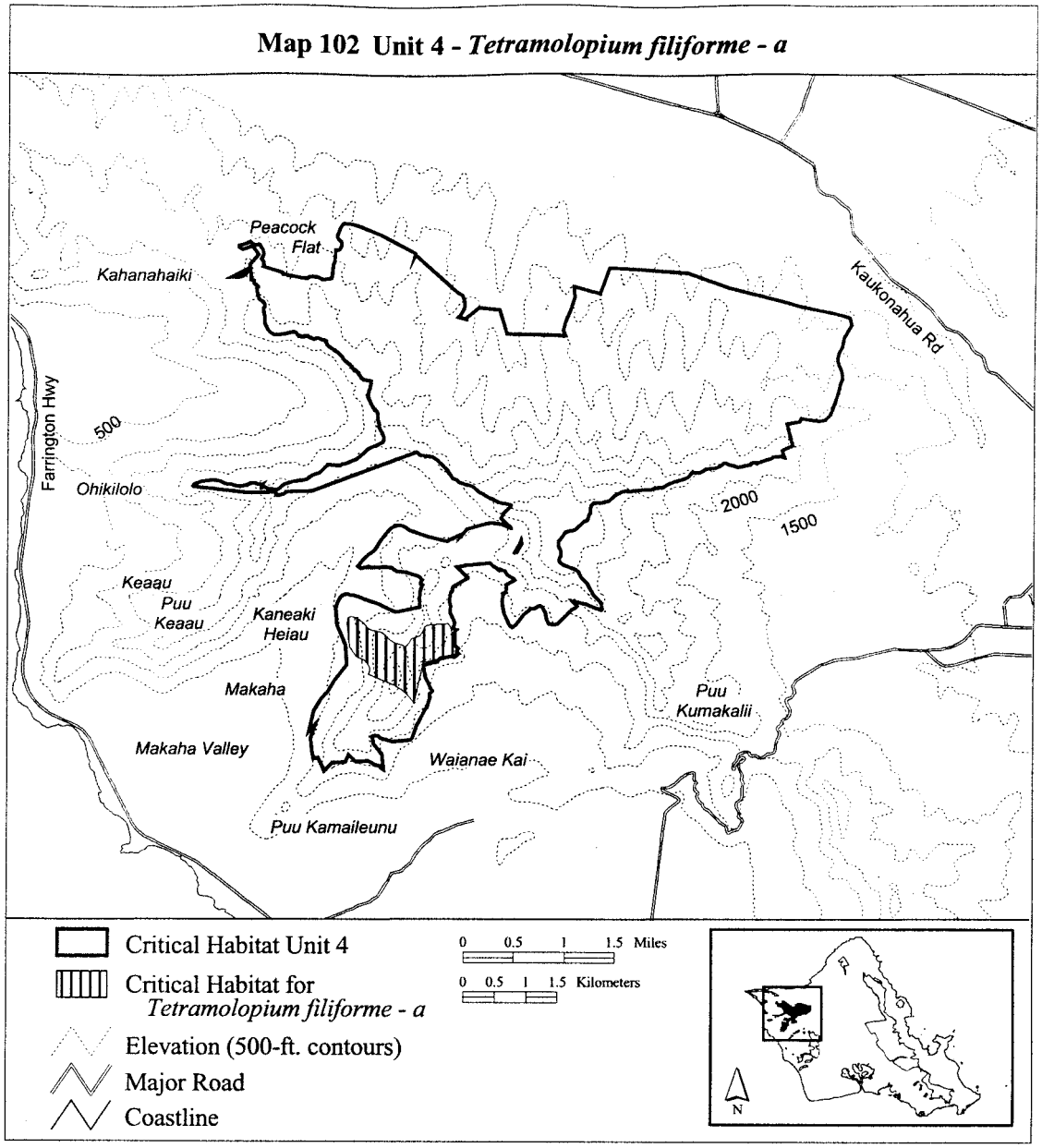
(ii) **Note:** Map 101 follows:



(102) Oahu 4—*Tetramolopium filiforme*—a (110 ha; 273 ac)

(i) Unit consists of the following 61 boundary points: Start at 585056, 2377021; 585144, 2376990; 585223, 2376941; 585273, 2376888; 585315, 2376838; 585364, 2376800; 585444, 2376781; 585535, 2376762; 585611, 2376705; 585664, 2376652; 585710, 2376622; 585748, 2376591; 585816, 2376576; 585870, 2376553; 585900, 2376530; 585949, 2376561; 585984, 2376614; 586014, 2376663; 586090, 2376694; 586151, 2376709; 586185, 2376770; 586216, 2376861; 586269, 2376888; 586360, 2376895; 586428, 2376899; 586497, 2376903; 586588, 2376907; 586638, 2376842; 586645, 2376781; 586664, 2376720; 586657, 2376675; 586657, 2376637; 586679, 2376584; 586717, 2376538; 586755, 2376508; 586717, 2376447; 586687, 2376409; 586615, 2376382; 586562, 2376363; 586451, 2376374; 586432, 2376336; 586193, 2376280; 586185, 2376207; 586052, 2375626; 585995, 2375721; 585911, 2375800; 585843, 2375854; 585767, 2375899; 585762, 2375889; 585758, 2375912; 585332, 2376097; 585349, 2376150; 585349, 2376207; 585311, 2376264; 585265, 2376317; 585136, 2376378; 585026, 2376527; 585007, 2376656; 584999, 2376770; 584980, 2376907; 584999, 2376998; return to starting point.

(ii) **Note:** Map 102 follows:

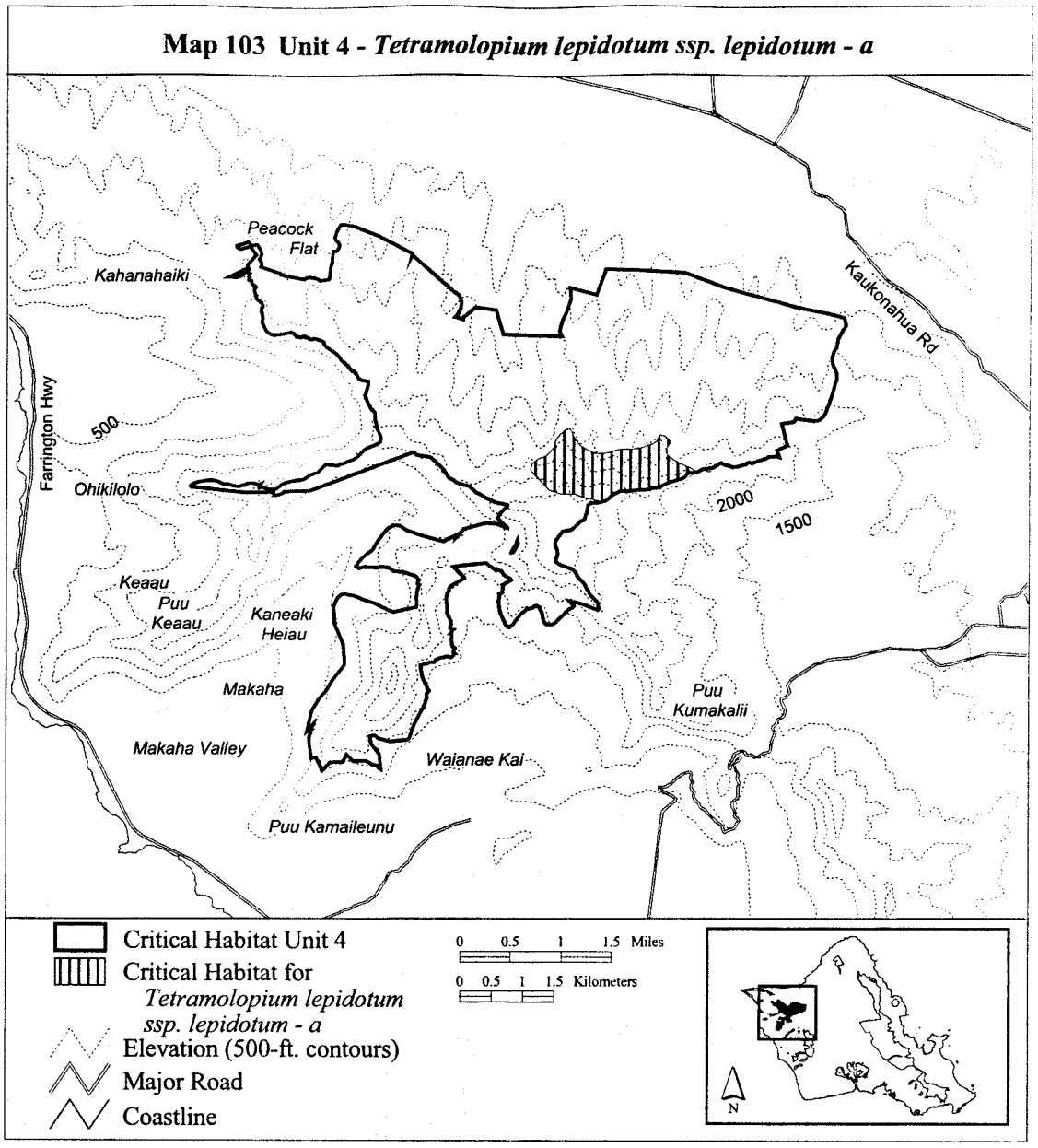


(103) Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—a (167 ha; 413 ac)

(i) Unit consists of the following 107 boundary points: Start at 588571, 2380048; 588609, 2379981; 588651, 2379880; 588730, 2379784; 588859, 2379700; 589002, 2379650; 589153, 2379658; 589270, 2379692; 589408, 2379717; 589559, 2379717; 589718, 2379746; 589890, 2379805; 589962, 2379847; 590016, 2379947; 590079, 2379935; 590125, 2379897; 590171, 2379851; 590163, 2379792; 590129, 2379733; 590117, 2379658; 590142, 2379612; 590255, 2379536; 590351, 2379478; 590448, 2379448; 590506, 2379419; 590586, 2379365; 590607, 2379344; 590593, 2379338; 590572, 2379336; 590525, 2379340; 590514, 2379339; 590479, 2379340; 590478, 2379340; 590462, 2379334; 590444, 2379312; 590415, 2379277; 590373, 2379247; 590347, 2379233; 590321, 2379227; 590285, 2379219; 590191, 2379191; 590084, 2379149; 590076, 2379145; 590067, 2379142; 590066, 2379141; 590039, 2379117; 590020, 2379104; 590012, 2379101; 589944, 2379099; 589907, 2379095; 589906, 2379095; 589881, 2379089; 589839, 2379075; 589839, 2379074; 589806, 2379068; 589790, 2379069; 589787, 2379069; 589747, 2379069; 589705, 2379066; 589675, 2379063; 589616, 2379059; 589604, 2379058; 589557, 2379052; 589519, 2379042; 589496, 2379035; 589462, 2379034; 589441, 2379042; 589424, 2379047; 589391, 2379048; 589370, 2379041; 589369, 2379041; 589348, 2379025; 589324, 2379009; 589303, 2379003; 589286, 2379001; 589285, 2379001; 589276, 2378998; 589275, 2378998; 589245, 2378974; 589244, 2378974; 589217, 2378943; 589164, 2378898; 589149, 2378886; 589123, 2378879; 589095, 2378872; 588960, 2378899; 588847, 2378916; 588775, 2378950; 588679, 2378979; 588620, 2378992; 588524, 2378992; 588432, 2378992; 588348, 2379017; 588256, 2379059; 588176, 2379130; 588084, 2379235; 587992, 2379318; 587950, 2379386; 587962, 2379461; 588008, 2379515; 588080, 2379562; 588190, 2379603; 588269, 2379683; 588328, 2379767; 588340,

2379847; 588408, 2379935; 588491, 2380023; return to starting point.

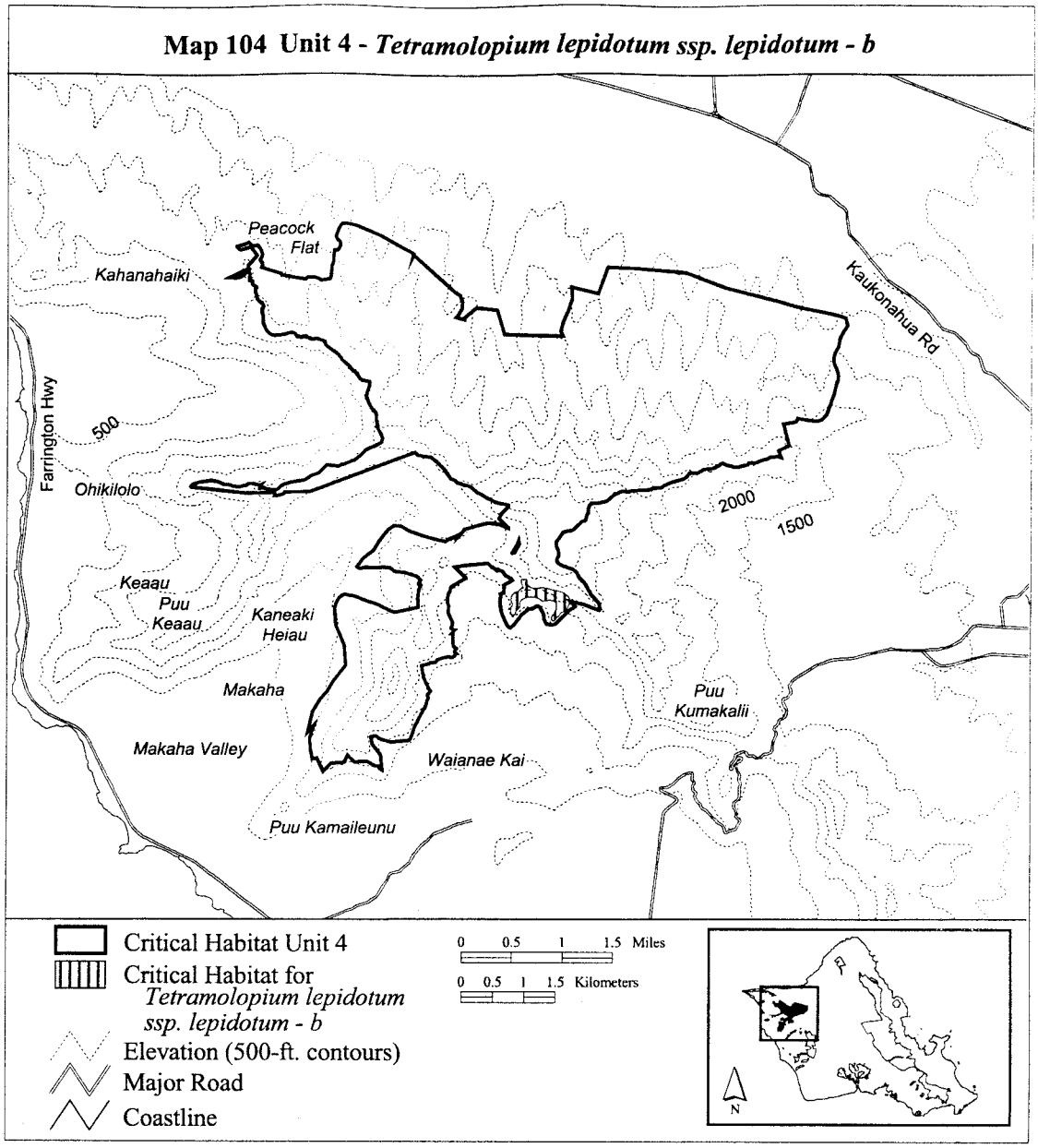
(ii) **Note:** Map 103 follows:



(104) Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—b (23 ha; 56 ac)

(i) Unit consists of the following 66 boundary points: Start at 587816, 2377513; 587792, 2377572; 587790, 2377601; 587795, 2377624; 587819, 2377630; 587851, 2377630; 587871, 2377624; 587880, 2377589; 587880, 2377548; 587912, 2377519; 587945, 2377490; 588021, 2377481; 588094, 2377490; 588167, 2377490; 588269, 2377469; 588360, 2377446; 588465, 2377408; 588541, 2377349; 588550, 2377305; 588553, 2377253; 588544, 2377215; 588526, 2377162; 588494, 2377118; 588430, 2377092; 588398, 2377045; 588354, 2377007; 588322, 2376955; 588290, 2376955; 588275, 2376981; 588275, 2377007; 588278, 2377034; 588307, 2377072; 588342, 2377145; 588342, 2377183; 588348, 2377232; 588342, 2377256; 588301, 2377285; 588243, 2377291; 588173, 2377285; 588129, 2377279; 588100, 2377300; 588029, 2377341; 587947, 2377343; 587880, 2377343; 587790, 2377297; 587763, 2377247; 587775, 2377186; 587740, 2377156; 587702, 2377115; 587696, 2377074; 587667, 2377045; 587632, 2377057; 587617, 2377083; 587614, 2377115; 587614, 2377148; 587629, 2377183; 587646, 2377206; 587649, 2377235; 587632, 2377253; 587629, 2377273; 587629, 2377297; 587629, 2377314; 587629, 2377341; 587655, 2377376; 587699, 2377417; 587746, 2377440; return to starting point.

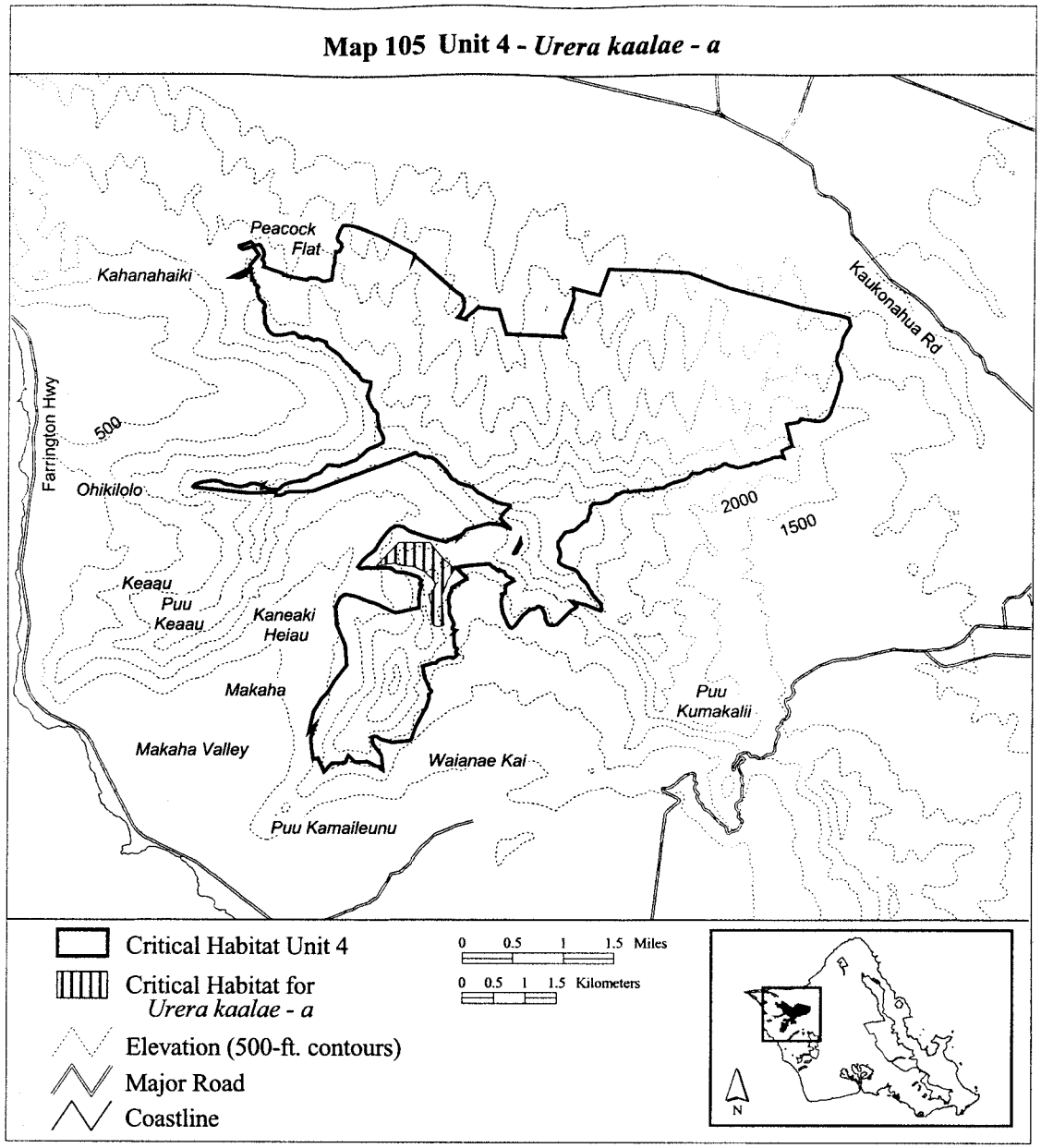
(ii) **Note:** Map 104 follows:



(105) Oahu 4—*Urera kaalae*—a (54 ha; 133 ac)

(i) Unit consists of the following 31 boundary points: Start at 585458, 2377846; 585812, 2378215; 586314, 2378215; 586485, 2378006; 586713, 2377795; 586580, 2377592; 586584, 2377579; 586581, 2377578; 586501, 2377367; 586539, 2376893; 586461, 2376877; 586391, 2376882; 586345, 2376923; 586333, 2376996; 586330, 2377057; 586333, 2377159; 586333, 2377211; 586316, 2377276; 586298, 2377354; 586336, 2377407; 586383, 2377482; 586397, 2377546; 586383, 2377590; 586333, 2377651; 586257, 2377718; 586220, 2377753; 586147, 2377794; 586042, 2377838; 585908, 2377849; 585826, 2377858; 585739, 2377890; return to starting point.

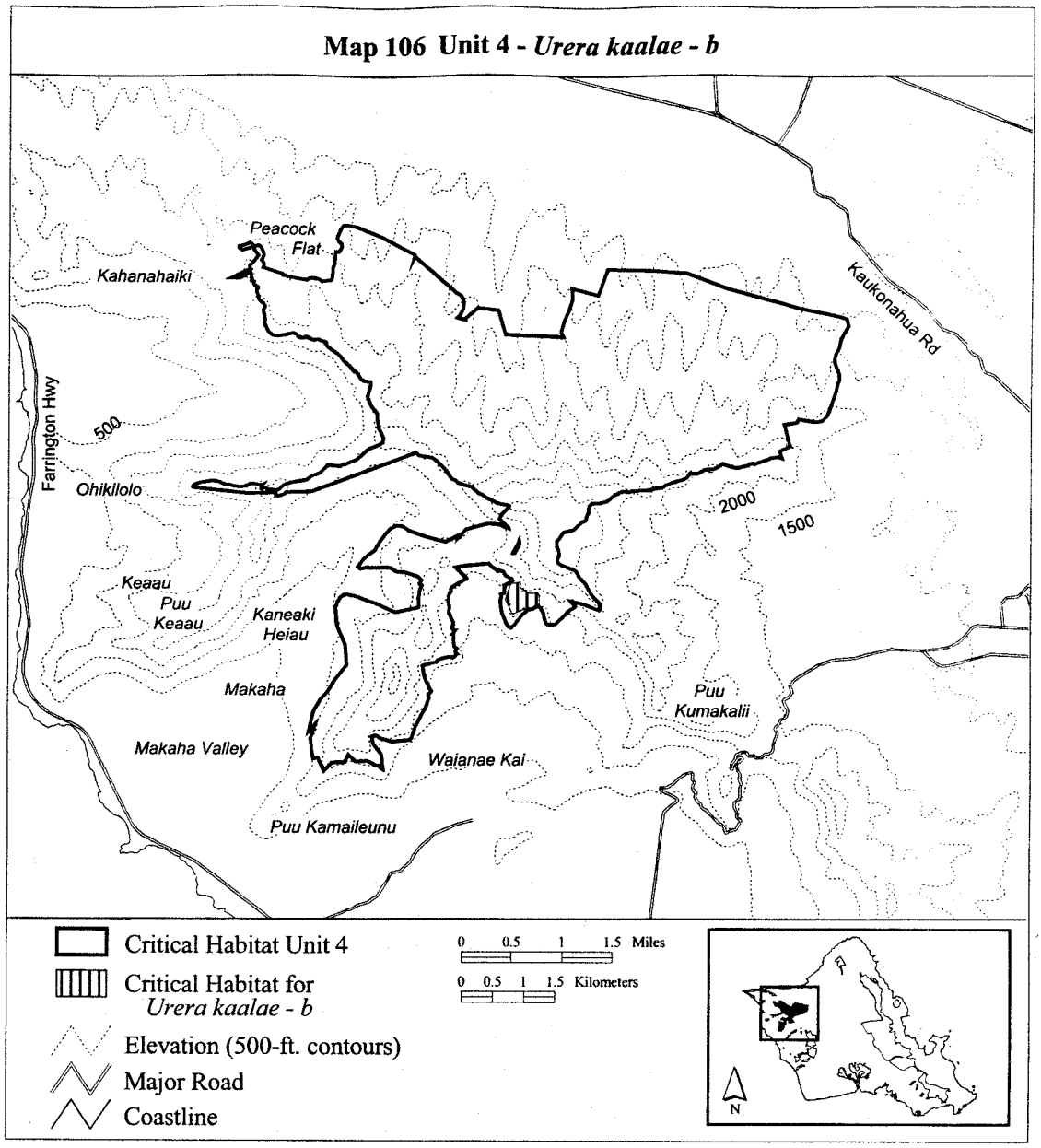
(ii) **Note:** Map 105 follows:



(106) Oahu 4—*Urera kaalae*—b (17 ha; 43 ac)

(i) Unit consists of the following 19 boundary points: Start at 587770, 2377591; 587772, 2377573; 587772, 2377497; 587839, 2377453; 587894, 2377418; 587949, 2377404; 588028, 2377418; 588048, 2377418; 588066, 2377395; 588077, 2377363; 588074, 2377316; 588072, 2377217; 588022, 2377191; 587970, 2377156; 587819, 2377145; 587817, 2377146; 587650, 2377076; 587531, 2377302; 587609, 2377557; return to starting point.

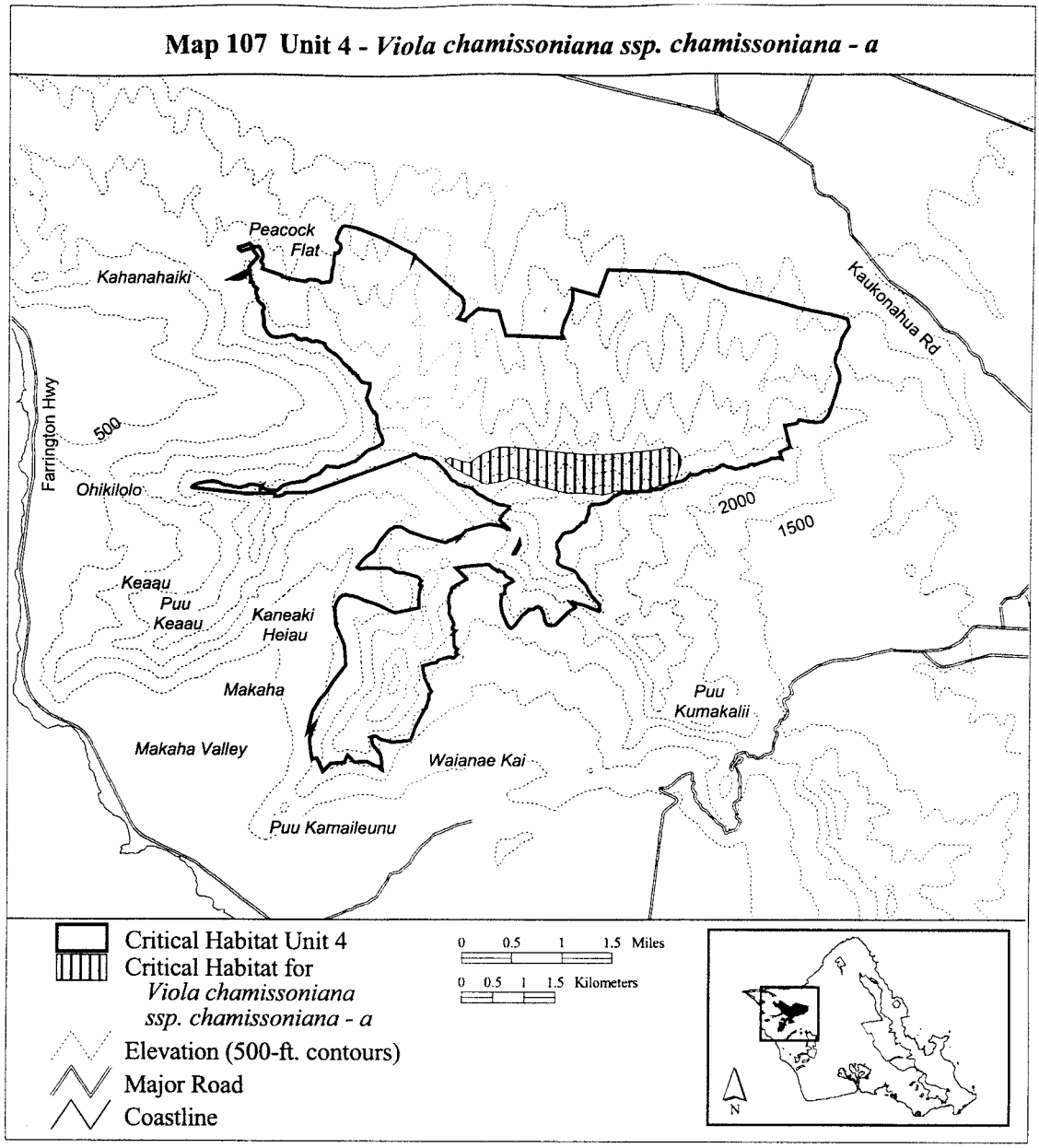
(ii) **Note:** Map 106 follows:



(107) Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—a (199 ha; 491 ac)

(i) Unit consists of the following 41 boundary points: Start at 590207, 2379196; 590092, 2379192; 589906, 2379127; 589750, 2379084; 589624, 2379079; 589290, 2379071; 589228, 2379052; 589230, 2379049; 589091, 2379014; 588770, 2379040; 588489, 2379036; 588276, 2379092; 588003, 2379153; 587743, 2379257; 587613, 2379279; 587501, 2379235; 587323, 2379201; 587215, 2379183; 587124, 2379214; 586963, 2379305; 586686, 2379448; 586543, 2379552; 586625, 2379612; 586799, 2379552; 586937, 2379530; 587158, 2379673; 587411, 2379781; 587701, 2379773; 588377, 2379703; 588887, 2379652; 588883, 2379660; 589178, 2379660; 589503, 2379690; 589888, 2379725; 590170, 2379781; 590265, 2379712; 590317, 2379638; 590339, 2379504; 590287, 2379404; 590244, 2379266; 590219, 2379199; return to starting point.

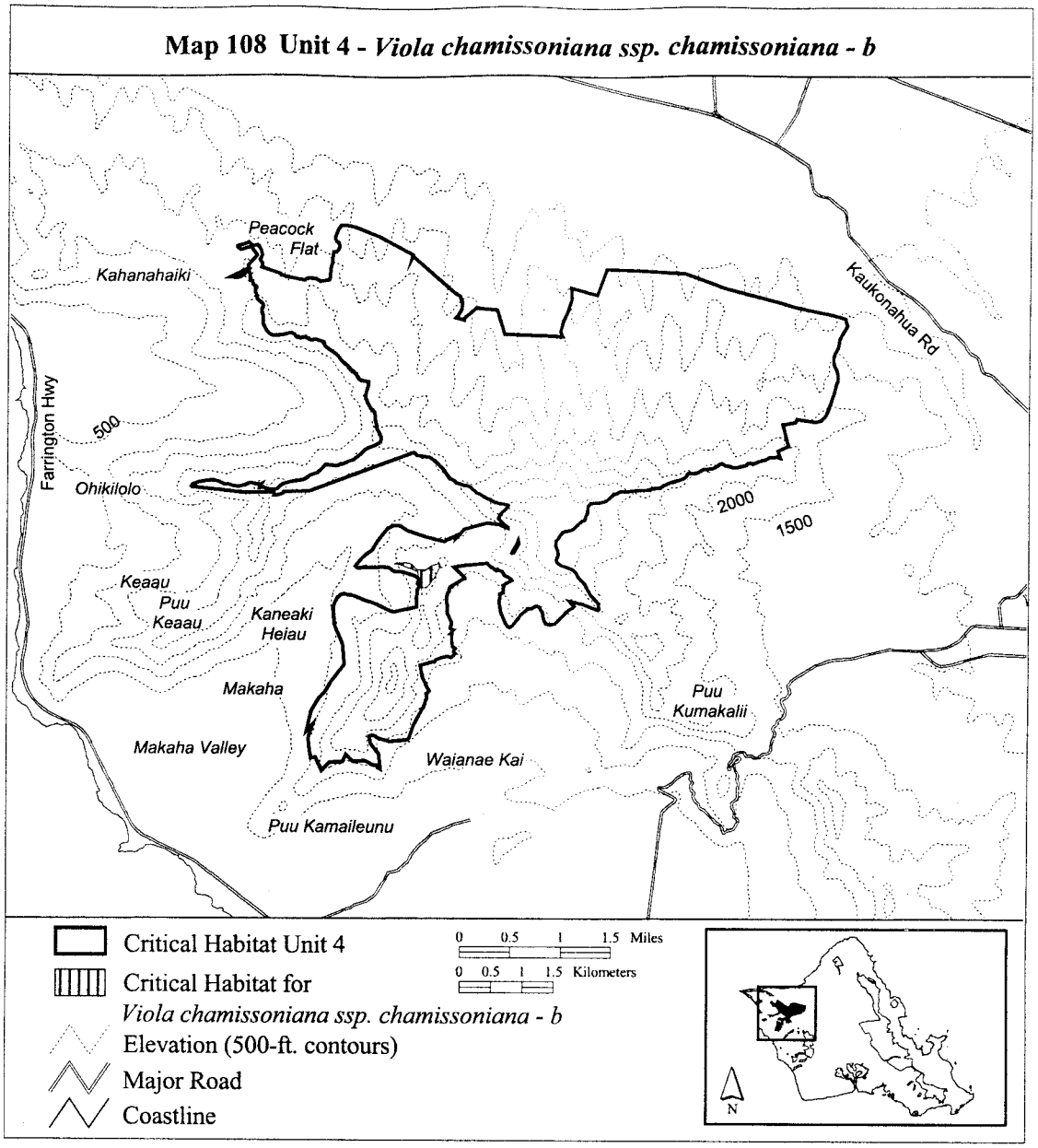
(ii) **Note:** Map 107 follows:



(108) Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—b (10 ha; 24 ac)

(i) Unit consists of the following 20 boundary points: Start at 585778, 2377867; 585813, 2377876; 585957, 2377886; 586055, 2377865; 586137, 2377773; 586287, 2377778; 586364, 2377840; 586494, 2377870; 586508, 2377829; 586425, 2377655; 586369, 2377577; 586292, 2377485; 586194, 2377485; 586173, 2377567; 586173, 2377649; 586167, 2377655; 586169, 2377657; 586142, 2377745; 586008, 2377805; 585868, 2377854; return to starting point.

(ii) **Note:** Map 108 follows:

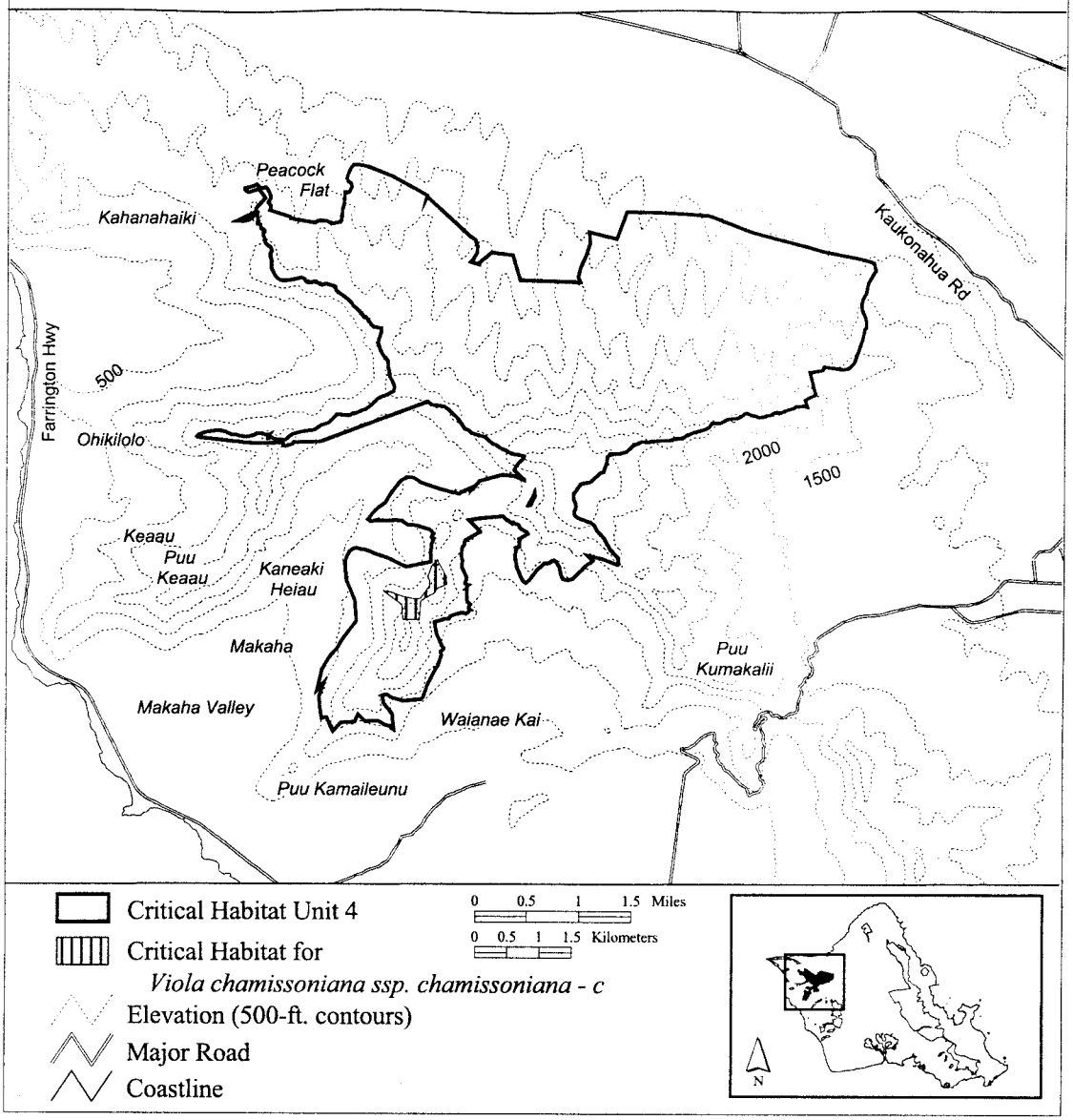


(109) Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—c (22 ha; 55 ac)

(i) Unit consists of the following 30 boundary points: Start at 585428, 2376708; 585474, 2376708; 585695, 2376636; 585880, 2376595; 585983, 2376600; 586009, 2376652; 586086, 2376749; 586122, 2376796; 586117, 2376873; 586096, 2376940; 586117, 2377007; 586158, 2377109; 586209, 2377161; 586240, 2377202; 586297, 2377094; 586384, 2376935; 586385, 2376934; 586388, 2376821; 586297, 2376788; 586233, 2376758; 586205, 2376688; 586122, 2376652; 585995, 2376564; 585996, 2376563; 585980, 2376564; 585968, 2376266; 585932, 2376276; 585708, 2376276; 585683, 2376512; 585423, 2376699; return to starting point.

(ii) **Note:** Map 109 follows:

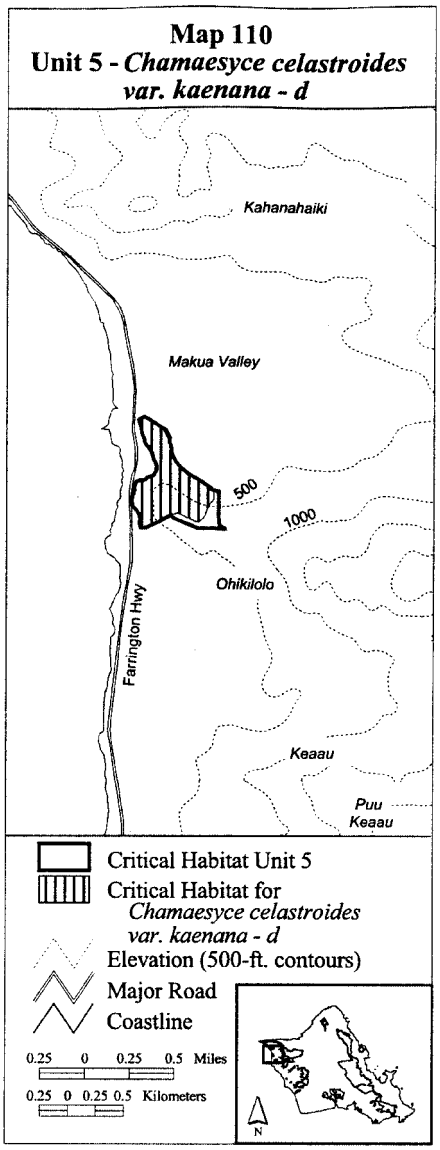
Map 109 Unit 4 - *Viola chamissoniana ssp. chamissoniana - c*



(110) Oahu 5—*Chamaesyce celastroides* var. *kaenana*—d (36 ha; 89 ac)

(i) Unit consists of the following 64 boundary points: Start at 580244, 2380495; 580287, 2380408; 580327, 2380329; 580333, 2380242; 580358, 2380198; 580391, 2380157; 580428, 2380124; 580482, 2380078; 580579, 2380022; 580685, 2379948; 580712, 2379892; 580712, 2379846; 580685, 2379815; 580652, 2379749; 580629, 2379697; 580604, 2379664; 580571, 2379639; 580521, 2379658; 580476, 2379680; 580426, 2379705; 580383, 2379724; 580329, 2379707; 580277, 2379680; 580217, 2379645; 580146, 2379612; 580097, 2379591; 580057, 2379587; 580051, 2379597; 580039, 2379624; 580047, 2379660; 580045, 2379689; 580026, 2379734; 579991, 2379776; 579971, 2379800; 579964, 2379818; 579966, 2379854; 580001, 2379917; 579995, 2379954; 580008, 2380000; 580028, 2380012; 580039, 2380016; 580094, 2380022; 580111, 2380039; 580165, 2380060; 580192, 2380103; 580194, 2380117; 580195, 2380118; 580196, 2380118; 580196, 2380119; 580196, 2380120; 580195, 2380123; 580198, 2380149; 580171, 2380198; 580159, 2380252; 580121, 2380315; 580100, 2380335; 580084, 2380370; 580084, 2380377; 580068, 2380433; 580055, 2380491; 580034, 2380557; 580070, 2380584; 580085, 2380590; 580235, 2380500; return to starting point.

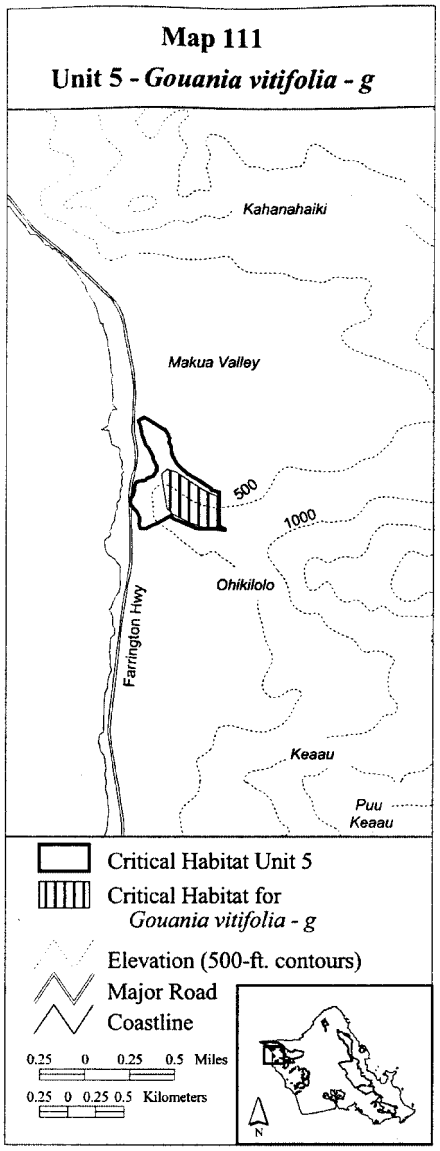
(ii) **Note:** Map 110 follows:



(111) Oahu 5—*Gouania vitifolia*—g (17 ha; 43 ac)

(i) Unit consists of the following 17 boundary points: Start at 580804, 2379587; 580691, 2379587; 580594, 2379609; 580481, 2379652; 580347, 2379722; 580287, 2379772; 580267, 2379896; 580239, 2380076; 580293, 2380120; 580373, 2380099; 580621, 2379932; 580754, 2379874; 580754, 2379672; 580764, 2379612; 580764, 2379611; 580765, 2379611; 580765, 2379610; return to starting point.

(ii) **Note:** Map 111 follows:

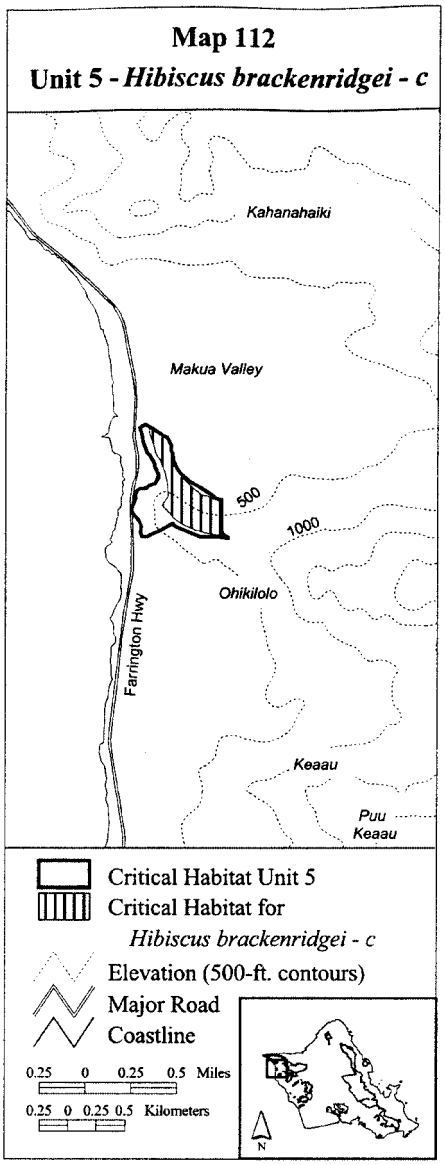


(112) Oahu 5—*Hibiscus brackenridgei*—c (23 ha; 56 ac)

(i) Unit consists of the following 46 boundary points: Start at 580785, 2379598; 580771, 2379599; 580645, 2379613; 580529, 2379645; 580415, 2379693; 580337, 2379752; 580298, 2379795; 580259, 2379844; 580235, 2379868; 580282, 2379943; 580277, 2380051; 580258, 2380152; 580259, 2380154; 580257, 2380160; 580247, 2380183; 580233, 2380213; 580225, 2380244; 580211, 2380280; 580189, 2380305; 580172, 2380341; 580162, 2380387; 580143, 2380450; 580128, 2380489; 580116, 2380538; 580128, 2380562; 580133, 2380562; 580235, 2380500; 580275, 2380478; 580296, 2380443; 580315, 2380399; 580310, 2380368; 580310, 2380324; 580332, 2380266; 580373, 2380169; 580427, 2380101; 580497, 2380026; 580577, 2379958; 580628, 2379950; 580742, 2379921; 580754, 2379920; 580754,

2379892; 580754, 2379672; 580764, 2379612; 580764, 2379611; 580765, 2379611; 580765, 2379610; return to starting point.

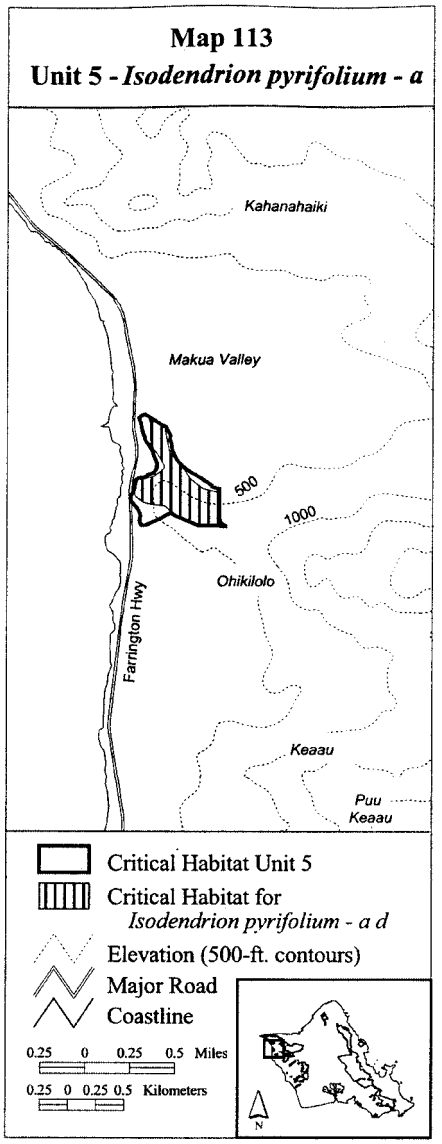
(ii) **Note:** Map 112 follows:



(113) Oahu 5—*Isodendrion pyrifolium*—a (30 ha; 75 ac)

(i) Unit consists of the following 38 boundary points: Start at 580262, 2380485; 580295, 2380309; 580312, 2380241; 580357, 2380192; 580436, 2380092; 580491, 2380011; 580610, 2379917; 580736, 2379889; 580754, 2379855; 580754, 2379672; 580764, 2379612; 580764, 2379611; 580765, 2379611; 580765, 2379610; 580815, 2379580; 580816, 2379580; 580822, 2379580; 580823, 2379577; 580789, 2379577; 580703, 2379591; 580563, 2379590; 580345, 2379682; 580321, 2379713; 580274, 2379760; 580151, 2379777; 580070, 2379798; 580002, 2379858; 580002, 2379900; 580024, 2379999; 580168, 2380028; 580259, 2380098; 580261, 2380130; 580193, 2380245; 580143, 2380312; 580138, 2380504; 580121, 2380555; 580130, 2380564; 580235, 2380500; return to starting point.

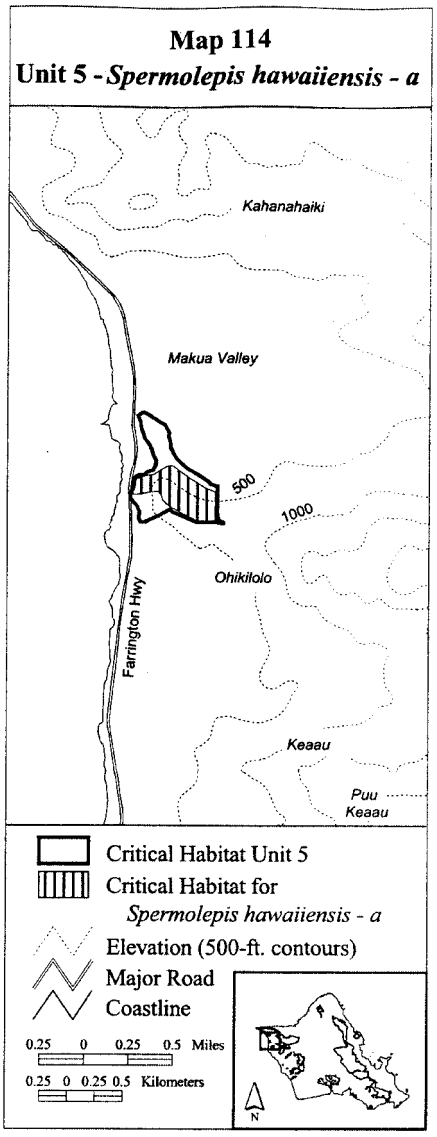
(ii) **Note:** Map 113 follows:



(114) Oahu 5—*Spermolepis hawaiiensis*—a (21 ha; 53 ac)

(i) Unit consists of the following 33 boundary points: Start at 580773, 2379589; 580678, 2379591; 580628, 2379591; 580552, 2379607; 580502, 2379632; 580411, 2379679; 580326, 2379733; 580282, 2379761; 580254, 2379796; 580244, 2379827; 580219, 2379868; 580156, 2379862; 580027, 2379836; 579983, 2379836; 579986, 2379884; 579996, 2379921; 580018, 2379978; 580103, 2380009; 580178, 2380019; 580238, 2380063; 580304, 2380100; 580348, 2380103; 580426, 2380047; 580489, 2380000; 580577, 2379940; 580646, 2379899; 580754, 2379857; 580754, 2379672; 580764, 2379612; 580764, 2379611; 580765, 2379611; 580765, 2379610; 580781, 2379601; return to starting point.

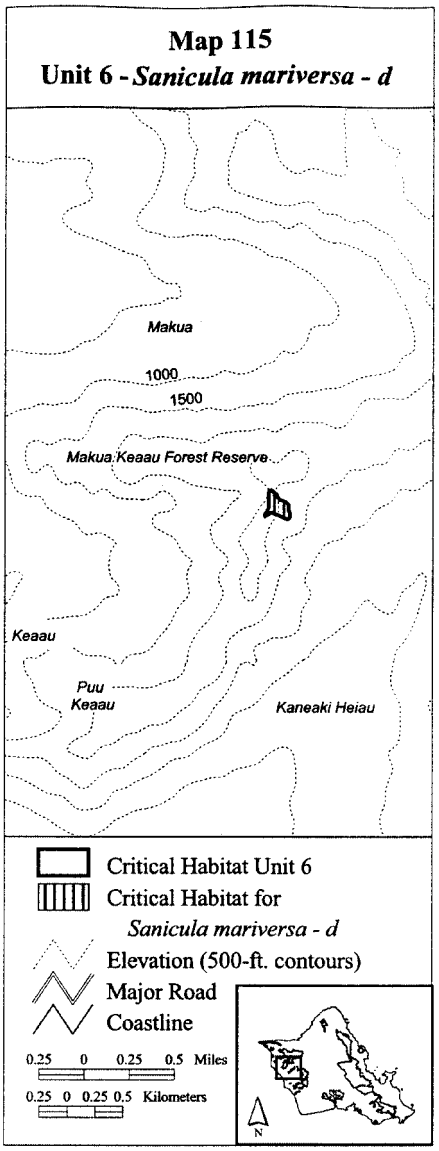
(ii) **Note:** Map 114 follows:



(115) Oahu 6—*Sanicula mariversa*—d (3 ha; 8 ac)

(i) Unit consists of the following 24 boundary points: Start at 583697, 2378888; 583747, 2378848; 583761, 2378823; 583779, 2378796; 583806, 2378789; 583834, 2378776; 583859, 2378754; 583859, 2378731; 583859, 2378704; 583869, 2378684; 583869, 2378664; 583871, 2378634; 583846, 2378622; 583804, 2378639; 583764, 2378662; 583712, 2378681; 583689, 2378674; 583649, 2378652; 583647, 2378662; 583667, 2378691; 583679, 2378734; 583682, 2378786; 583682, 2378826; 583682, 2378858; return to starting point.

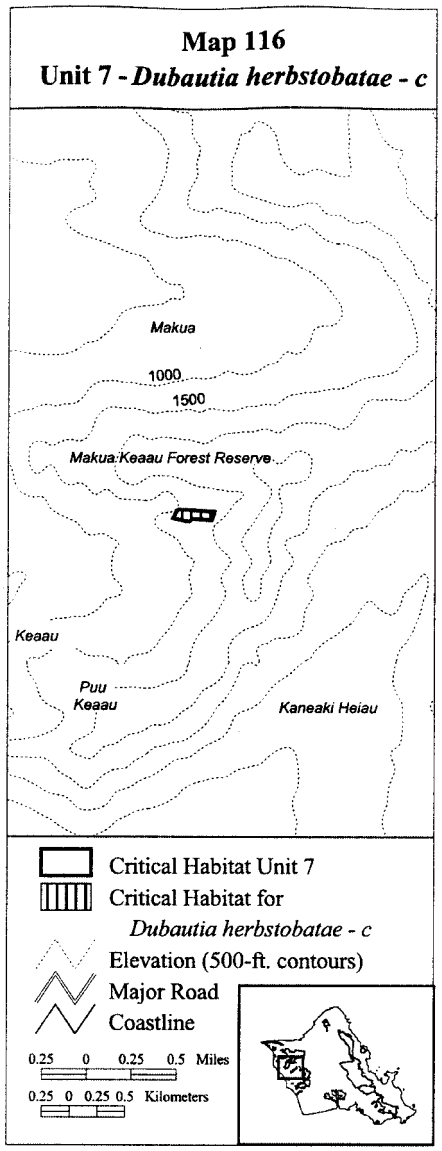
(ii) **Note:** Map 115 follows:



(116) Oahu 7—*Dubautia herbstobatae*—c (3 ha; 7 ac)

(i) Unit consists of the following 7 boundary points: Start at 582848, 2378716; 583079, 2378700; 583176, 2378698; 583153, 2378621; 582980, 2378631; 582949, 2378607; 582806, 2378636; return to starting point.

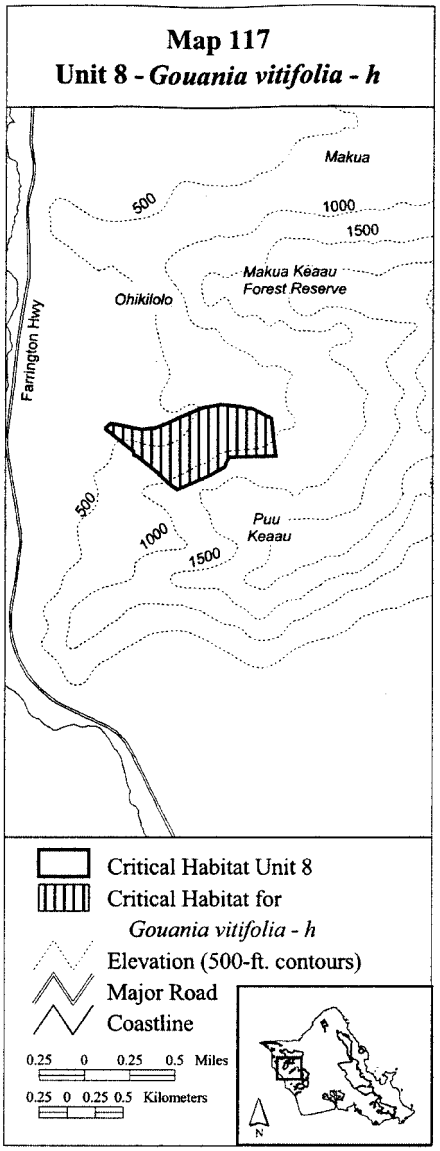
(ii) **Note:** Map 116 follows:



(117) Oahu 8—*Gouania vitifolia*—h (64 ha; 158 ac)

(i) Unit consists of the following 28 boundary points: Start at 580654, 2377938; 580709, 2377984; 580806, 2377963; 580926, 2377936; 580985, 2377929; 581093, 2377939; 581094, 2377939; 581095, 2377939; 581101, 2377941; 581175, 2377970; 581257, 2378005; 581291, 2378025; 581512, 2378121; 581530, 2378125; 581689, 2378150; 581847, 2378136; 581960, 2378115; 582134, 2378030; 582172, 2377688; 581756, 2377679; 581718, 2377589; 581587, 2377509; 581302, 2377381; 581231, 2377433; 581120, 2377540; 580943, 2377683; 580914, 2377696; 580911, 2377730; return to starting point.

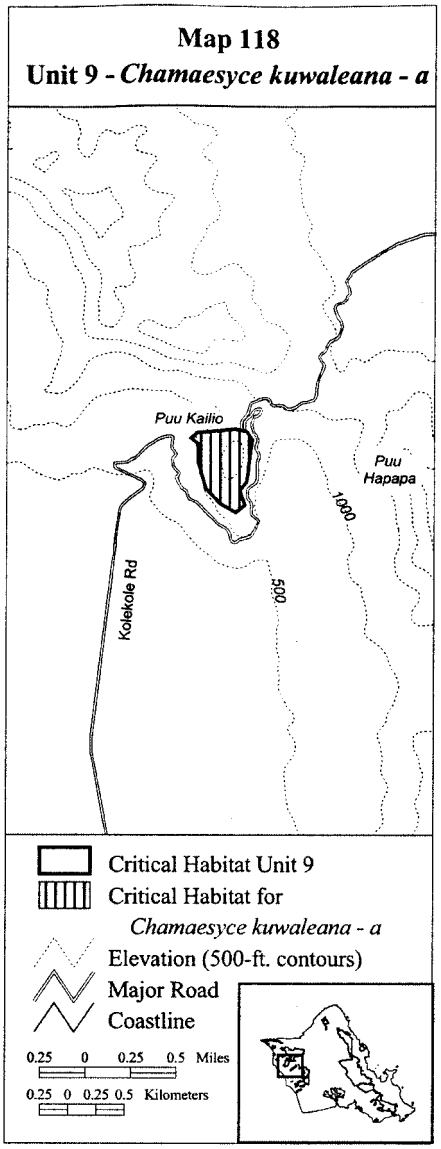
(ii) **Note:** Map 117 follows:



(118) Oahu 9—*Chamaesyce kuwaleana*—a (27 ha; 68 ac)

(i) Unit consists of the following 16 boundary points: Start at 590764, 2374474; 590702, 2374527; 590756, 2374577; 591092, 2374605; 591194, 2374586; 591246, 2374509; 591192, 2374128; 591132, 2374054; 591132, 2374053; 591178, 2373922; 591094, 2373855; 590958, 2373934; 590827, 2374078; 590765, 2374307; 590764, 2374472; 590764, 2374473; return to starting point.

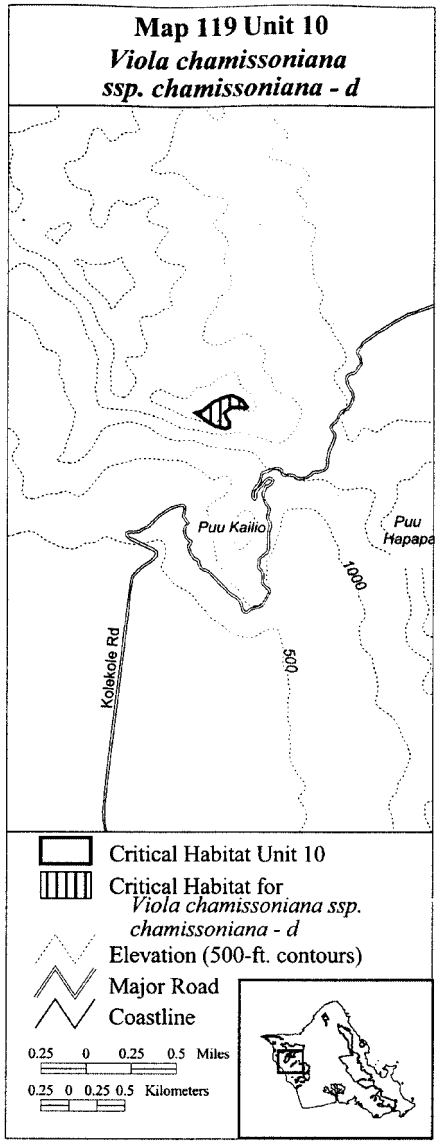
(ii) **Note:** Map 118 follows:



(119) Oahu 10—*Viola chamissoniana* ssp. *chamissoniana*—d (6 ha; 15 ac)

(i) Unit consists of the following 28 boundary points: Start at 591102, 2375422; 591028, 2375433; 590980, 2375431; 590964, 2375433; 590963, 2375433; 590960, 2375430; 590957, 2375430; 590894, 2375384; 590898, 2375364; 590897, 2375363; 590896, 2375362; 590896, 2375361; 590899, 2375358; 590902, 2375343; 590932, 2375301; 590935, 2375249; 590891, 2375236; 590801, 2375263; 590758, 2375290; 590631, 2375381; 590696, 2375399; 590697, 2375399; 590727, 2375419; 590807, 2375489; 590906, 2375529; 590965, 2375539; 590985, 2375529; 591044, 2375499; return to starting point.

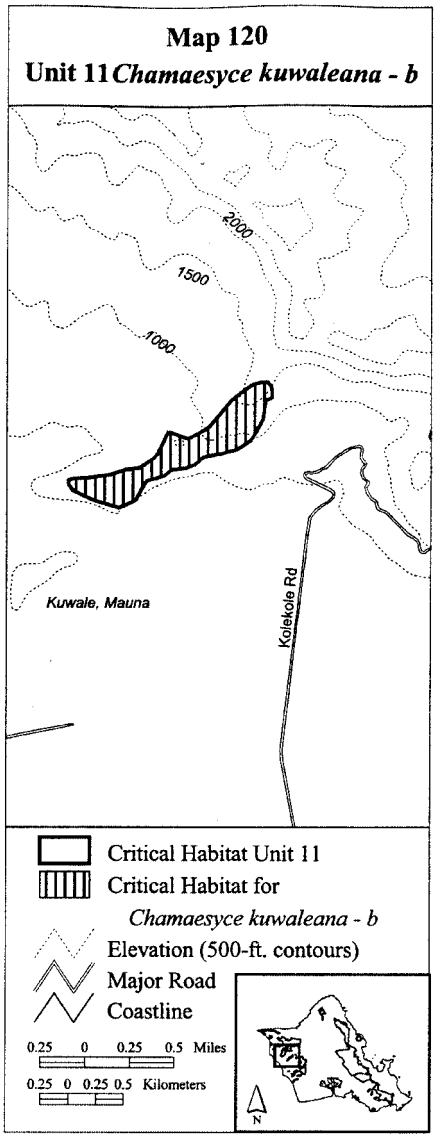
(ii) **Note:** Map 119 follows:



(120) Oahu 11—*Chamaesyce kuwaleana*—b (53 ha; 131 ac)

(i) Unit consists of the following 50 boundary points: Start at 589731, 2375043; 589731, 2374988; 589675, 2374965; 589652, 2374797; 589587, 2374675; 589540, 2374596; 589423, 2374516; 589292, 2374479; 589213, 2374465; 589114, 2374446; 589077, 2374409; 589030, 2374376; 588946, 2374343; 588820, 2374329; 588764, 2374278; 588684, 2374254; 588605, 2374231; 588549, 2374138; 588523, 2374090; 588506, 2374059; 588407, 2374010; 588348, 2373988; 588254, 2374016; 588133, 2374053; 588048, 2374091; 587941, 2374142; 587904, 2374198; 587904, 2374236; 587950, 2374250; 588095, 2374264; 588273, 2374287; 588418, 2374334; 588539, 2374348; 588661, 2374427; 588712, 2374484; 588712, 2374502; 588740, 2374558; 588792, 2374666; 588815, 2374666; 588890, 2374642; 588974, 2374614; 589068, 2374656; 589161, 2374717; 589255, 2374825; 589367, 2374965; 589456, 2375035; 589554, 2375105; 589629, 2375124; 589689, 2375129; 589725, 2375086; return to starting point.

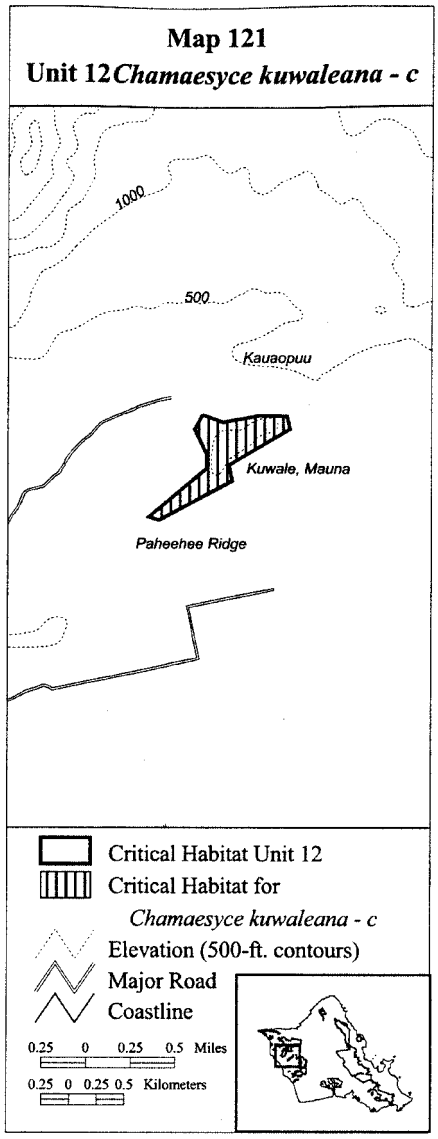
(ii) **Note:** Map 120 follows:



(121) Oahu 12—*Chamaesyce kuwaleana*—c (37 ha; 93 ac)

(i) Unit consists of the following 17 boundary points: Start at 587305, 2373616; 587489, 2373551; 587490, 2373551; 587822, 2373609; 588064, 2373606; 588091, 2373489; 587546, 2373163; 587545, 2373163; 587545, 2373162; 587573, 2373017; 586913, 2372661; 586822, 2372689; 587344, 2373134; 587344, 2373135; 587341, 2373263; 587341, 2373264; 587235, 2373485; return to starting point.

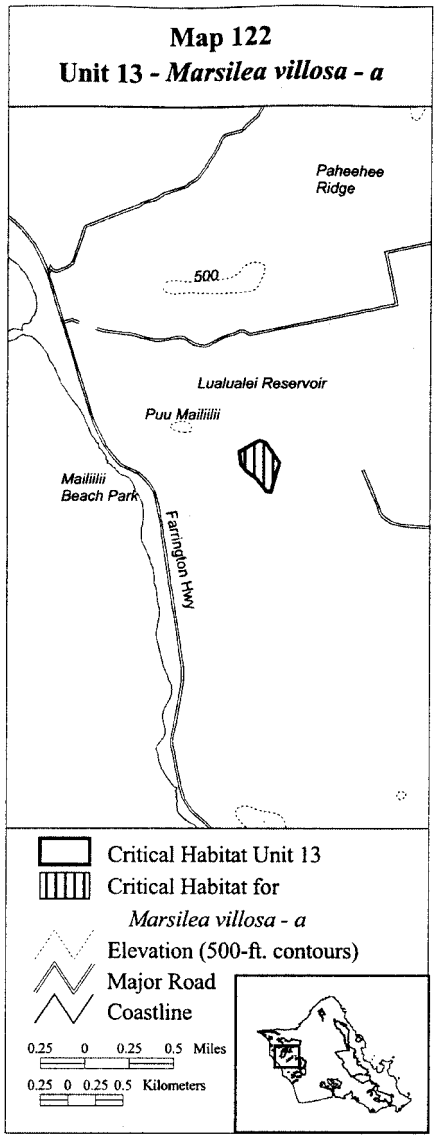
(ii) **Note:** Map 121 follows:



(122) Oahu 13—*Marsilea villosa*—a (10 ha; 25 ac)

(i) Unit consists of the following 9 boundary points: Start at 586020, 2369827; 585930, 2369901; 585879, 2369959; 585861, 2370075; 586047, 2370179; 586104, 2370158; 586226, 2369973; 586147, 2369710; 586105, 2369714; return to starting point.

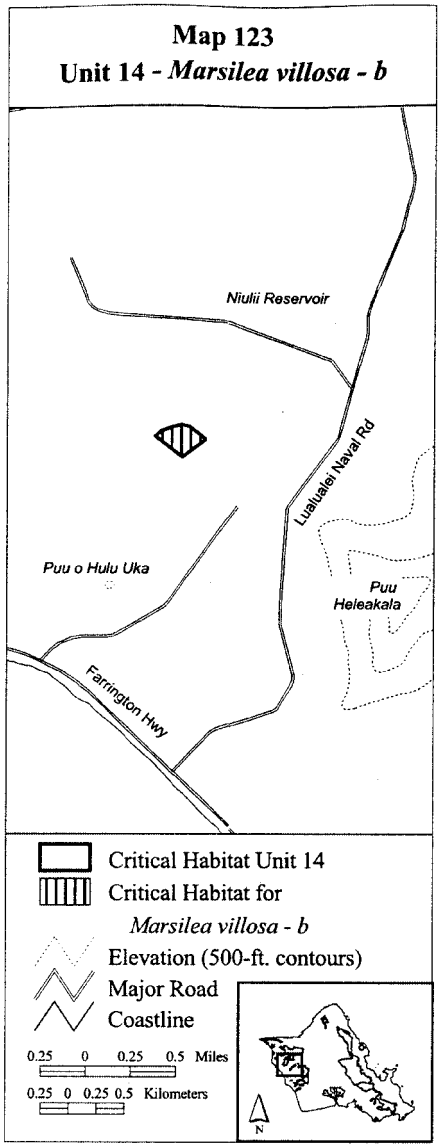
(ii) **Note:** Map 122 follows:



(123) Oahu 14—*Marsilea villosa*—b (7 ha; 18 ac)

(i) Unit consists of the following 7 boundary points: Start at 588190, 2368272; 587975, 2368116; 587738, 2368302; 587785, 2368349; 587880, 2368388; 587969, 2368406; 588040, 2368389; return to starting point.

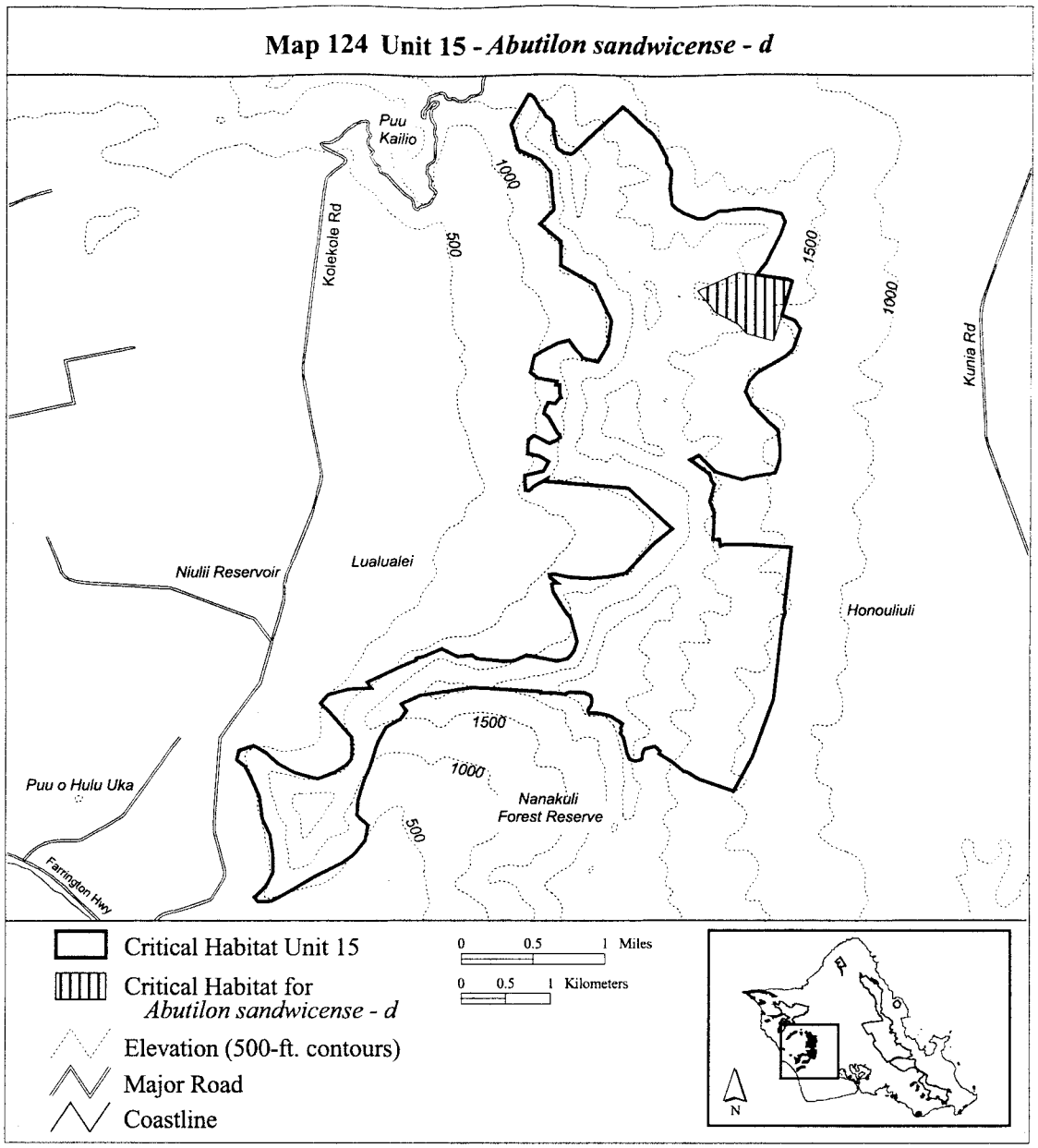
(ii) **Note:** Map 123 follows:



(124) Oahu 15—*Abutilon sandwicense*—d (49 ha; 121 ac)

(i) Unit consists of the following 11 boundary points: Start at 595071, 2372102; 595052, 2372104; 594771, 2372182; 594673, 2372285; 594450, 2372410; 594399, 2372438; 594400, 2372447; 594222, 2372665; 594678, 2372866; 595230, 2372788; 595275, 2372773; return to starting point.

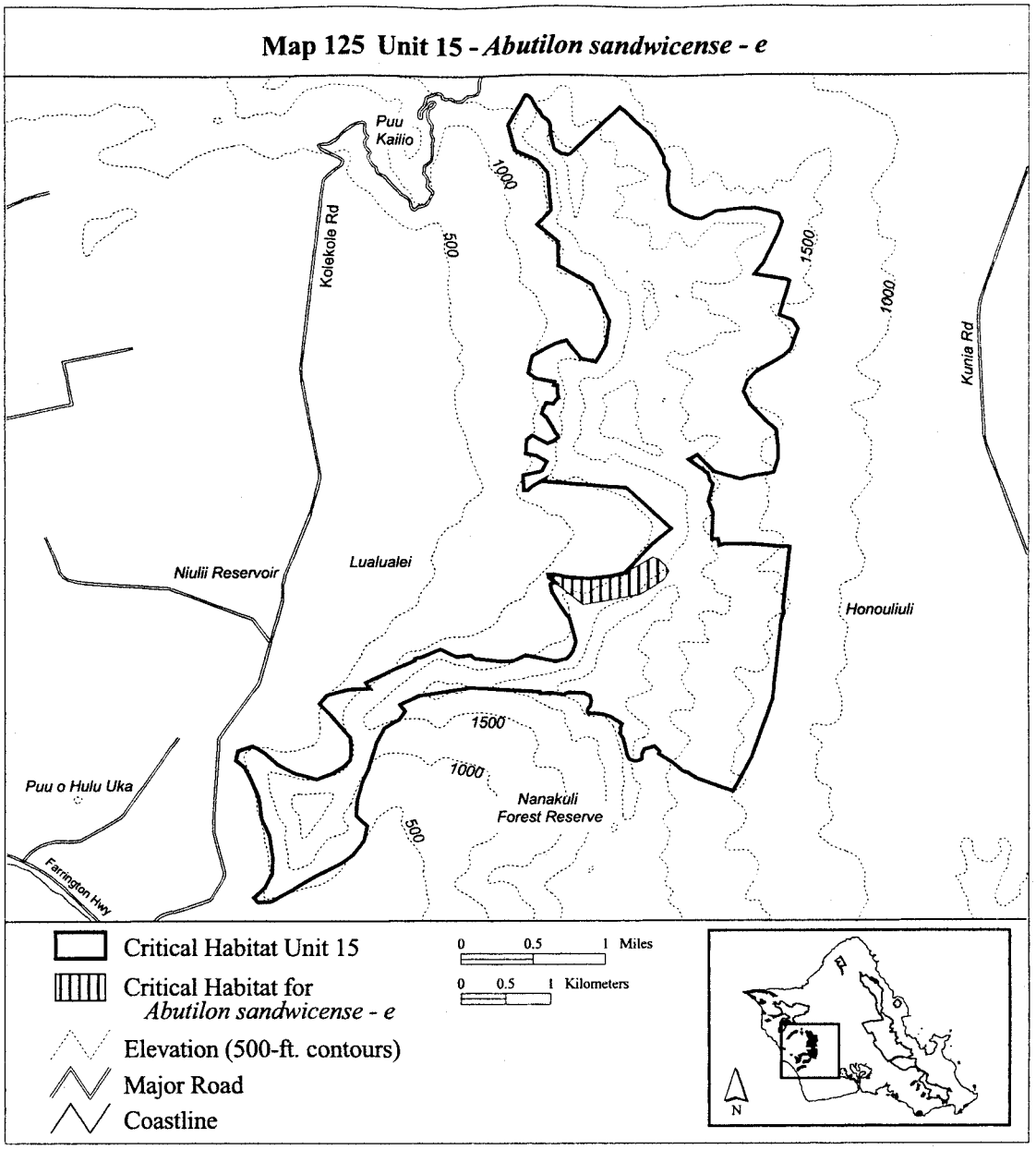
(ii) **Note:** Map 124 follows:



(125) Oahu 15—*Abutilon sandwicense*—e (33 ha; 81 ac)

(i) Unit consists of the following 16 boundary points: Start at 592582, 2369476; 592646, 2369487; 592785, 2369454; 593030, 2369435; 593278, 2369457; 593436, 2369499; 593620, 2369600; 593748, 2369668; 593812, 2369653; 593891, 2369574; 593929, 2369514; 593880, 2369431; 593741, 2369333; 593598, 2369252; 592970, 2369140; 592588, 2369449; return to starting point.

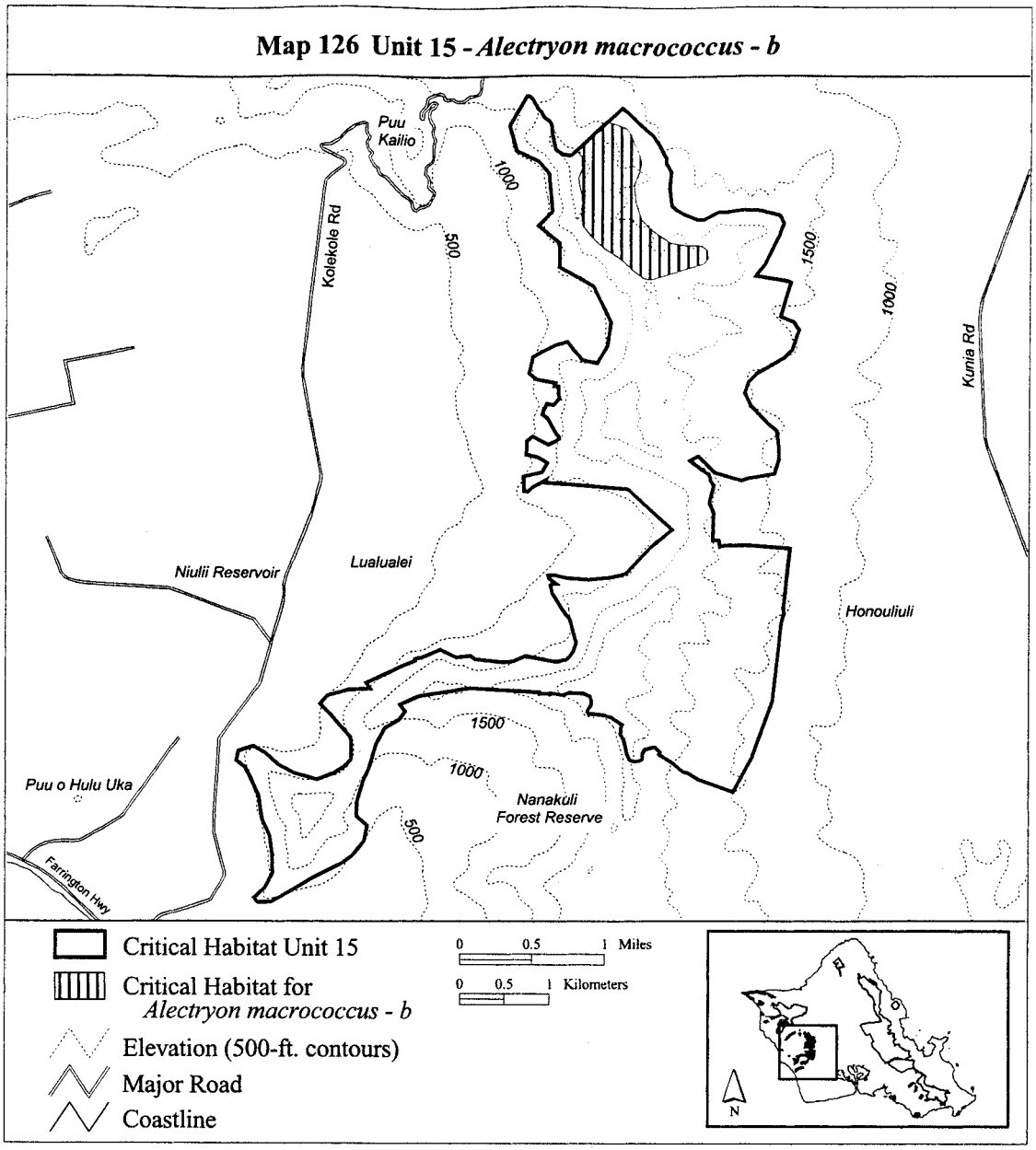
(ii) **Note:** Map 125 follows:



(126) Oahu 15—*Alectryon macrococcus*—b (112 ha; 278 ac)

(i) Unit consists of the following 45 boundary points: Start at 593221, 2374560; 593235, 2374556; 593343, 2374523; 593436, 2374483; 593475, 2374432; 593513, 2374340; 593574, 2374201; 593597, 2374102; 593577, 2374005; 593517, 2373864; 593533, 2373685; 593559, 2373602; 593597, 2373487; 593704, 2373370; 593817, 2373291; 593921, 2373215; 593923, 2373216; 594013, 2373194; 594092, 2373185; 594170, 2373185; 594266, 2373174; 594326, 2373130; 594333, 2373081; 594337, 2373029; 594297, 2372971; 593825, 2372840; 593697, 2372803; 593678, 2372808; 593619, 2372819; 593555, 2372874; 593497, 2372923; 593407, 2373011; 593336, 2373064; 593191, 2373152; 593065, 2373275; 592946, 2373412; 592933, 2373511; 592940, 2373661; 592933, 2373751; 592907, 2373870; 592905, 2373936; 592940, 2374033; 592938, 2374122; 592933, 2374163; 592875, 2374236; return to starting point.

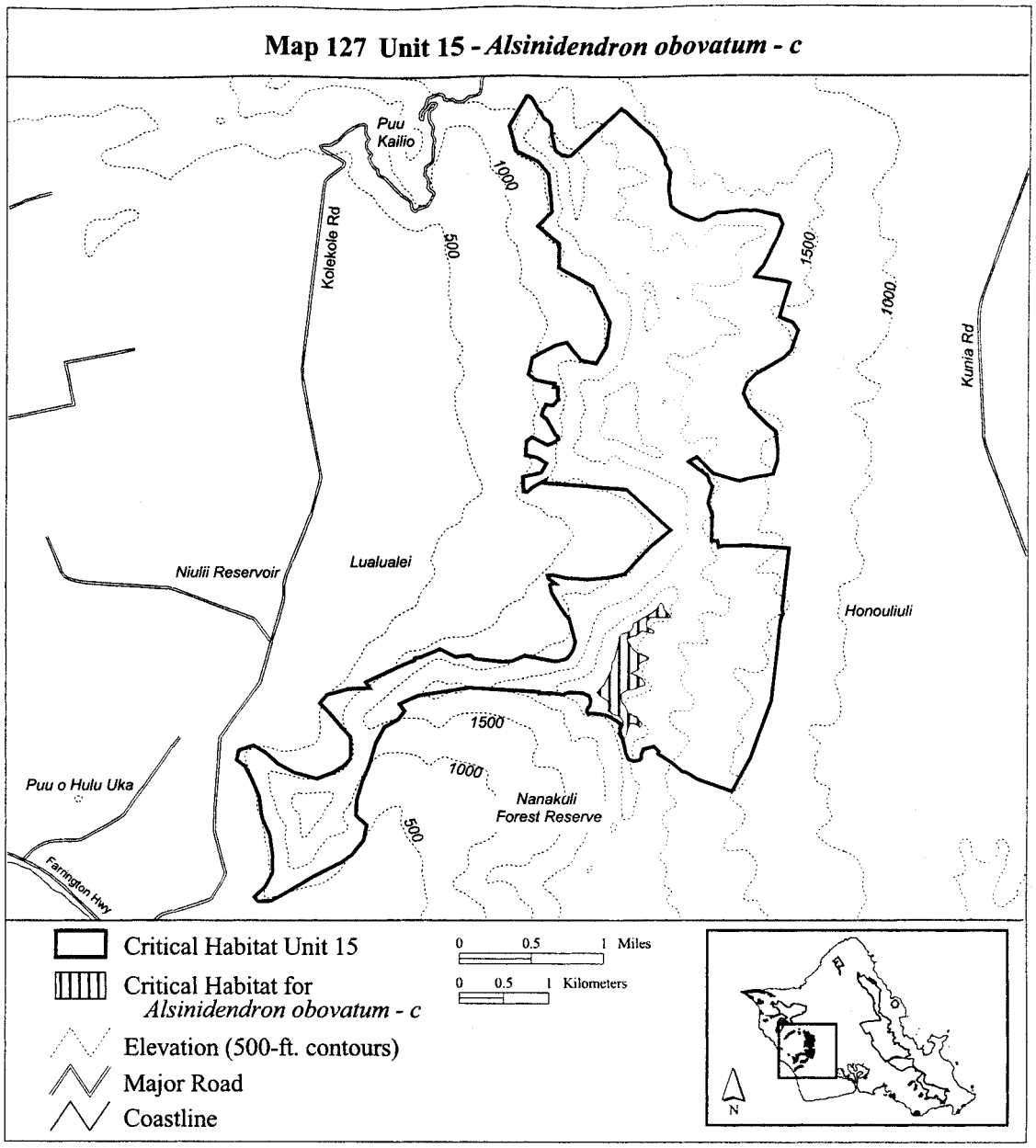
(ii) **Note:** Map 126 follows:



(127) Oahu 15—*Alsinidendron obovatum*—c (31 ha; 77 ac)

(i) Unit consists of the following 86 boundary points: Start at 593377, 2368762; 593383, 2368765; 593371, 2368765; 593408, 2368817; 593498, 2368851; 593529, 2368892; 593535, 2368933; 593628, 2368992; 593748, 2369057; 593800, 2369105; 593845, 2369174; 593876, 2369139; 593876, 2369098; 593906, 2369064; 593951, 2369019; 593944, 2369009; 593869, 2369009; 593831, 2369009; 593731, 2369009; 593683, 2368957; 593680, 2368944; 593690, 2368896; 593742, 2368878; 593766, 2368847; 593762, 2368834; 593735, 2368834; 593635, 2368854; 593573, 2368803; 593529, 2368799; 593484, 2368768; 593464, 2368768; 593487, 2368727; 593518, 2368669; 593553, 2368631; 593611, 2368593; 593666, 2368573; 593711, 2368555; 593697, 2368531; 593632, 2368504; 593597, 2368480; 593587, 2368452; 593604, 2368432; 593597, 2368418; 593532, 2368390; 593515, 2368377; 593621, 2368329; 593642, 2368308; 593666, 2368270; 593663, 2368246; 593587, 2368219; 593532, 2368195; 593467, 2368188; 593408, 2368153; 593408, 2368095; 593412, 2368054; 593436, 2368023; 593456, 2367985; 593474, 2367940; 593525, 2367909; 593577, 2367892; 593597, 2367858; 593639, 2367813; 593608, 2367765; 593587, 2367796; 593542, 2367820; 593501, 2367813; 593470, 2367731; 593456, 2367683; 593436, 2367641; 593419, 2367683; 593405, 2367748; 593429, 2367796; 593415, 2367858; 593371, 2367903; 593312, 2367920; 593250, 2367958; 593264, 2368026; 593247, 2368078; 593178, 2368122; 593137, 2368164; 593212, 2368253; 593247, 2368322; 593288, 2368411; 593305, 2368504; 593322, 2368518; 593357, 2368655; return to starting point.

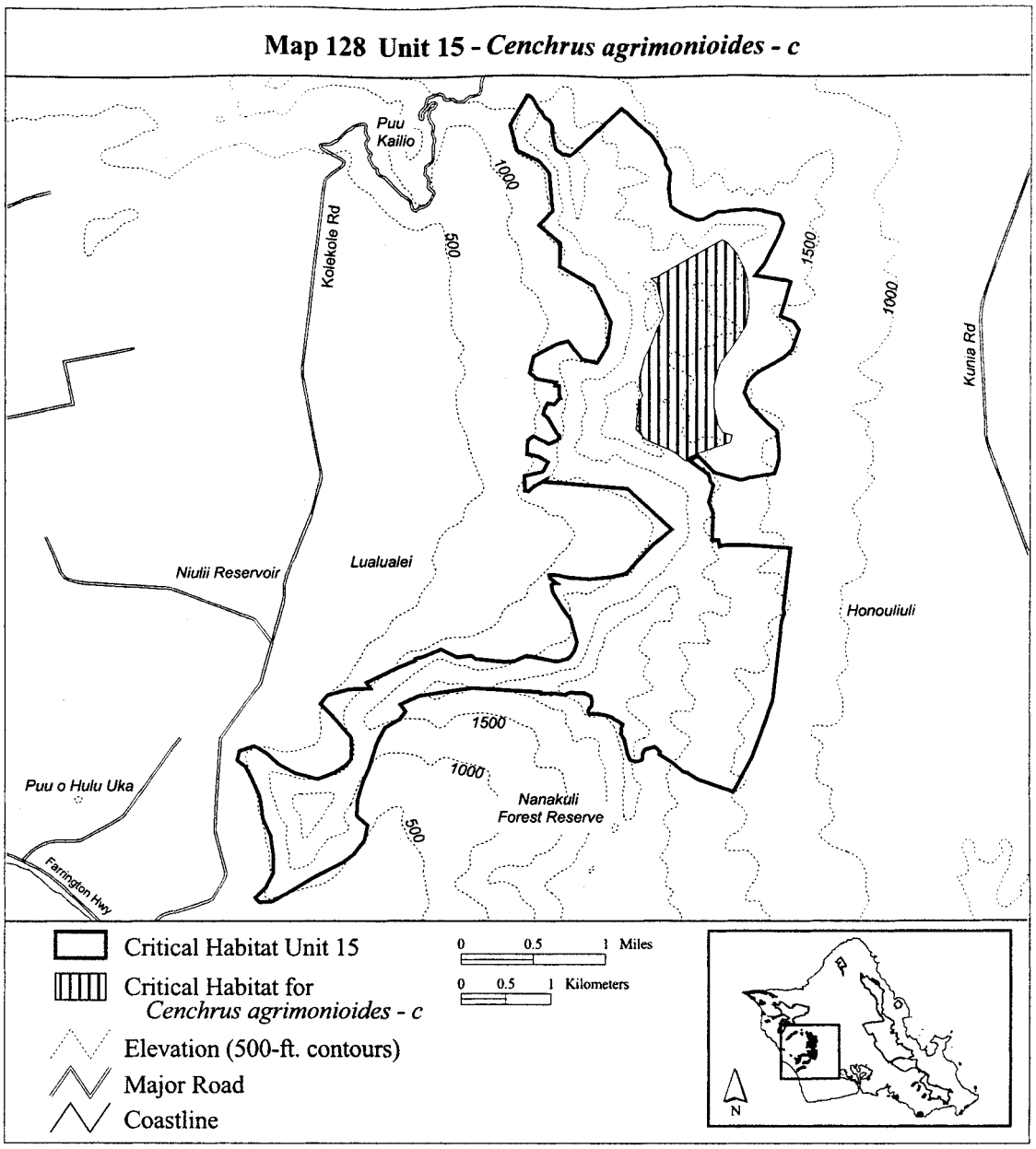
(ii) **Note:** Map 127 follows:



(128) Oahu 15—*Cenchrus agrimonioides*—c (200 ha; 495 ac)

(i) Unit consists of the following 40 boundary points: Start at 594510, 2373238; 594554, 2373214; 594677, 2373079; 594734, 2372964; 594788, 2372811; 594788, 2372810; 594796, 2372788; 594789, 2372787; 594807, 2372505; 594780, 2372283; 594685, 2372122; 594482, 2371850; 594424, 2371613; 594421, 2371368; 594463, 2371177; 594516, 2371089; 594627, 2371047; 594608, 2370974; 594455, 2370924; 594245, 2370844; 594153, 2370809; 594103, 2370764; 593969, 2370871; 593659, 2371005; 593552, 2371119; 593559, 2371250; 593579, 2371430; 593621, 2371492; 593586, 2371587; 593582, 2371683; 593648, 2371928; 593724, 2372081; 593793, 2372261; 593858, 2372402; 593789, 2372739; 593794, 2372740; 593762, 2372781; 593715, 2372815; 593771, 2372828; 594191, 2373064; return to starting point.

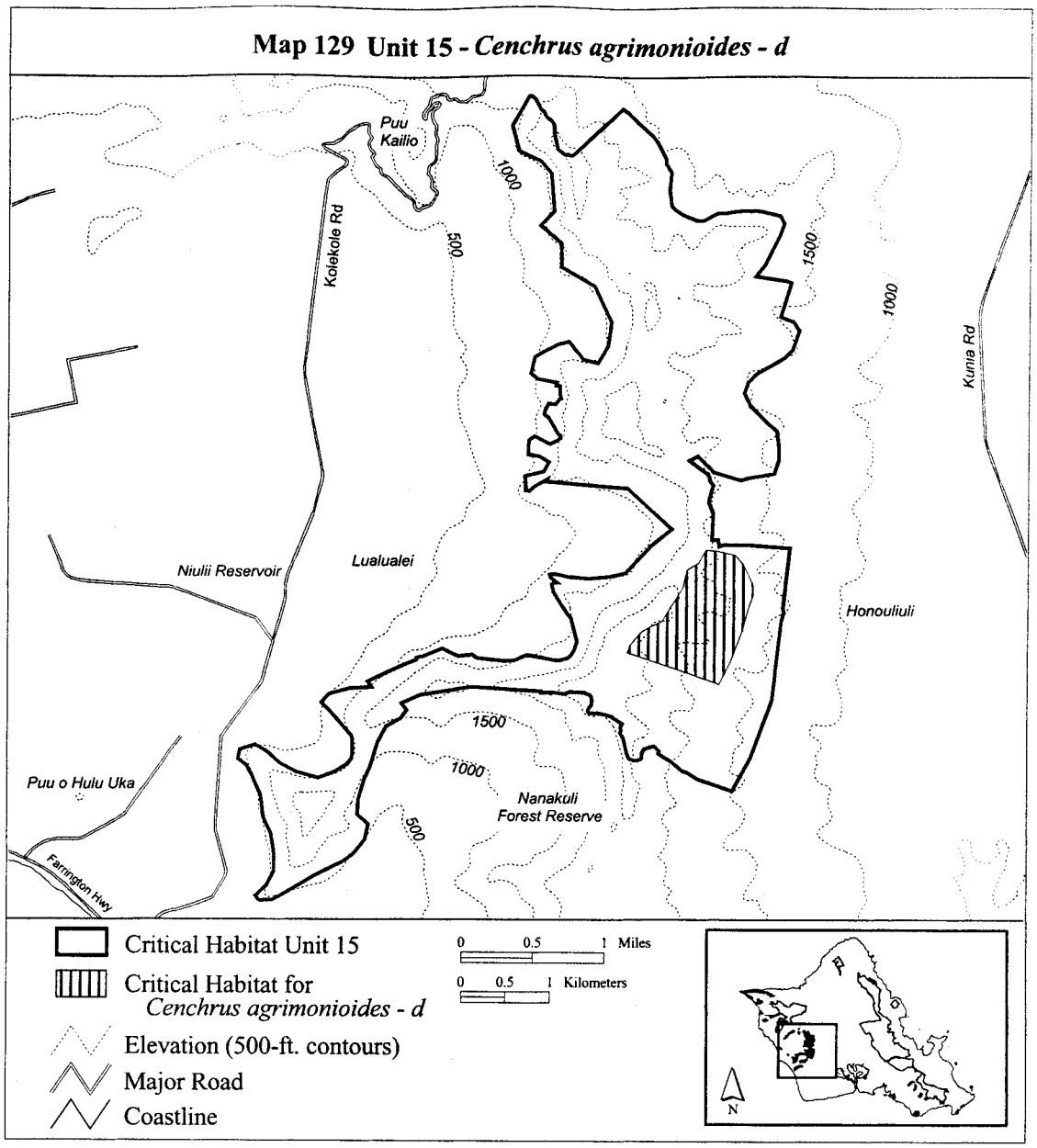
(ii) **Note:** Map 128 follows:



(129) Oahu 15—*Cenchrus agrimonioides*—d (117 ha; 290 ac)

(i) Unit consists of the following 20 boundary points: Start at 594341, 2369756; 594462, 2369749; 594672, 2369699; 594756, 2369602; 594869, 2369372; 594866, 2369258; 594816, 2369114; 594742, 2368834; 594619, 2368503; 594494, 2368251; 594139, 2368381; 593465, 2368603; 593489, 2368680; 593610, 2368830; 593716, 2368897; 593850, 2368961; 593934, 2369098; 594076, 2369327; 594127, 2369535; 594254, 2369615; return to starting point.

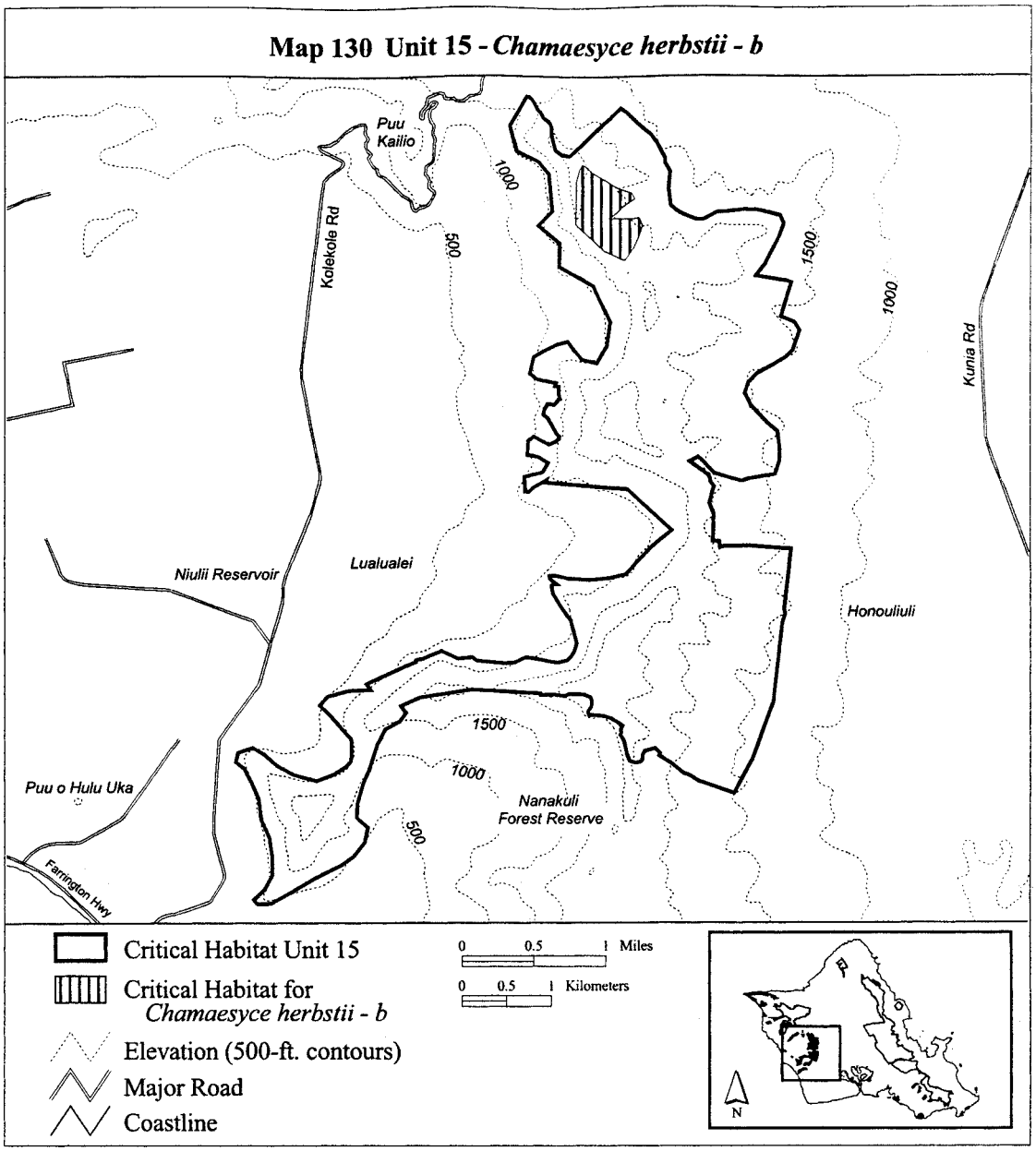
(ii) **Note:** Map 129 follows:



(130) Oahu 15—*Chamaesyce herbstii*—b (47 ha; 116 ac)

(i) Unit consists of the following 22 boundary points: Start at 592991, 2374069; 593075, 2373990; 593219, 2373906; 593336, 2373831; 593504, 2373766; 593540, 2373702; 593404, 2373617; 593362, 2373569; 593307, 2373526; 593259, 2373490; 593512, 2373484; 593591, 2373502; 593625, 2373411; 593593, 2373313; 593523, 2373150; 593434, 2373024; 593412, 2373027; 593193, 2373124; 592880, 2373418; 592886, 2373893; 592921, 2374014; 592953, 2374078; return to starting point.

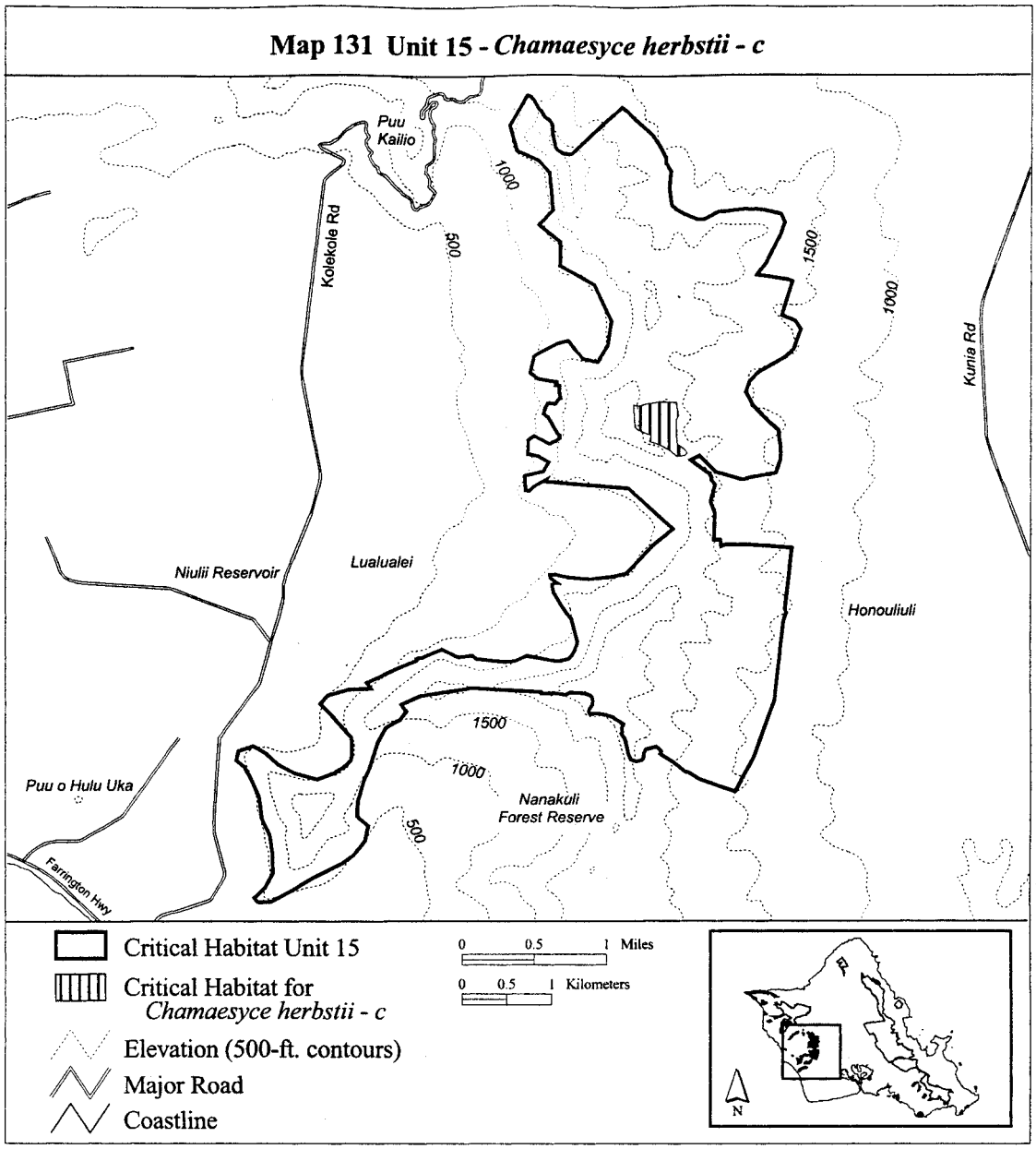
(ii) **Note:** Map 130 follows:



(131) Oahu 15—*Chamaesyce herbstii*—c (21 ha; 53 ac)

(i) Unit consists of the following 26 boundary points: Start at 593994, 2371231; 593987, 2371233; 593999, 2370955; 594083, 2370881; 594111, 2370848; 594083, 2370820; 593999, 2370815; 593910, 2370881; 593840, 2370923; 593770, 2370955; 593691, 2370979; 593709, 2371043; 593708, 2371048; 593714, 2371049; 593709, 2371049; 593672, 2371063; 593579, 2371100; 593532, 2371133; 593523, 2371165; 593512, 2371386; 593581, 2371372; 593644, 2371395; 593807, 2371422; 593989, 2371417; 593999, 2371357; 594013, 2371263; return to starting point.

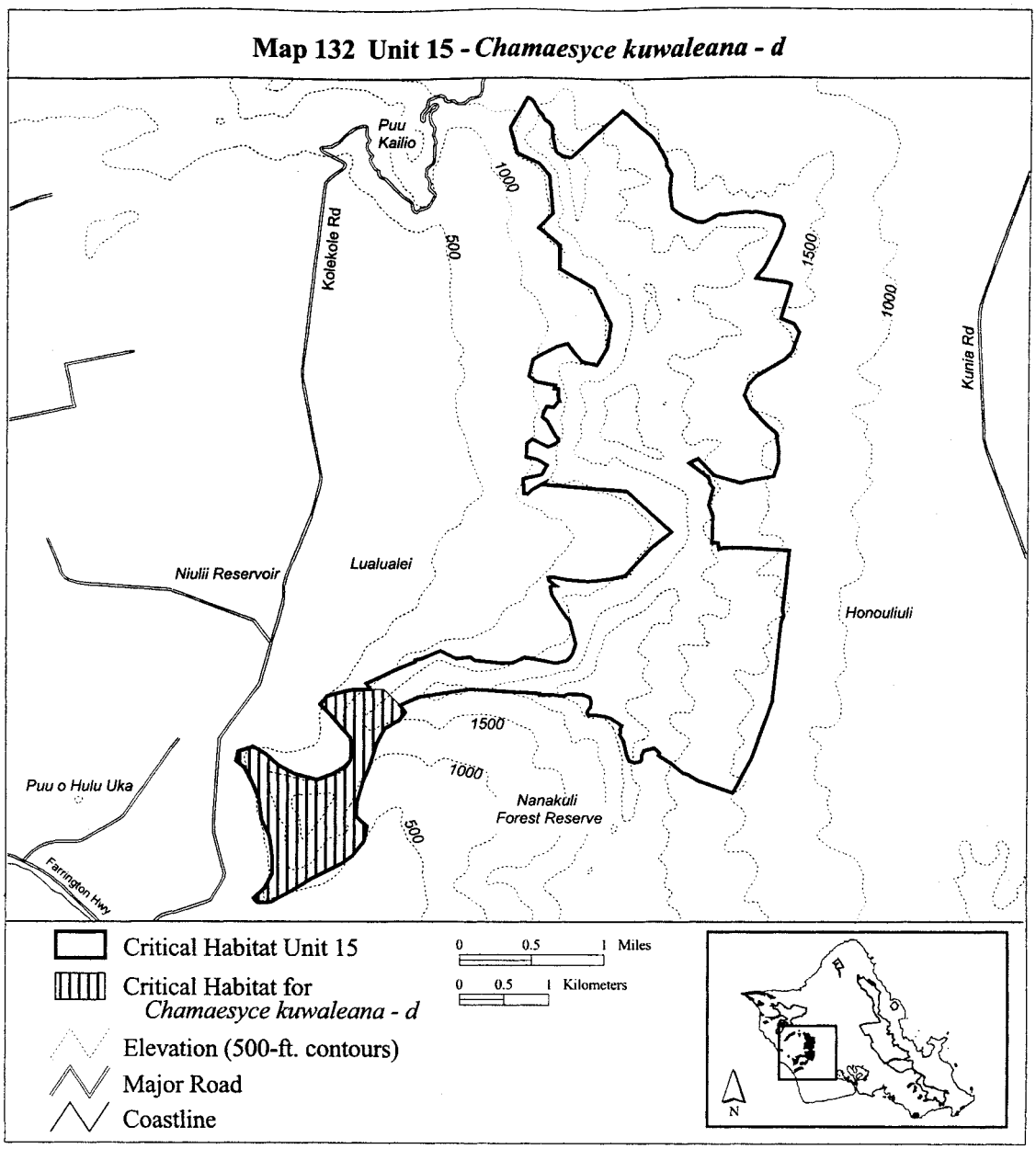
(ii) **Note:** Map 131 follows:



(132) Oahu 15—*Chamaesyce kuwaleana*—d (184 ha; 454 ac)

(i) Unit consists of the following 59 boundary points: Start at 590890, 2367845; 590753, 2367768; 590663, 2367594; 590573, 2367305; 590515, 2367177; 590444, 2366939; 590438, 2366792; 590436, 2366785; 590436, 2366784; 590437, 2366784; 590457, 2366768; 590560, 2366676; 590528, 2366509; 590399, 2366348; 590265, 2366252; 589963, 2366098; 589738, 2365969; 589494, 2365828; 589348, 2365822; 589335, 2365828; 589301, 2365873; 589423, 2365982; 589506, 2366143; 589506, 2366167; 589507, 2366167; 589507, 2366168; 589506, 2366172; 589506, 2366342; 589474, 2366560; 589384, 2366753; 589352, 2366997; 589256, 2367209; 589192, 2367331; 589095, 2367408; 589121, 2367511; 589288, 2367569; 589429, 2367485; 589564, 2367363; 589751, 2367260; 590001, 2367190; 590181, 2367260; 590309, 2367344; 590374, 2367415; 590380, 2367530; 590374, 2367665; 590265, 2367781; 590155, 2367916; 590033, 2368038; 590117, 2368134; 590342, 2368198; 590605, 2368211; 590746, 2368211; 590900, 2368063; 590984, 2367954; 590913, 2367858; 590904, 2367853; 590903, 2367853; 590903, 2367854; 590902, 2367853; return to starting point.

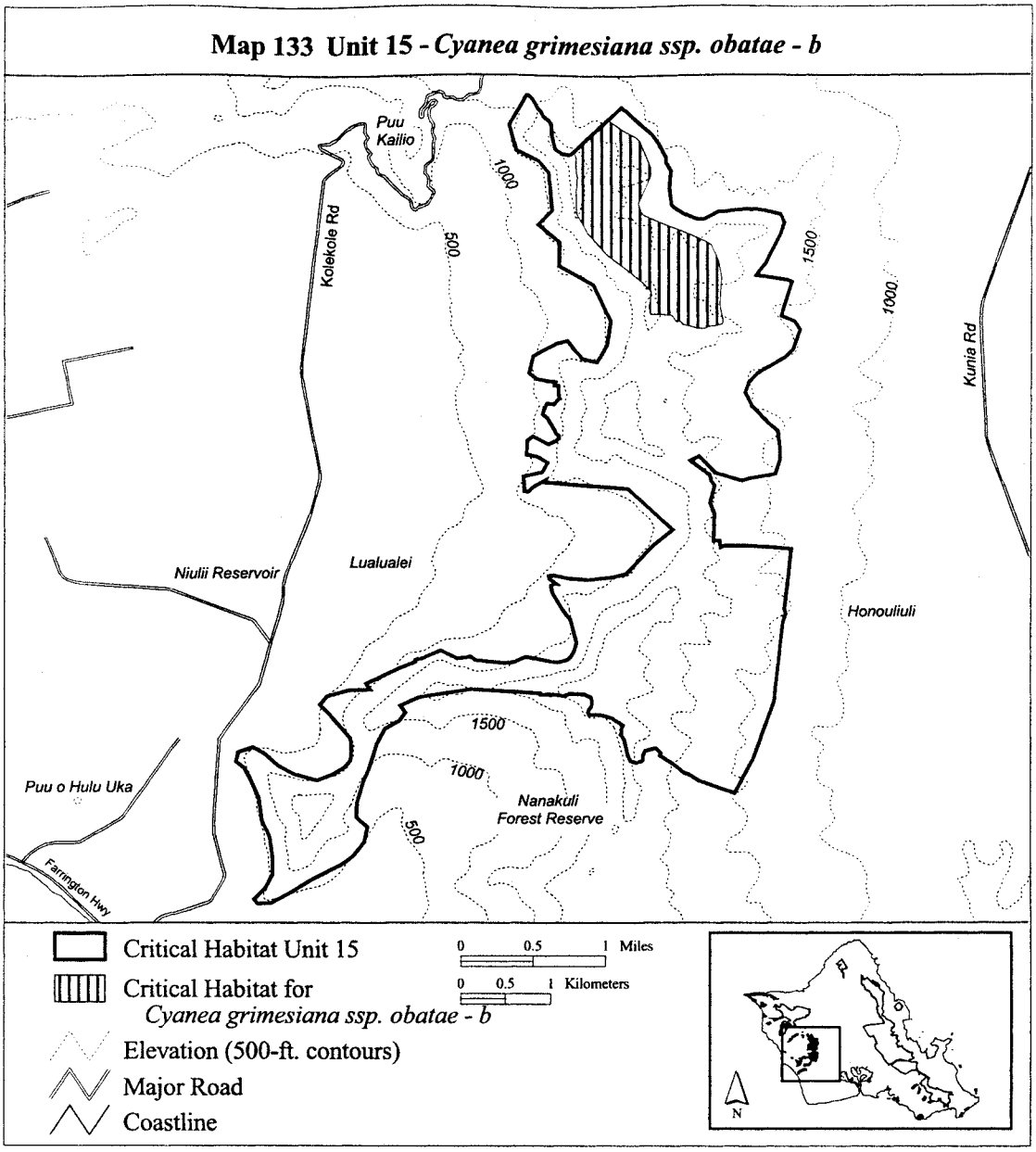
(ii) **Note:** Map 132 follows:



(133) Oahu 15—*Cyanea grimesiana* ssp. *obatae*—b (184 ha; 455 ac)

(i) Unit consists of the following 45 boundary points: Start at 593238, 2374575; 593285, 2374543; 593404, 2374463; 593535, 2374388; 593586, 2374348; 593713, 2374039; 593713, 2373948; 593602, 2373707; 593571, 2373639; 593598, 2373556; 593626, 2373520; 593856, 2373421; 594066, 2373334; 594316, 2373223; 594375, 2373183; 594462, 2372997; 594490, 2372815; 594474, 2372517; 594502, 2372346; 594506, 2372307; 594482, 2372295; 594415, 2372283; 594351, 2372276; 594304, 2372248; 594232, 2372248; 594157, 2372272; 594070, 2372292; 594025, 2372329; 593991, 2372327; 593947, 2372395; 593820, 2372407; 593705, 2372407; 593693, 2372498; 593713, 2372569; 593713, 2372668; 593626, 2372759; 593487, 2372870; 593222, 2373076; 593008, 2373318; 592885, 2373532; 592881, 2373762; 592897, 2373921; 592881, 2374028; 592881, 2374158; 592851, 2374213; return to starting point.

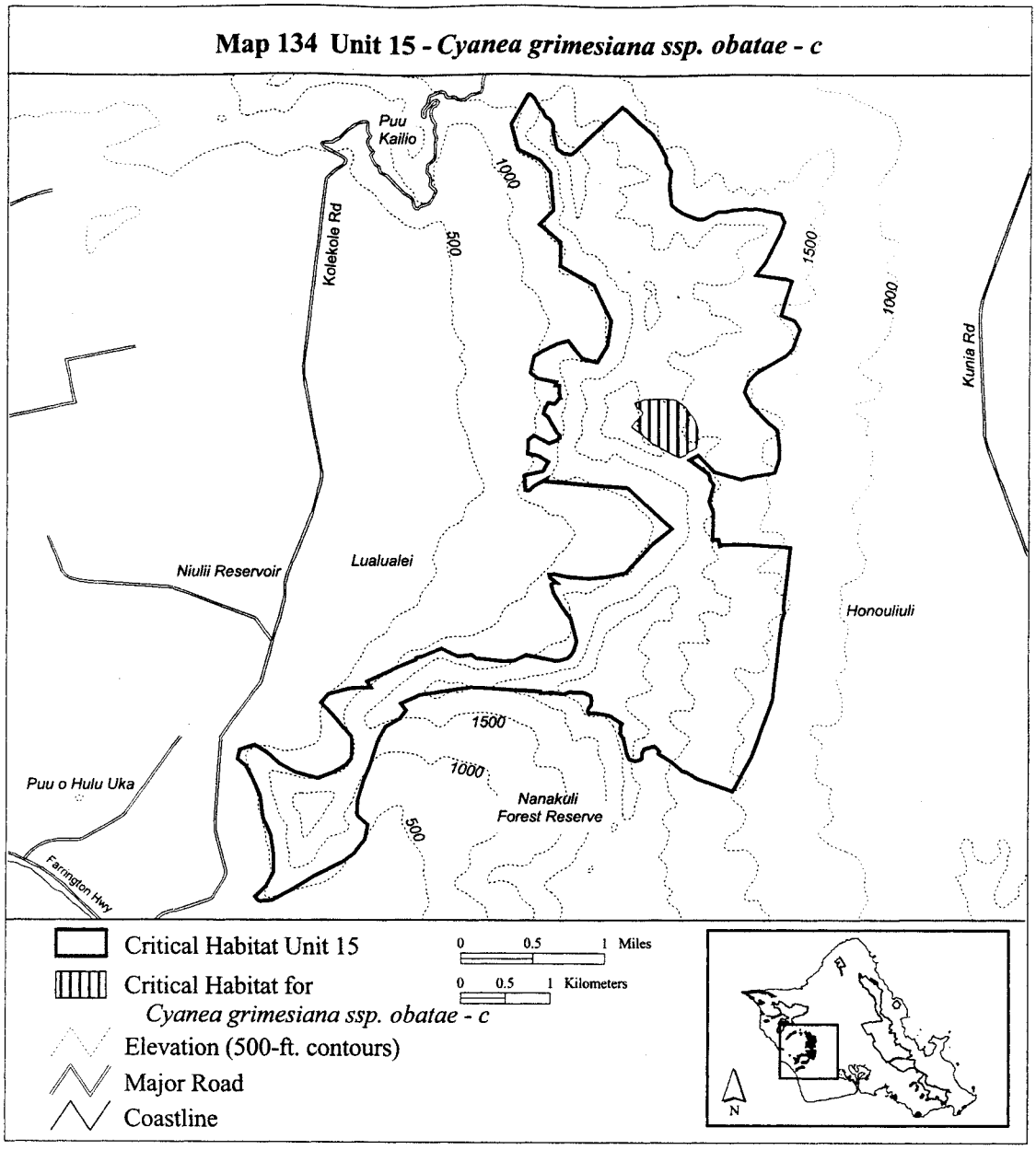
(ii) **Note:** Map 133 follows:



(134) Oahu 15—*Cyanea grimesiana* ssp. *obatae*—c (34 ha; 84 ac)

(i) Unit consists of the following 22 boundary points: Start at 593638, 2371452; 593884, 2371463; 593999, 2371443; 594106, 2371360; 594205, 2371221; 594240, 2371126; 594236, 2371019; 594224, 2370900; 594141, 2370860; 594094, 2370817; 594034, 2370793; 593884, 2370868; 593725, 2370959; 593618, 2371046; 593499, 2371146; 593539, 2371197; 593575, 2371233; 593614, 2371276; 593618, 2371308; 593586, 2371345; 593551, 2371372; 593531, 2371412; return to starting point.

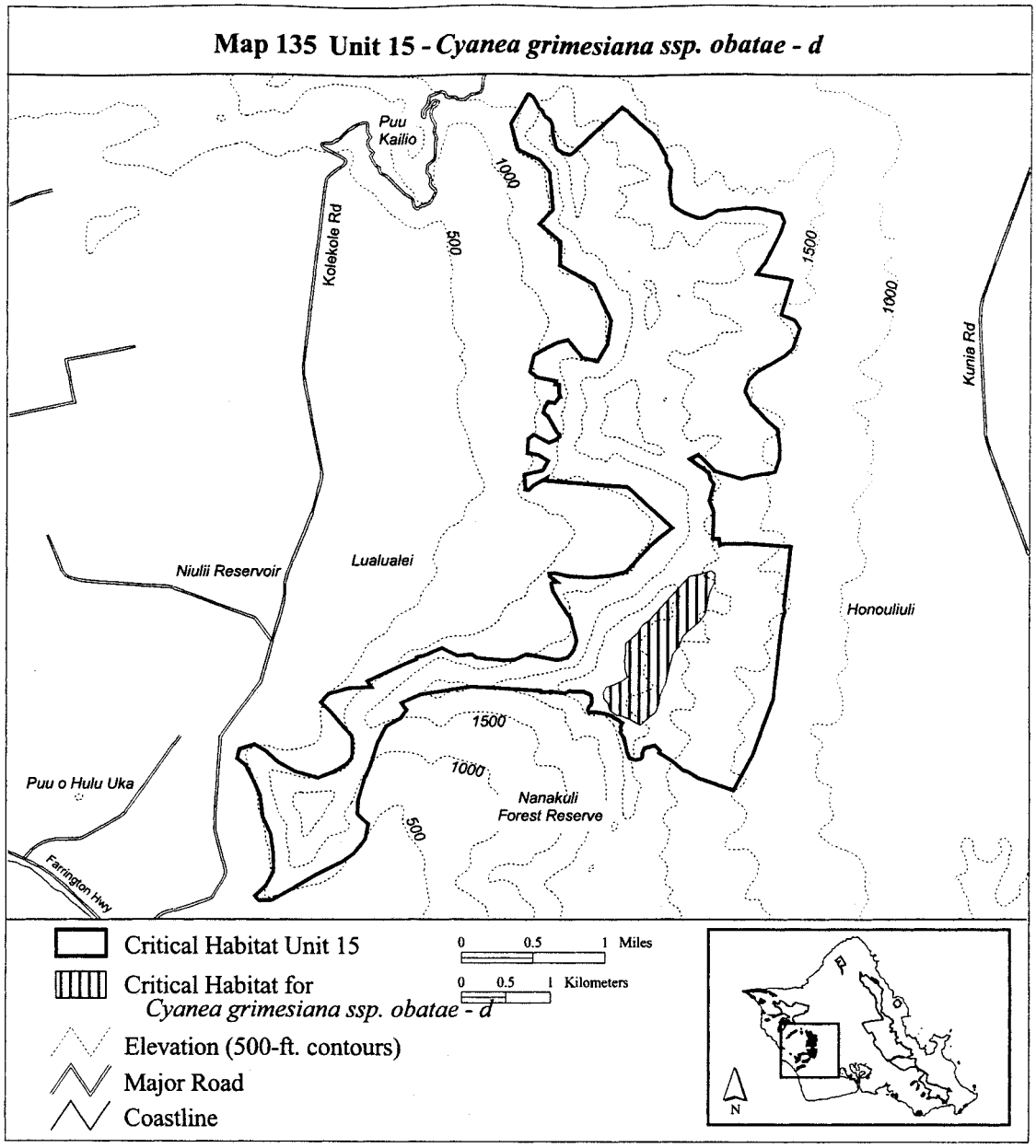
(ii) **Note:** Map 134 follows:



(135) Oahu 15—*Cyanea grimesiana* ssp. *obatae*—d (83 ha; 205 ac)

(i) Unit consists of the following 42 boundary points: Start at 594150, 2369456; 594262, 2369473; 594391, 2369508; 594429, 2369478; 594425, 2369388; 594395, 2369323; 594373, 2369259; 594348, 2369135; 594322, 2369023; 594270, 2368950; 594168, 2368860; 594073, 2368766; 594043, 2368672; 593962, 2368577; 593923, 2368423; 593889, 2368252; 593825, 2368114; 593812, 2368016; 593773, 2367926; 593662, 2367836; 593610, 2367784; 593482, 2367853; 593396, 2367887; 593345, 2367892; 593259, 2367952; 593255, 2367986; 593242, 2368037; 593195, 2368084; 593190, 2368136; 593229, 2368209; 593323, 2368243; 593405, 2368277; 593456, 2368316; 593430, 2368414; 593422, 2368509; 593430, 2368547; 593435, 2368629; 593439, 2368697; 593486, 2368736; 593572, 2368809; 593619, 2368899; 593709, 2368967; return to starting point.

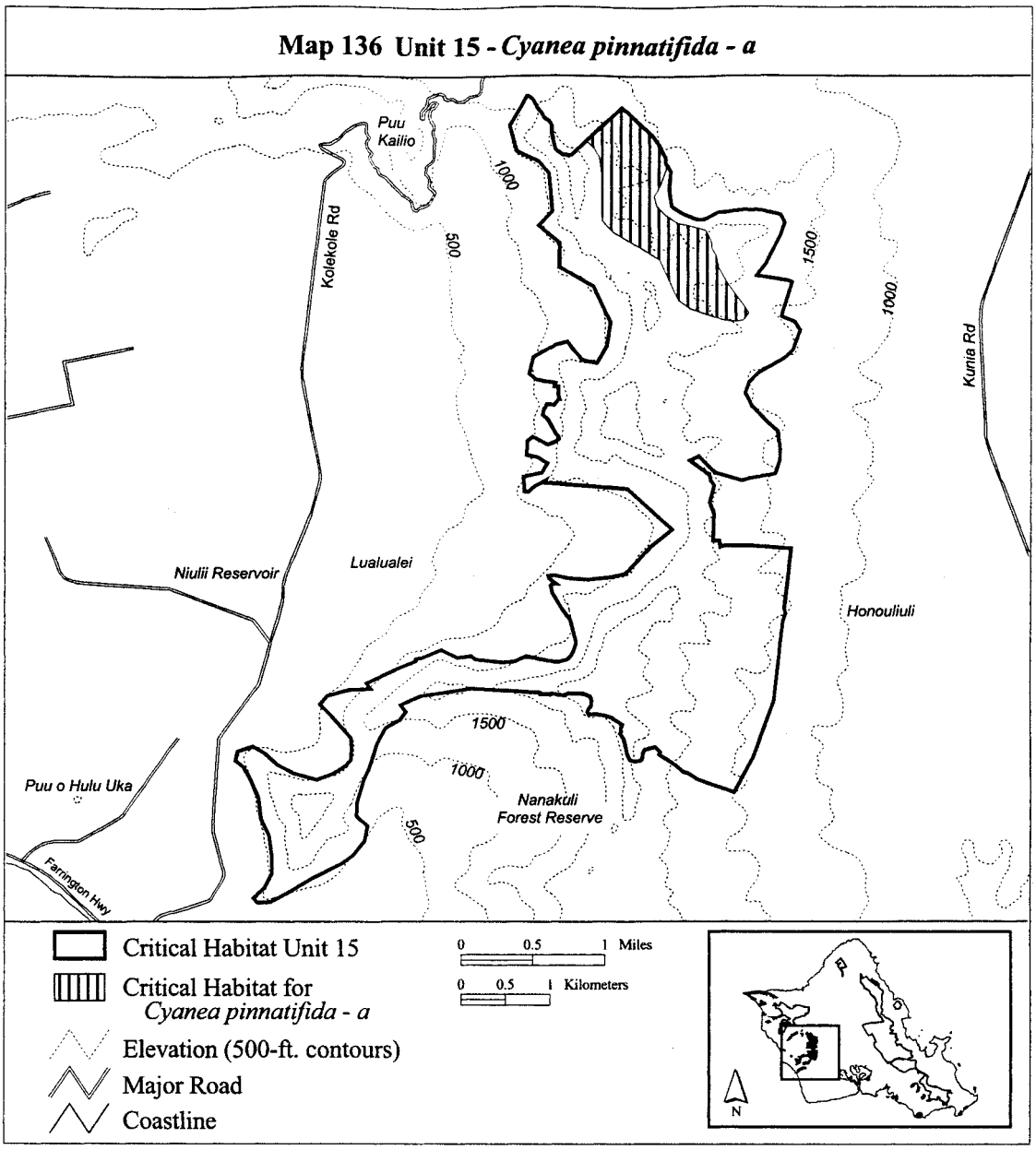
(ii) **Note:** Map 135 follows:



(136) Oahu 15—*Cyanea pinnatifida*—a (154 ha; 380 ac)

(i) Unit consists of the following 41 boundary points: Start at 593385, 2374713; 593425, 2374682; 593429, 2374682; 593577, 2374542; 593721, 2374415; 593793, 2374314; 593874, 2374157; 593882, 2374030; 593819, 2373852; 593747, 2373721; 593776, 2373624; 593865, 2373531; 594009, 2373433; 594132, 2373404; 594318, 2373349; 594377, 2373226; 594381, 2373150; 594428, 2373061; 594462, 2372926; 594546, 2372768; 594648, 2372624; 594745, 2372497; 594796, 2372421; 594733, 2372345; 594678, 2372332; 594585, 2372332; 594504, 2372349; 594339, 2372401; 594149, 2372469; 594018, 2372570; 593903, 2372820; 593810, 2373027; 593599, 2373154; 593290, 2373336; 593167, 2373467; 593163, 2373679; 593163, 2373967; 593133, 2374170; 593078, 2374259; 592993, 2374346; 593303, 2374636; return to starting point.

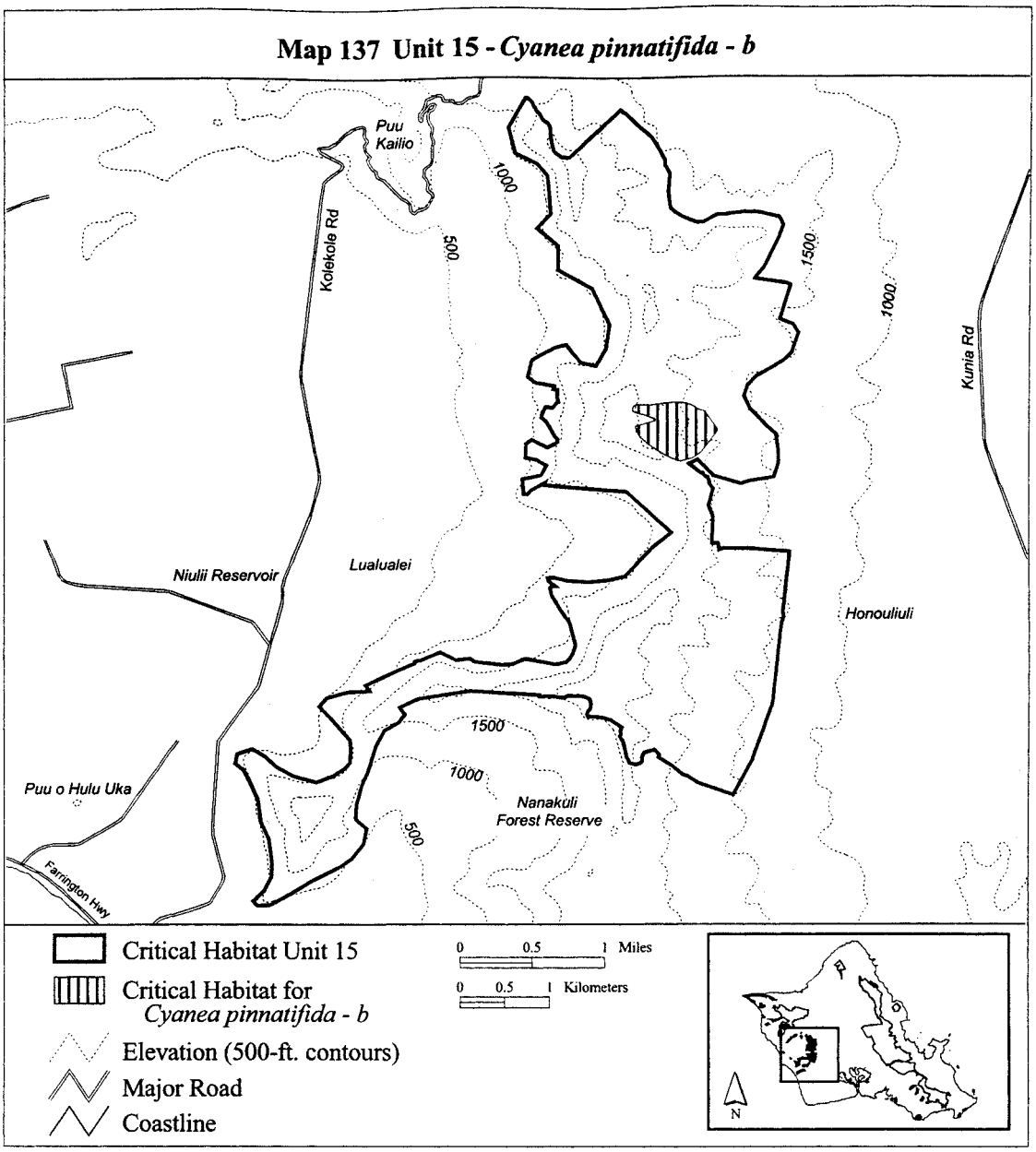
(ii) **Note:** Map 136 follows:



(137) Oahu 15—*Cyanea pinnatifida*—b (42 ha; 104 ac)

(i) Unit consists of the following 34 boundary points: Start at 594269, 2371382; 594330, 2371362; 594330, 2371348; 594458, 2371171; 594457, 2371170; 594458, 2371170; 594470, 2371145; 594394, 2371042; 594317, 2370945; 594269, 2370886; 594177, 2370831; 594049, 2370792; 593891, 2370864; 593690, 2370992; 593604, 2371076; 593568, 2371123; 593570, 2371123; 593565, 2371124; 593554, 2371189; 593769, 2371254; 593758, 2371277; 593646, 2371322; 593557, 2371344; 593520, 2371366; 593526, 2371411; 593573, 2371436; 593646, 2371433; 593707, 2371427; 593738, 2371430; 593874, 2371449; 593971, 2371460; 594063, 2371457; 594127, 2371451; 594205, 2371418; return to starting point.

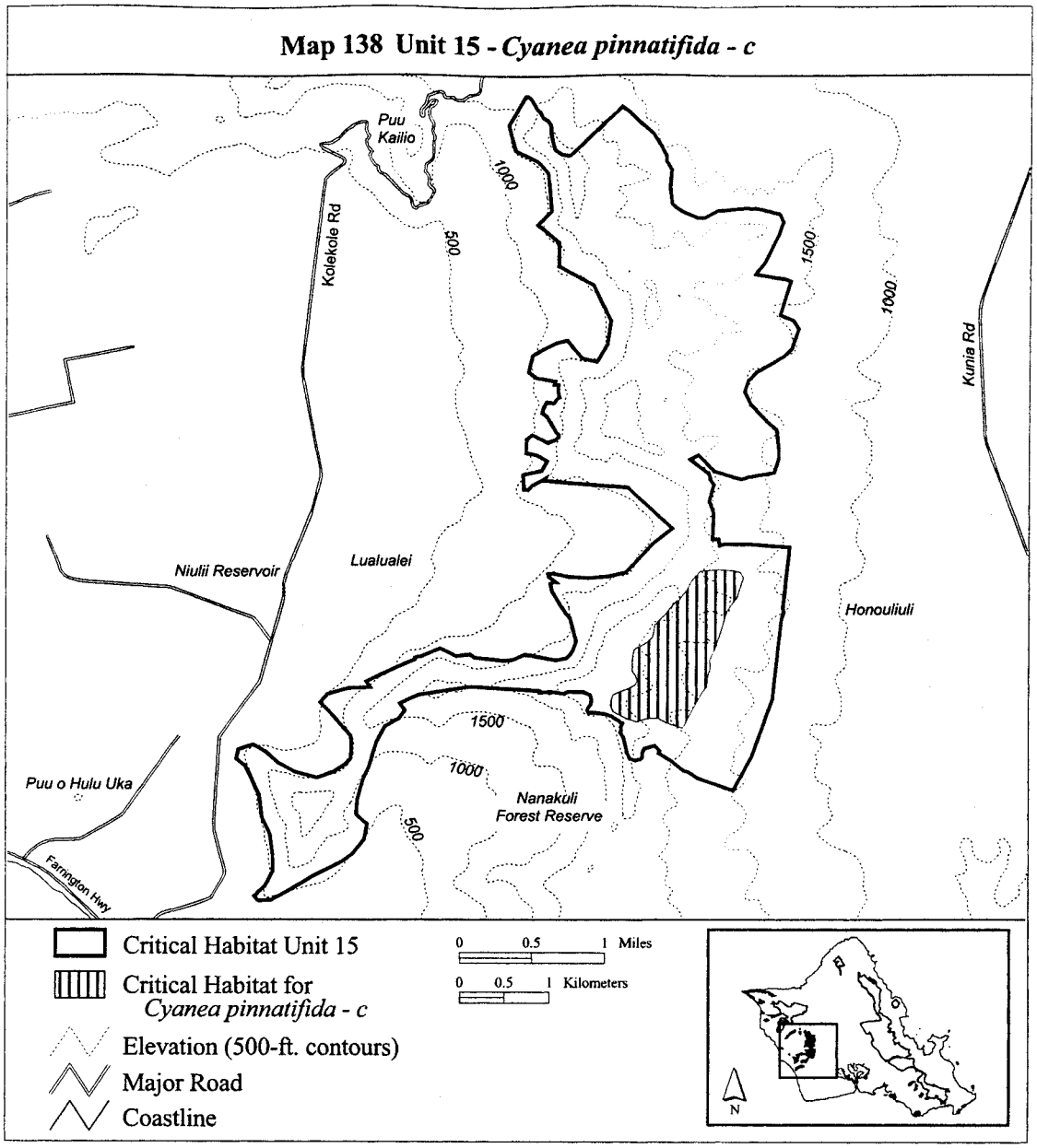
(ii) **Note:** Map 137 follows:



(138) Oahu 15—*Cyanea pinnatifida*—c (129 ha; 318 ac)

(i) Unit consists of the following 55 boundary points: Start at 594158, 2369378; 594159, 2369378; 594186, 2369419; 594266, 2369517; 594347, 2369525; 594456, 2369531; 594639, 2369522; 594717, 2369497; 594753, 2369442; 594717, 2369347; 594673, 2369208; 594620, 2369133; 594564, 2369041; 594475, 2368746; 594447, 2368662; 594375, 2368512; 594383, 2368423; 594353, 2368326; 594344, 2368212; 594292, 2368155; 594077, 2367755; 594058, 2367761; 593899, 2367813; 593799, 2367869; 593660, 2367861; 593573, 2367825; 593462, 2367861; 593373, 2367903; 593295, 2367942; 593270, 2368003; 593276, 2368072; 593306, 2368125; 593379, 2368164; 593470, 2368195; 593548, 2368242; 593568, 2368287; 593554, 2368348; 593515, 2368390; 593512, 2368470; 593512, 2368545; 593532, 2368621; 593562, 2368651; 593657, 2368704; 593738, 2368765; 593749, 2368824; 593760, 2368907; 593829, 2368982; 593880, 2369027; 593927, 2369091; 593996, 2369166; 594033, 2369183; 594077, 2369250; 594124, 2369303; 594155, 2369372; 594156, 2369374; return to starting point.

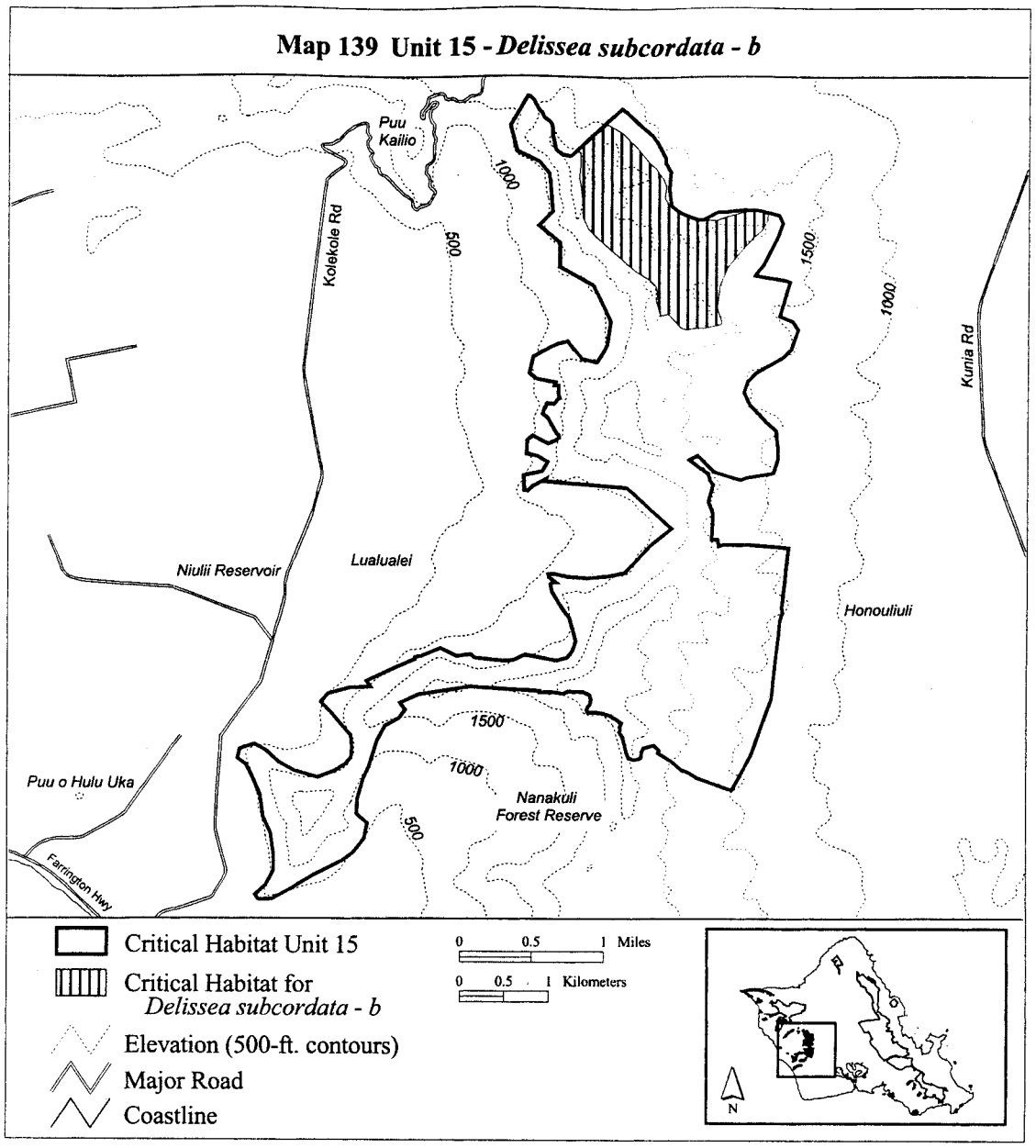
(ii) **Note:** Map 138 follows:



(139) Oahu 15—*Delissea subcordata*—(220 ha; 545ac)

(i) Unit consists of the following 58 boundary points: Start at 593234, 2374539; 593402, 2374434; 593503, 2374332; 593561, 2374272; 593700, 2374102; 593689, 2374102; 593761, 2374051; 593845, 2373930; 593879, 2373842; 593862, 2373713; 593923, 2373622; 594069, 2373534; 594211, 2373473; 594448, 2373456; 594553, 2373500; 594705, 2373537; 594864, 2373580; 594962, 2373566; 595017, 2373539; 595020, 2373455; 594959, 2373353; 594868, 2373272; 594732, 2373123; 594576, 2372940; 594485, 2372730; 594455, 2372473; 594485, 2372375; 594505, 2372317; 594495, 2372293; 594377, 2372270; 594309, 2372250; 594241, 2372247; 594191, 2372247; 594109, 2372230; 594042, 2372261; 593910, 2372410; 593818, 2372389; 593801, 2372454; 593767, 2372552; 593781, 2372636; 593767, 2372718; 593693, 2372799; 593537, 2372890; 593395, 2373026; 593266, 2373131; 593114, 2373269; 593016, 2373364; 592955, 2373486; 592945, 2373550; 592945, 2373635; 592931, 2373831; 592911, 2373930; 592924, 2374068; 592924, 2374143; 592924, 2374221; 592878, 2374238; 593146, 2374489; 593165, 2374499; return to starting point.

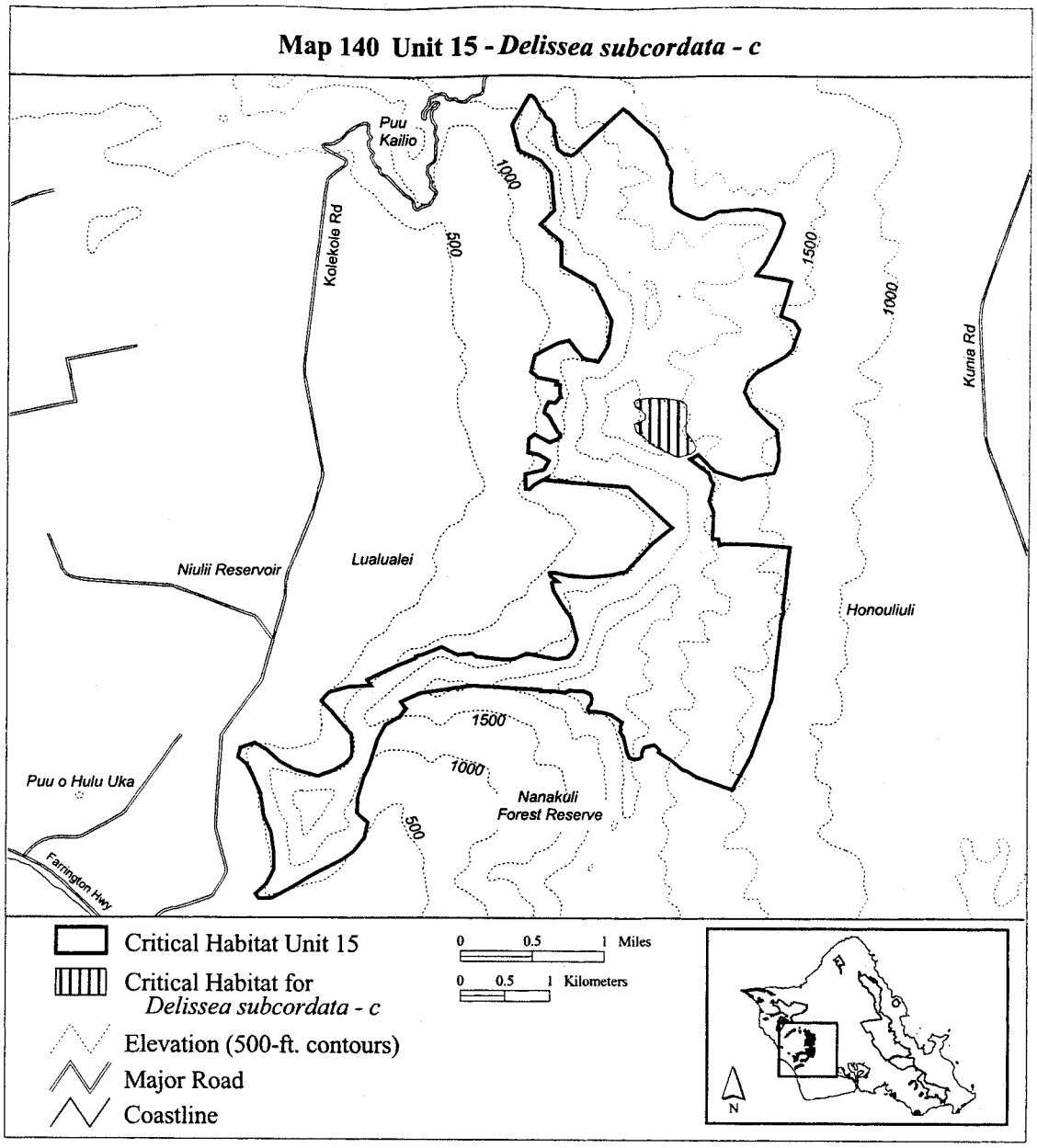
(ii) **Note:** Map 139 follows:



(140) Oahu 15—*Delissea subcordata*—c (32 ha; 78ac)

(i) Unit consists of the following 23 boundary points: Start at 593547, 2371434; 593683, 2371458; 593893, 2371450; 594059, 2371423; 594113, 2371379; 594113, 2371278; 594106, 2371200; 594096, 2371081; 594160, 2371007; 594214, 2370916; 594214, 2370868; 594153, 2370824; 594014, 2370787; 593913, 2370834; 593737, 2370919; 593625, 2371017; 593547, 2371078; 593517, 2371163; 593642, 2371210; 593649, 2371271; 593605, 2371316; 593534, 2371363; 593517, 2371414; return to starting point.

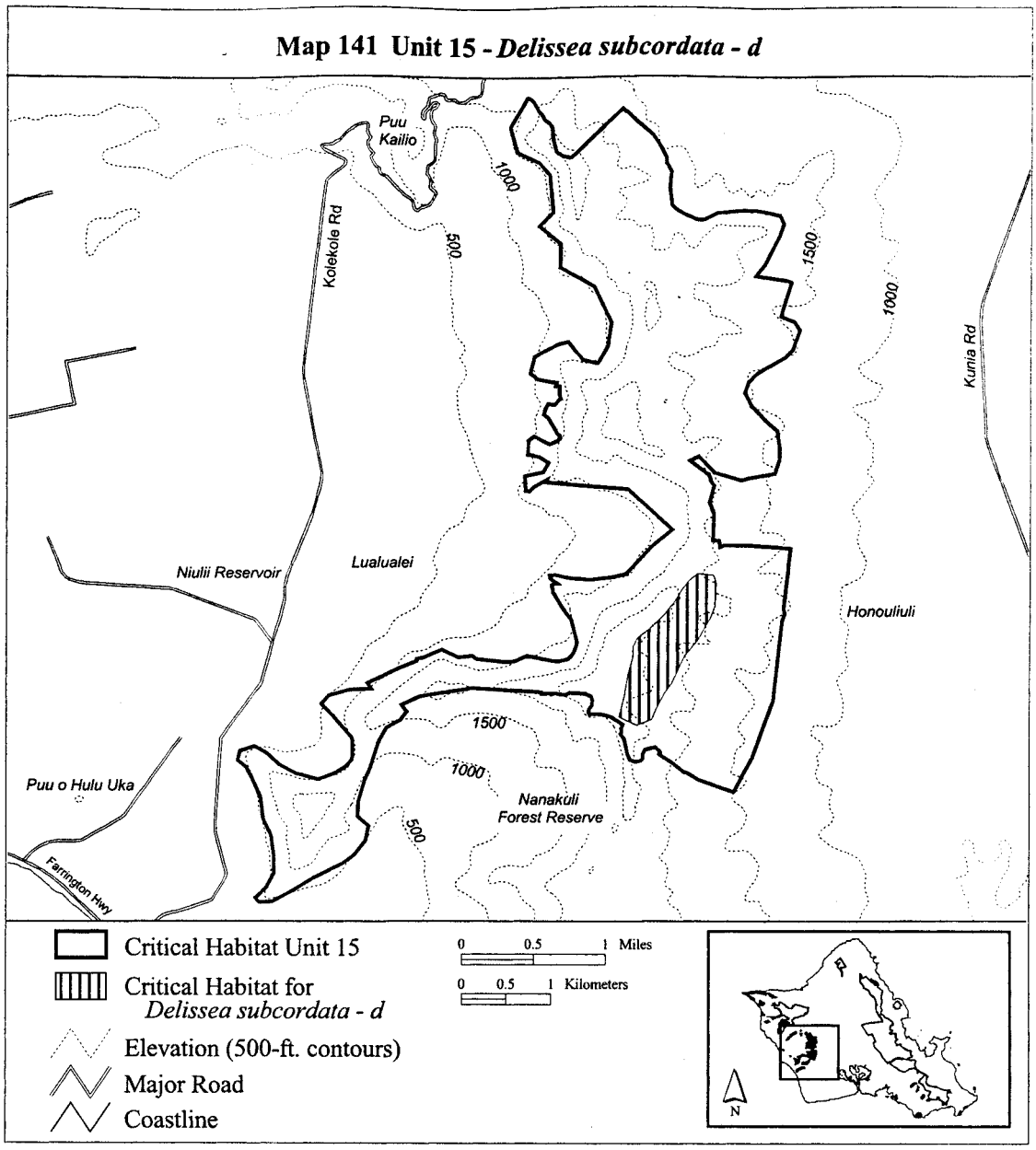
(ii) **Note:** Map 140 follows:



(141) Oahu 15—*Delissea subcordata*—d (81 ha; 200 ac)

(i) Unit consists of the following 27 boundary points: Start at 594143, 2369424; 594236, 2369495; 594412, 2369484; 594439, 2369409; 594442, 2369289; 594427, 2369132; 594371, 2368986; 594315, 2368885; 594248, 2368768; 594098, 2368581; 594019, 2368427; 593952, 2368266; 593873, 2368165; 593775, 2367978; 593730, 2367865; 593562, 2367805; 593360, 2367899; 593386, 2367989; 593427, 2368146; 593464, 2368360; 593513, 2368559; 593521, 2368679; 593569, 2368780; 593704, 2368881; 593880, 2369061; 593978, 2369173; 594045, 2369297; return to starting point.

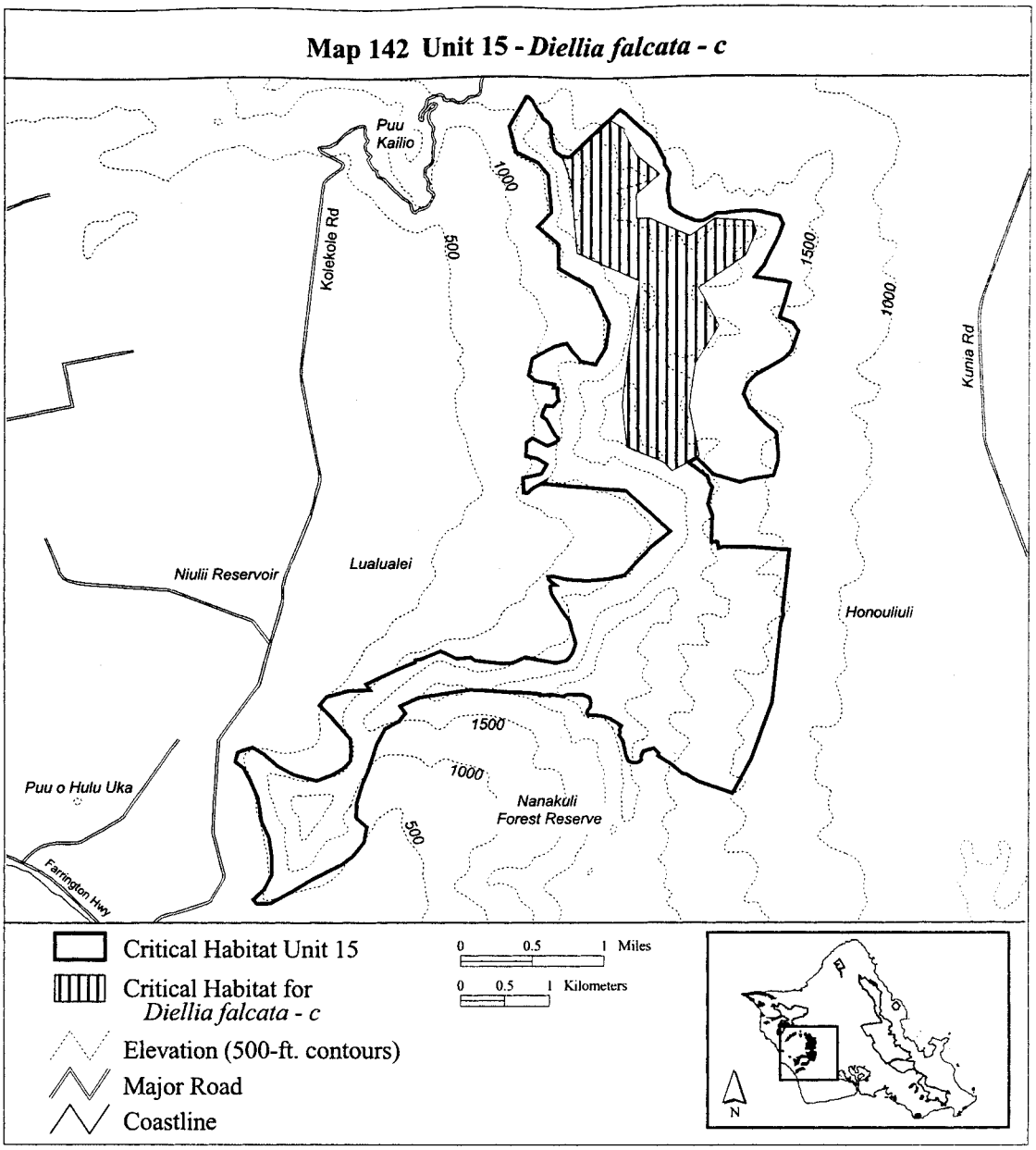
(ii) **Note:** Map 141 follows:



(142) Oahu 15—*Diellia falcata*—c (342 ha; 844 ac)

(i) Unit consists of the following 32 boundary points: Start at 593263, 2374599; 593436, 2374499; 593422, 2374474; 593572, 2374207; 593822, 2373998; 593561, 2373771; 593572, 2373507; 593715, 2373507; 594159, 2373305; 594437, 2373496; 594855, 2373462; 594892, 2373348; 594778, 2373081; 594254, 2372726; 594485, 2372300; 594221, 2371865; 594155, 2371391; 594272, 2370836; 593971, 2370676; 593868, 2370775; 593469, 2370939; 593411, 2371425; 593483, 2371995; 593604, 2372808; 592905, 2373115; 592834, 2373899; 592727, 2374190; 592765, 2374190; 592805, 2374172; 592806, 2374171; 592807, 2374171; 592807, 2374172; return to starting point.

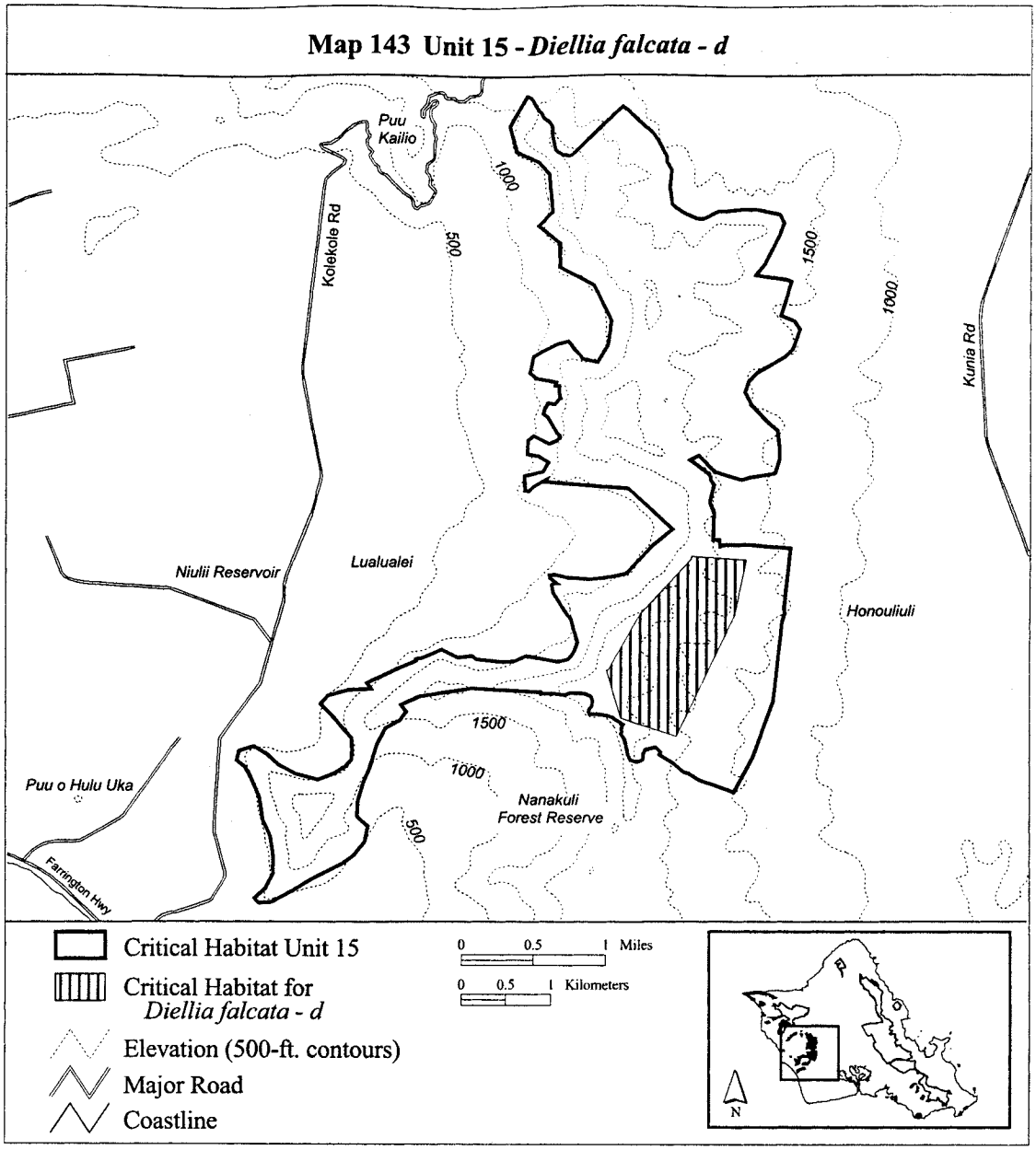
(ii) **Note:** Map 142 follows:



(143) Oahu 15—*Diellia falcata*—d (177 ha; 438 ac)

(i) Unit consists of the following 11 boundary points: Start at 594778, 2369648; 594642, 2369018; 594003, 2367683; 593587, 2367808; 593376, 2367886; 593222, 2368415; 593240, 2368417; 593589, 2369042; 594161, 2369659; 594168, 2369688; 594734, 2369651; return to starting point.

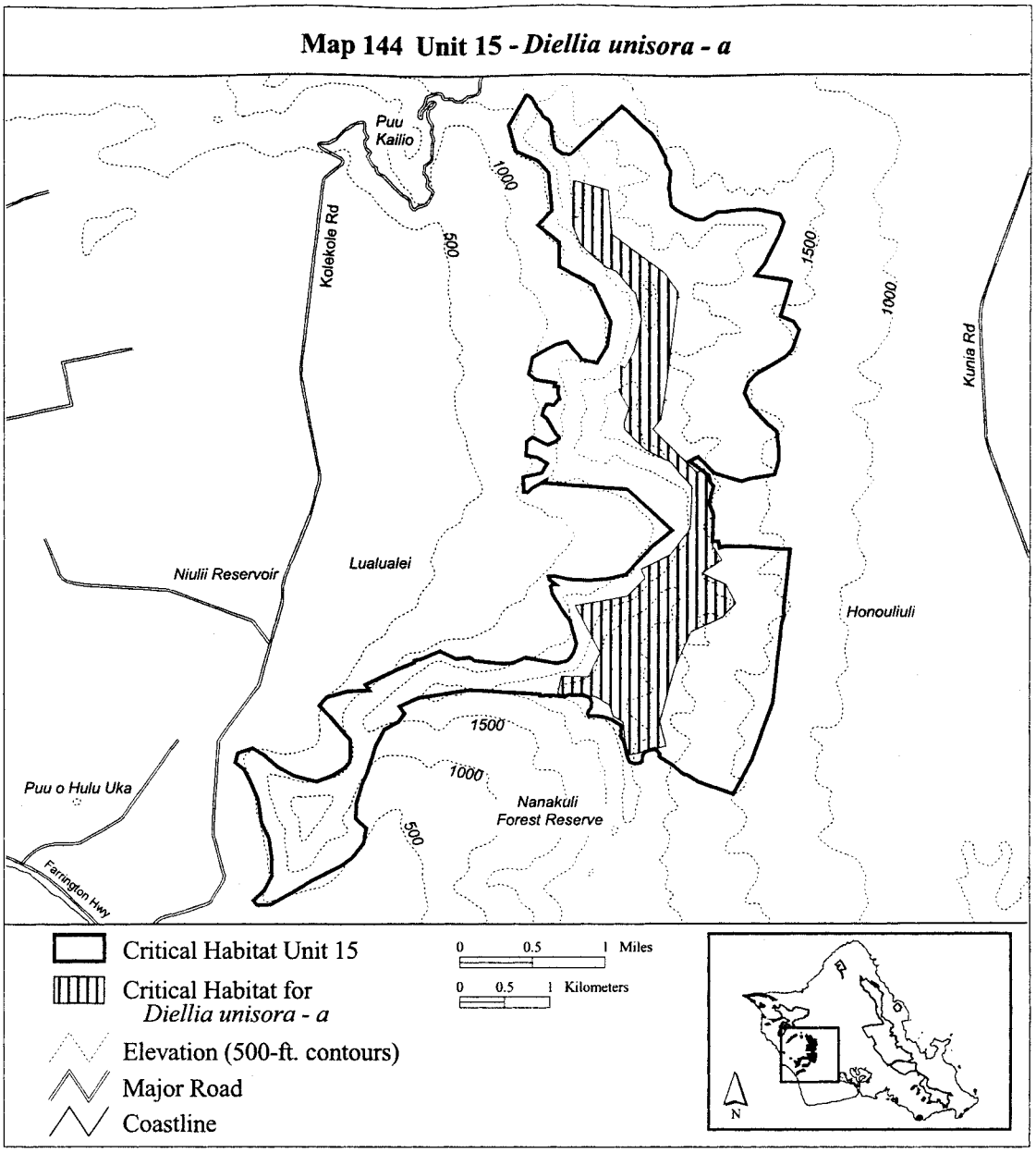
(ii) **Note:** Map 143 follows:



(144) Oahu 15—*Diellia unisora*—a (362 ha; 895 ac)

(i) Unit consists of the following 68 boundary points: Start at 592846, 2373892; 593232, 2373784; 593278, 2373295; 593871, 2372872; 594017, 2372653; 593879, 2371581; 593822, 2371230; 593736, 2371122; 594227, 2370646; 594300, 2370666; 594412, 2370491; 594362, 2370301; 594412, 2370171; 594402, 2369825; 594512, 2369665; 594287, 2369515; 594542, 2369395; 594552, 2369394; 594662, 2369179; 594517, 2369024; 594167, 2368864; 593976, 2368428; 593821, 2367853; 593827, 2367852; 593886, 2367592; 593462, 2367482; 593436, 2367597; 593426, 2367778; 593411, 2367858; 593300, 2367928; 593260, 2368053; 593105, 2368148; 592685, 2368173; 592723, 2368374; 592725, 2368368; 593025, 2368358; 593155, 2368629; 592880, 2369154; 593456, 2369254; 593651, 2369460; 593606, 2369554; 593611, 2369557; 593616, 2369563; 593761, 2369630; 593931, 2369720; 594152, 2370010; 594172, 2370481; 594041, 2370631; 593941, 2370756; 593671, 2370882; 593536, 2371002; 593421, 2371127; 593416, 2371197; 593466, 2371358; 593358, 2371548; 593381, 2371563; 593376, 2371839; 593421, 2371814; 593521, 2371984; 593611, 2372349; 593536, 2372645; 593325, 2372890; 593187, 2372944; 593188, 2372954; 593050, 2373067; 592928, 2373181; 592839, 2373384; 592839, 2373636; return to starting point.

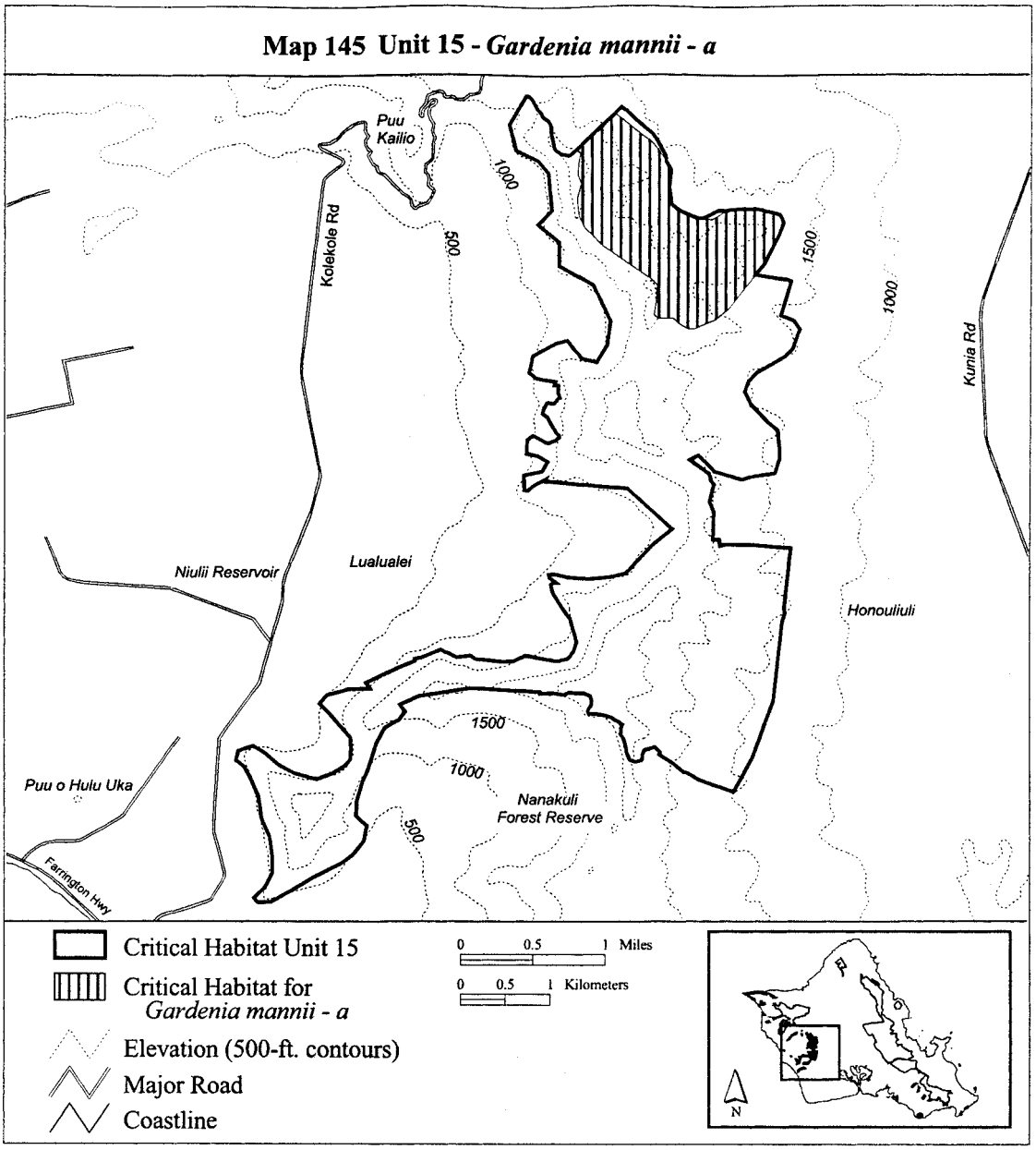
(ii) **Note:** Map 144 follows:



(145) Oahu 15—*Gardenia mannii*—a (266 ha; 658 ac)

(i) Unit consists of the following 44 boundary points: Start at 593315, 2374647; 593329, 2374638; 593423, 2374563; 593533, 2374468; 593718, 2374328; 593801, 2374230; 593892, 2374075; 593930, 2374003; 593911, 2373814; 593941, 2373625; 594017, 2373557; 594228, 2373470; 594387, 2373451; 594572, 2373561; 594761, 2373579; 595011, 2373549; 595143, 2373522; 595188, 2373431; 595147, 2373303; 594973, 2372963; 594894, 2372861; 594735, 2372653; 594580, 2372460; 594421, 2372331; 594190, 2372238; 594130, 2372238; 594020, 2372298; 593967, 2372359; 593797, 2372359; 593748, 2372397; 593771, 2372589; 593778, 2372733; 593695, 2372809; 593457, 2372975; 593177, 2373179; 592981, 2373376; 592916, 2373508; 592894, 2373697; 592939, 2373863; 592901, 2373973; 592916, 2374109; 592935, 2374211; 592897, 2374256; 593303, 2374636; return to starting point.

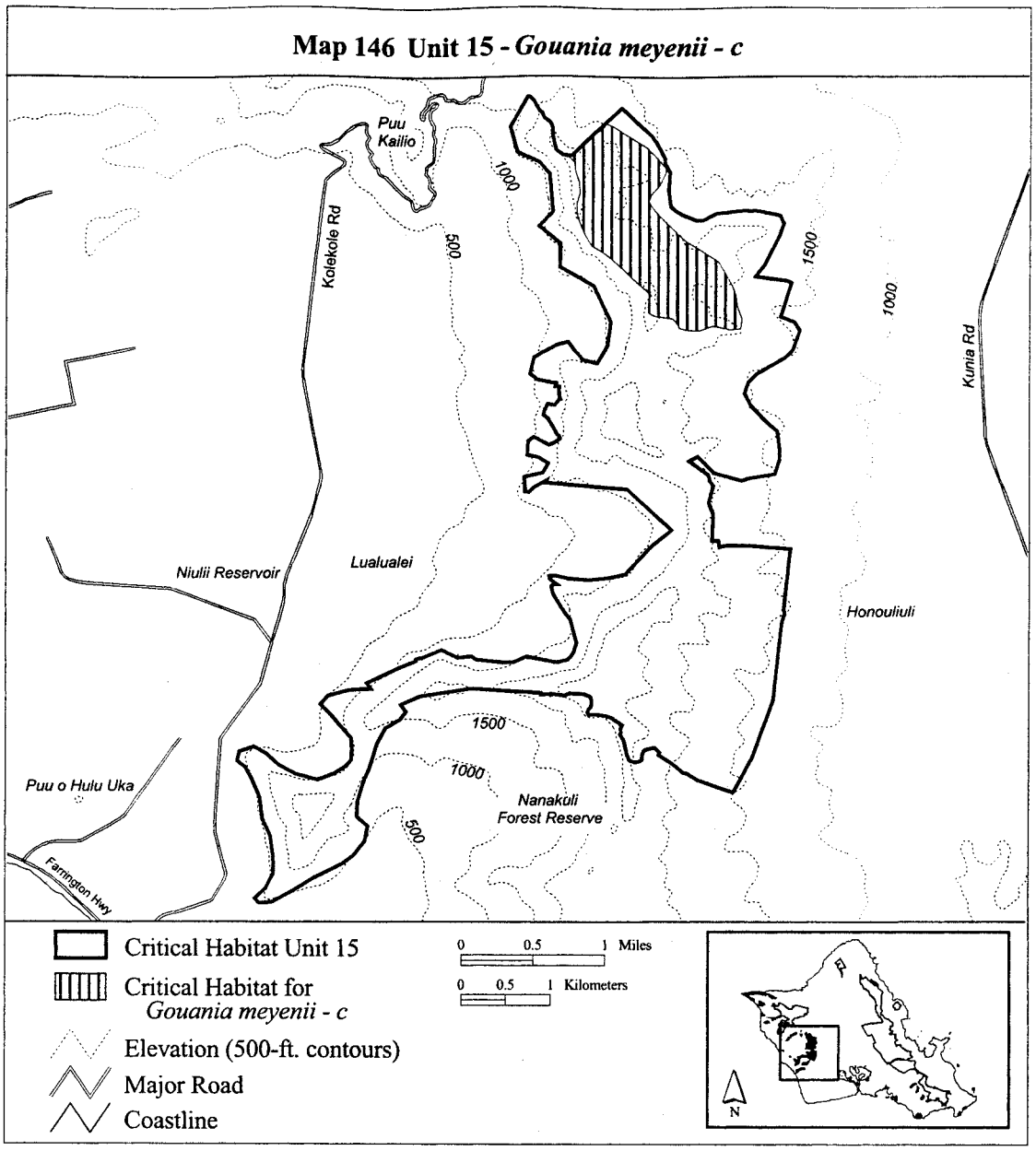
(ii) **Note:** Map 145 follows:



(146) Oahu 15—*Gouania meyenii*—c (209 ha; 515 ac)

(i) Unit consists of the following 60 boundary points: Start at 593204, 2374544; 593306, 2374506; 593425, 2374431; 593681, 2374277; 593800, 2374154; 593879, 2374063; 593891, 2374004; 593816, 2373866; 593721, 2373755; 593693, 2373680; 593768, 2373569; 593867, 2373467; 593997, 2373340; 594112, 2373242; 594258, 2373147; 594475, 2373005; 594618, 2372747; 594665, 2372620; 594681, 2372494; 594728, 2372371; 594712, 2372257; 594606, 2372241; 594499, 2372269; 594416, 2372285; 594329, 2372254; 594250, 2372230; 594155, 2372234; 594096, 2372246; 594037, 2372266; 594013, 2372309; 593966, 2372372; 593875, 2372380; 593768, 2372396; 593689, 2372432; 593685, 2372495; 593689, 2372558; 593697, 2372617; 593685, 2372661; 593579, 2372760; 593425, 2372898; 593290, 2373016; 593199, 2373091; 593045, 2373182; 592958, 2373317; 592907, 2373447; 592887, 2373526; 592879, 2373648; 592915, 2373767; 592903, 2373897; 592868, 2374004; 592852, 2374107; 592808, 2374150; 592754, 2374182; 592760, 2374190; 592765, 2374190; 592805, 2374172; 592805, 2374171; 592806, 2374171; 592807, 2374171; 592807, 2374172; return to starting point.

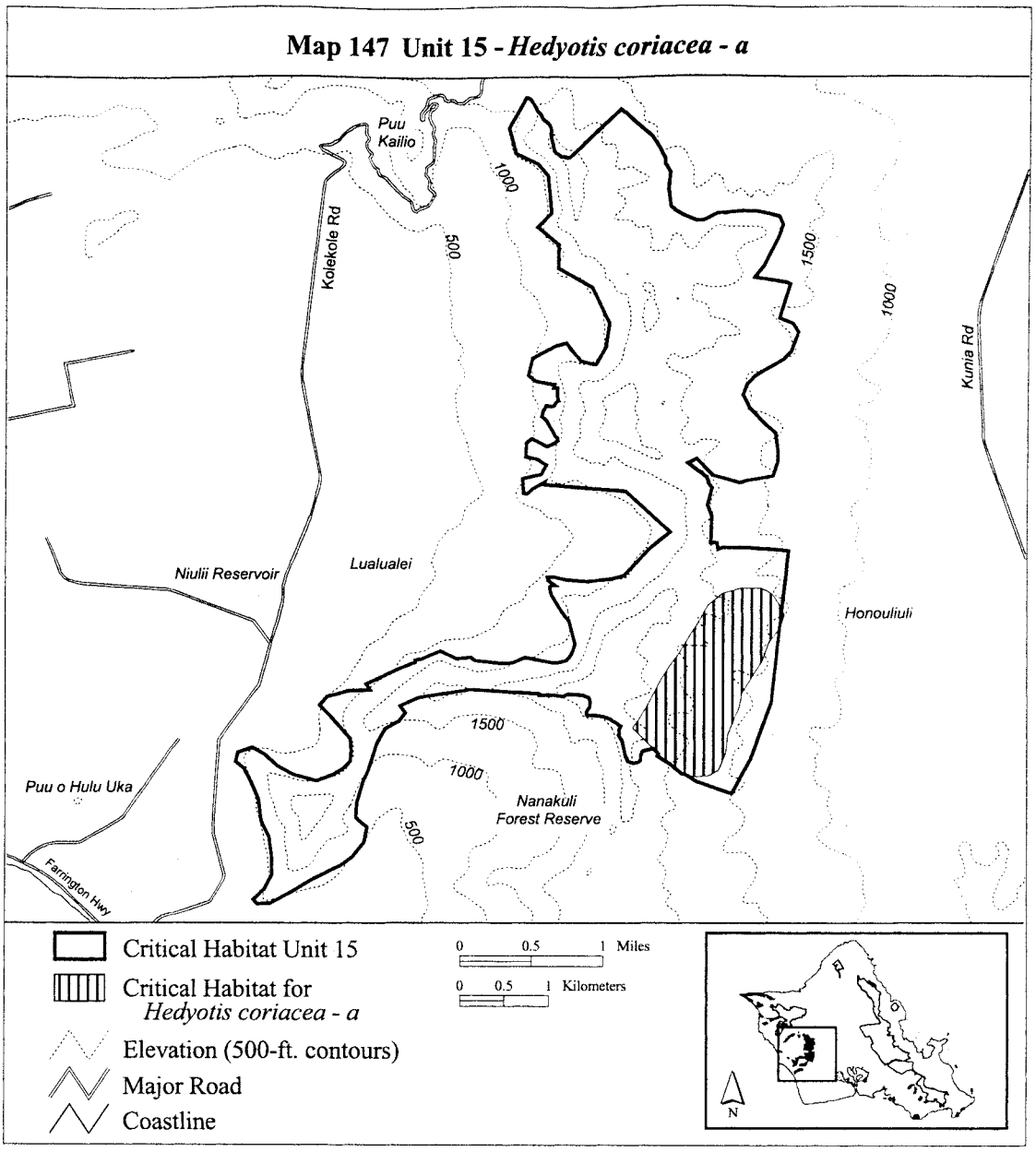
(ii) **Note:** Map 146 follows:



(147) Oahu 15—*Hedyotis coriacea*—a (185 ha; 458 ac)

(i) Unit consists of the following 31 boundary points: Start at 593537, 2367790; 593626, 2367910; 593688, 2368026; 593778, 2368187; 593849, 2368320; 593942, 2368481; 594054, 2368619; 594201, 2368864; 594268, 2368976; 594375, 2369168; 594535, 2369301; 594745, 2369364; 594977, 2369364; 595097, 2369292; 595164, 2369185; 595209, 2369052; 595151, 2368882; 595053, 2368740; 594977, 2368526; 594923, 2368450; 594807, 2368263; 594749, 2368173; 594723, 2368008; 594669, 2367888; 594602, 2367710; 594576, 2367505; 594495, 2367322; 594397, 2367264; 594237, 2367242; 594085, 2367282; 593907, 2367424; return to starting point.

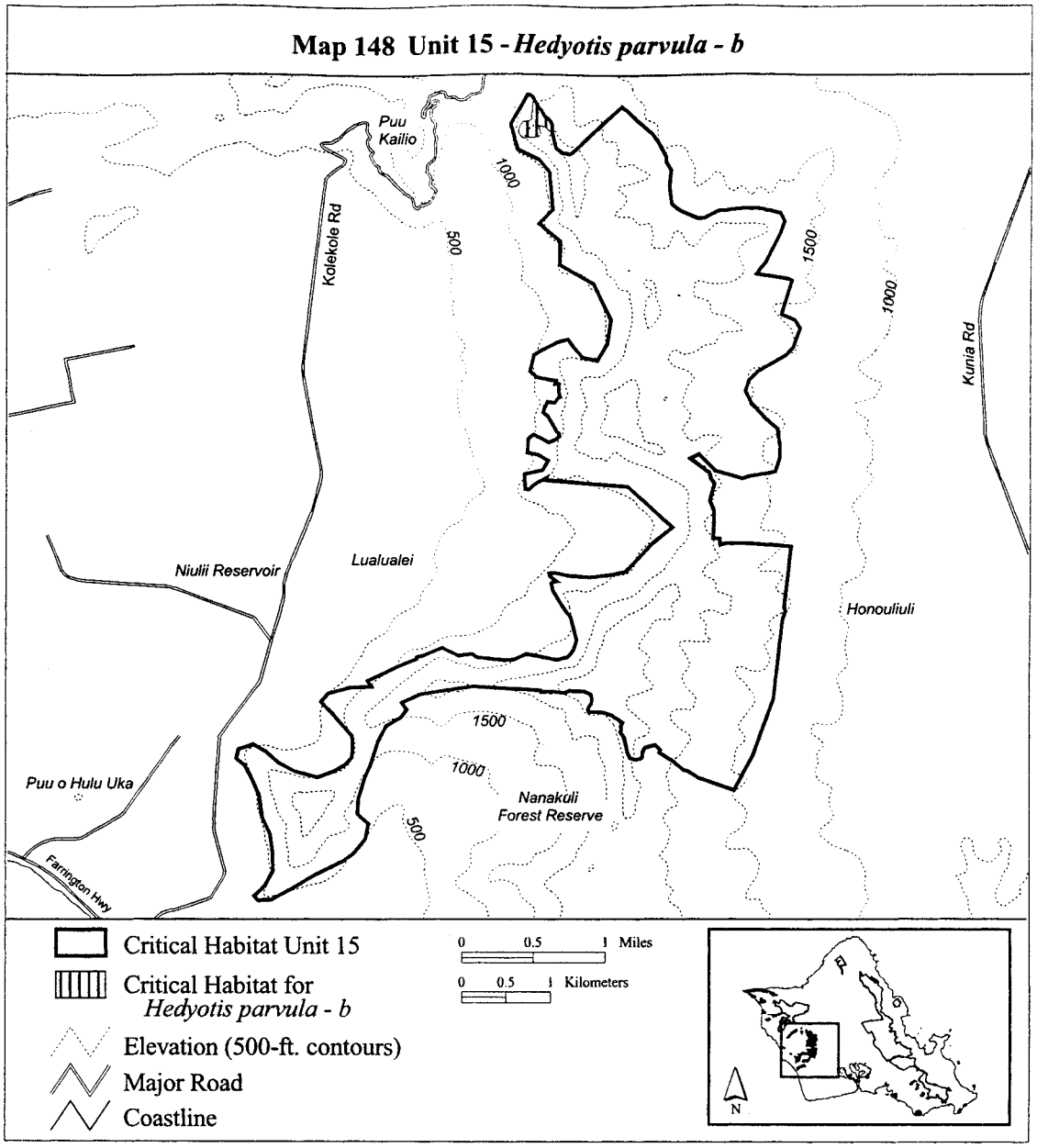
(ii) **Note:** Map 147 follows:



(148) Oahu 15—*Hedyotis parvula*—b (8 ha; 19 ac)

(i) Unit consists of the following 35 boundary points: Start at 592602, 2374407; 592530, 2374478; 592455, 2374495; 592457, 2374454; 592473, 2374402; 592457, 2374373; 592418, 2374363; 592384, 2374357; 592352, 2374359; 592313, 2374359; 592285, 2374349; 592248, 2374369; 592224, 2374406; 592224, 2374450; 592246, 2374499; 592277, 2374535; 592331, 2374545; 592370, 2374565; 592372, 2374594; 592362, 2374618; 592378, 2374653; 592378, 2374681; 592374, 2374701; 592374, 2374733; 592380, 2374756; 592404, 2374781; 592454, 2374691; 592484, 2374661; 592514, 2374601; 592514, 2374600; 592574, 2374561; 592594, 2374531; 592604, 2374492; 592604, 2374422; 592606, 2374409; return to starting point.

(ii) **Note:** Map 148 follows:

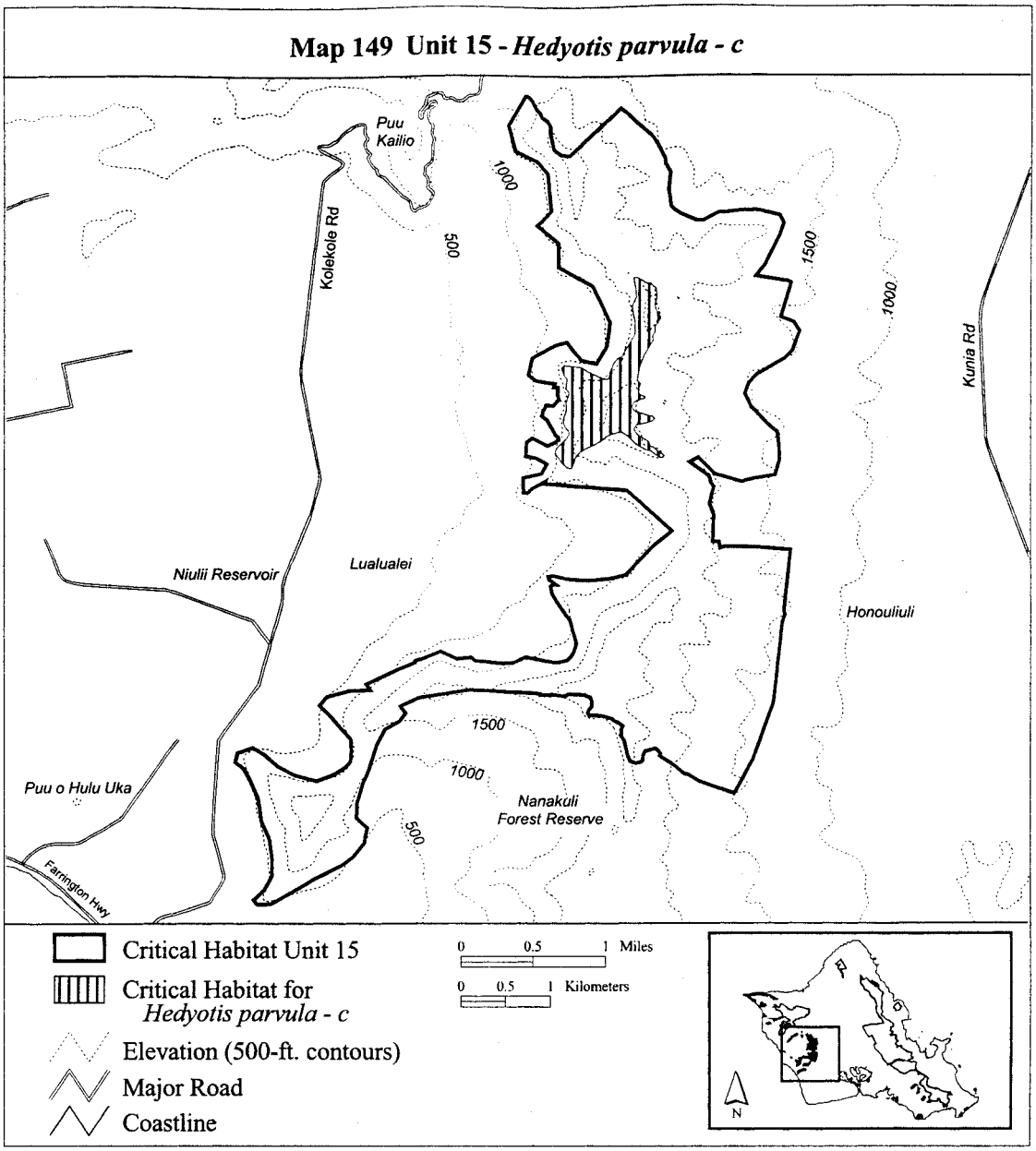


(149) Oahu 15—*Hedyotis parvula*—c (95 ha; 236 ac)

(i) Unit consists of the following 117 boundary points: Start at 593738, 2372184; 593738, 2372181; 593744, 2372130; 593648, 2371970; 593586, 2371810; 593572, 2371714; 593572, 2371678; 593603, 2371650; 593584, 2371594; 593581, 2371540; 593615, 2371521; 593654, 2371504; 593651, 2371487; 593575, 2371467; 593530, 2371442; 593508, 2371389; 593539, 2371344; 593612, 2371321; 593674, 2371300; 593733, 2371284; 593758, 2371258; 593738, 2371233; 593654, 2371210; 593564, 2371188; 593533, 2371146; 593542, 2371115; 593581, 2371070; 593645, 2371031; 593688, 2371003; 593713, 2370946; 593744, 2370938; 593783, 2370904; 593837, 2370865; 593865, 2370845; 593856, 2370825; 593831, 2370823; 593786, 2370848; 593702, 2370901; 593665, 2370910; 593564, 2370966; 593502, 2371022; 593449, 2371073; 593401, 2371104; 593364, 2371106; 593291, 2371087; 593224, 2371053; 593182, 2371019; 593086, 2370960; 593055, 2370944; 593024, 2370932; 592935, 2370884; 592887, 2370823; 592864, 2370752; 592839, 2370702; 592797, 2370707; 592724, 2370772; 592698, 2370817; 592662, 2370854; 592662, 2370884; 592682, 2370927; 592727, 2370974; 592777, 2371025; 592808, 2371073; 592805, 2371121; 592777, 2371154; 592752, 2371208; 592749, 2371255; 592769, 2371306; 592783, 2371362; 592777, 2371438; 592791, 2371477; 592816, 2371522; 592816, 2371551; 592777, 2371593; 592783, 2371626; 592791, 2371697; 592757, 2371742; 592727, 2371817; 592760, 2371846; 592831, 2371843; 592946, 2371830; 593030, 2371774; 593137, 2371729; 593196, 2371700; 593249, 2371698; 593261, 2371729; 593261, 2371762; 593311, 2371872; 593348, 2371928; 593390, 2371953; 593401, 2371954; 593502, 2372130; 593539, 2372201; 593544, 2372274; 593542, 2372341; 593527, 2372400; 593505, 2372510; 593525, 2372546; 593558, 2372617; 593550, 2372712; 593533, 2372785; 593525, 2372825; 593556, 2372833; 593595, 2372813; 593651,

2372782; 593730, 2372751; 593772, 2372715; 593783, 2372653; 593778, 2372605; 593764, 2372535; 593769, 2372487; 593794, 2372445; 593825, 2372392; 593806, 2372338; 593764, 2372279; 593769, 2372234; 593741, 2372187; return to starting point.

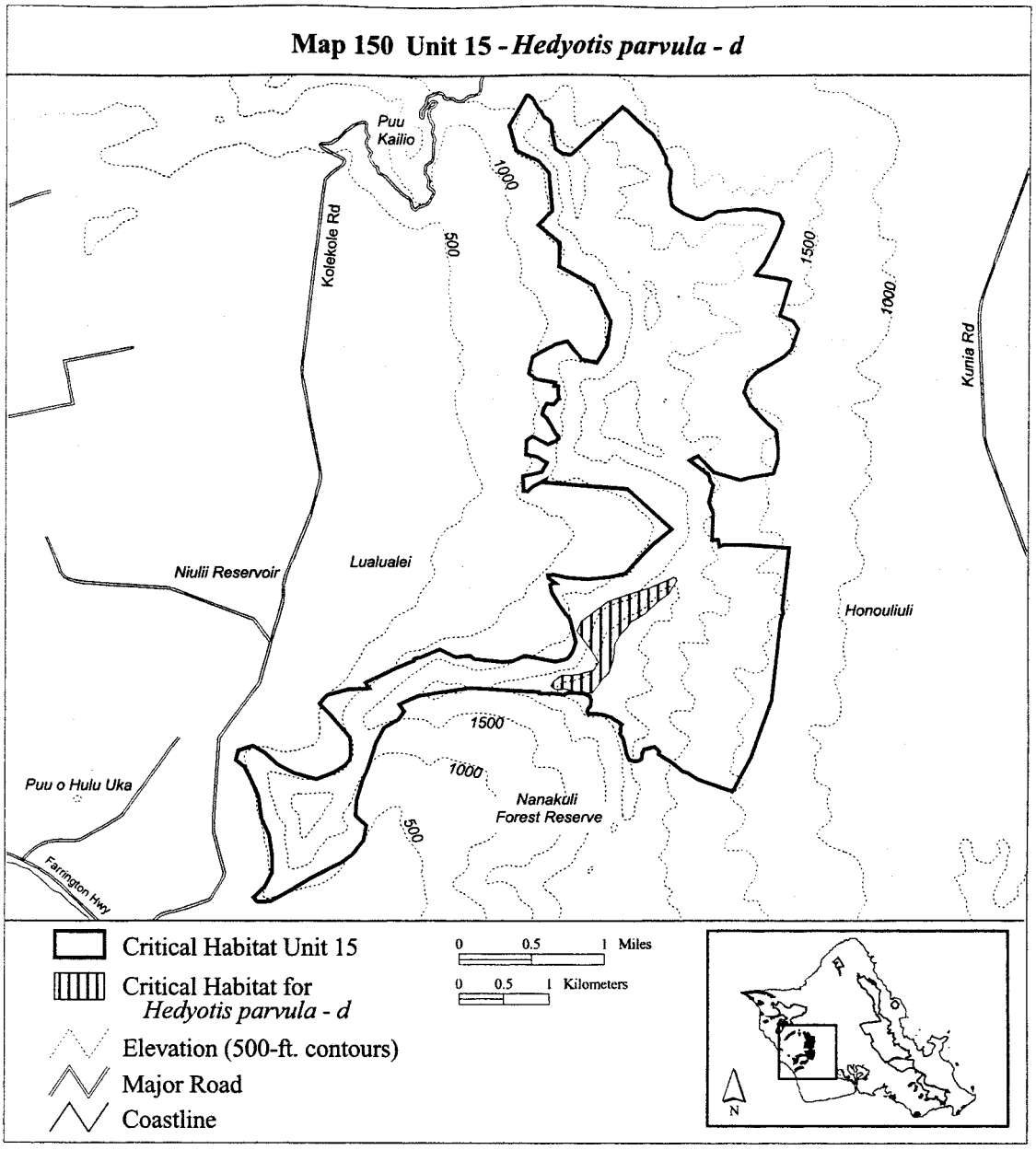
(ii) **Note:** Map 149 follows:



(150) Oahu 15—*Hedyotis parvula*—d (49 ha; 122 ac)

(i) Unit consists of the following 40 boundary points: Start at 593983, 2369454; 594001, 2369444; 594008, 2369410; 593966, 2369334; 593929, 2369269; 593825, 2369200; 593753, 2369138; 593716, 2369097; 593667, 2369049; 593602, 2369011; 593509, 2368960; 593472, 2368908; 593403, 2368829; 593365, 2368781; 593320, 2368705; 593317, 2368592; 593296, 2368492; 593252, 2368376; 593197, 2368324; 593121, 2368218; 593080, 2368166; 593018, 2368163; 592915, 2368169; 592785, 2368200; 592716, 2368200; 592668, 2368200; 592616, 2368238; 592640, 2368286; 592740, 2368355; 592901, 2368362; 593094, 2368417; 593145, 2368499; 593087, 2368599; 593015, 2368695; 592901, 2368850; 592949, 2368960; 593125, 2369094; 593248, 2369179; 593461, 2369255; 593709, 2369334; return to starting point.

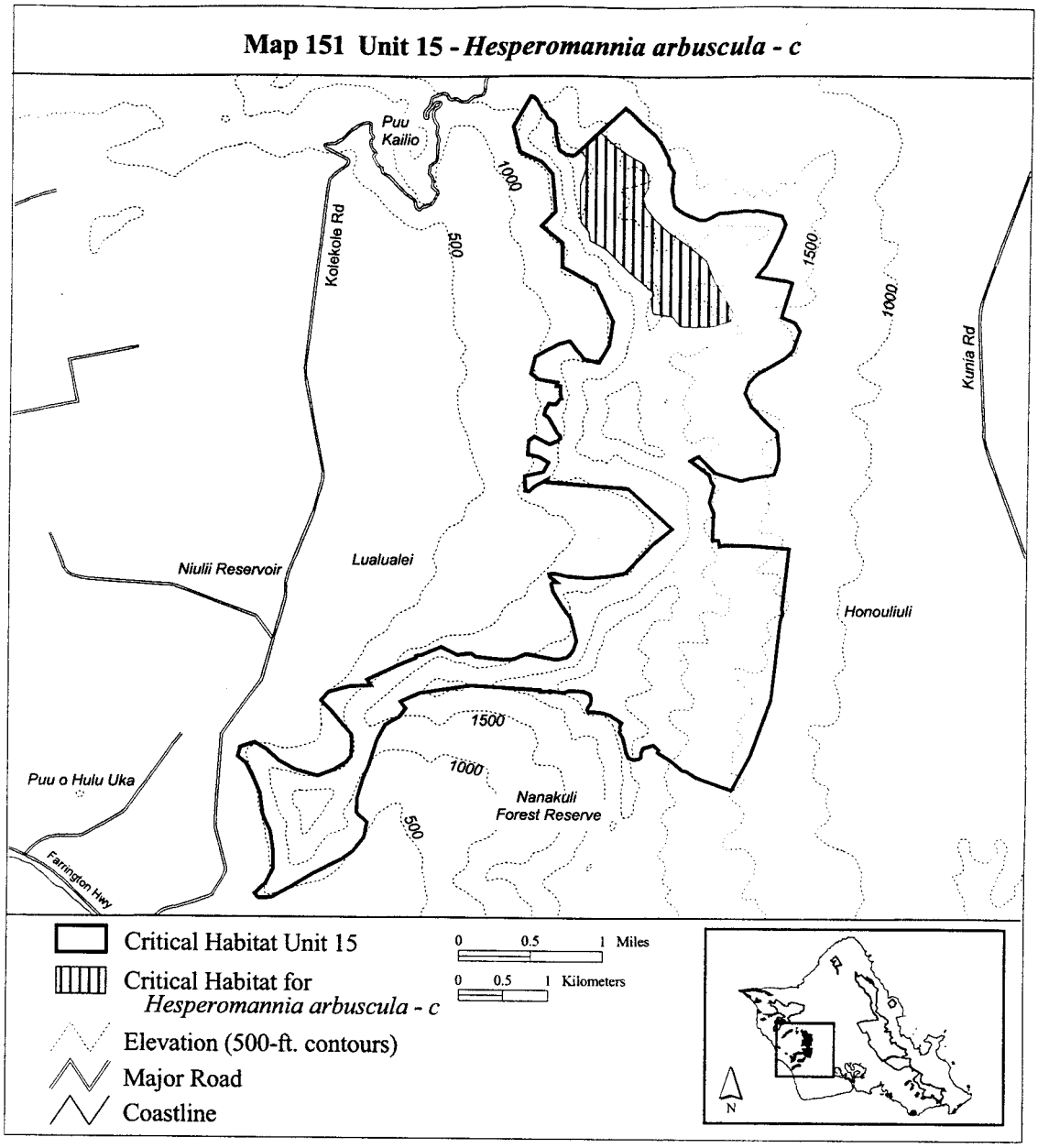
(ii) **Note:** Map 150 follows:



(151) Oahu 15—*Hesperomannia arbuscula*—c (163 ha; 402 ac)

(i) Unit consists of the following 39 boundary points: Start at 593101, 2374447; 593108, 2374441; 593272, 2374302; 593415, 2374202; 593591, 2374102; 593647, 2373974; 593647, 2373826; 593591, 2373719; 593619, 2373611; 593743, 2373463; 593879, 2373339; 594114, 2373168; 594302, 2373020; 594394, 2372784; 594521, 2372592; 594617, 2372420; 594581, 2372340; 594513, 2372316; 594370, 2372272; 594178, 2372269; 594014, 2372277; 593934, 2372381; 593715, 2372417; 593691, 2372501; 593691, 2372569; 593707, 2372657; 593595, 2372760; 593415, 2372904; 593240, 2373084; 593184, 2373140; 592996, 2373240; 592988, 2373339; 592900, 2373443; 592884, 2373603; 592884, 2373791; 592884, 2373854; 592940, 2374026; 592940, 2374170; 592880, 2374240; return to starting point.

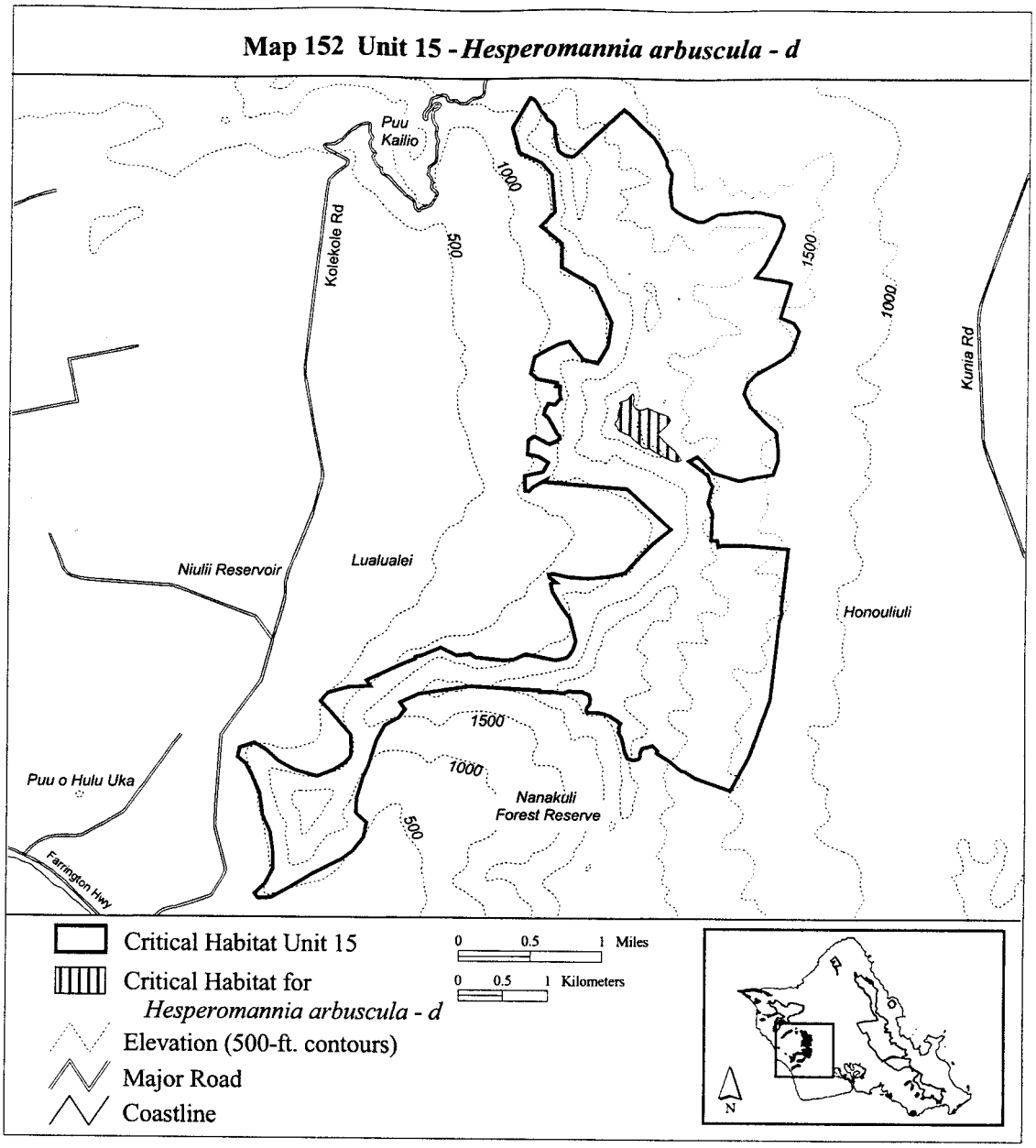
(ii) **Note:** Map 151 follows:



(152) Oahu 15—*Hesperomannia arbuscula*—d (24 ha; 60 ac)

(i) Unit consists of the following 49 boundary points: Start at 593515, 2371533; 593527, 2371465; 593511, 2371414; 593534, 2371371; 593567, 2371348; 593636, 2371350; 593679, 2371364; 593763, 2371328; 593851, 2371297; 593905, 2371278; 593926, 2371251; 593930, 2371221; 593909, 2371176; 593859, 2371140; 593821, 2371090; 593796, 2371077; 593849, 2371009; 593934, 2370936; 593992, 2370881; 594043, 2370821; 594063, 2370779; 594040, 2370766; 594011, 2370762; 593968, 2370769; 593896, 2370802; 593813, 2370844; 593769, 2370869; 593713, 2370906; 593671, 2370911; 593619, 2370927; 593575, 2370971; 593517, 2371015; 593479, 2371059; 593444, 2371077; 593402, 2371096; 593362, 2371103; 593350, 2371132; 593337, 2371165; 593314, 2371182; 593321, 2371205; 593350, 2371240; 593350, 2371271; 593350, 2371297; 593354, 2371332; 593366, 2371363; 593371, 2371391; 593360, 2371431; 593389, 2371439; 593448, 2371462; return to starting point.

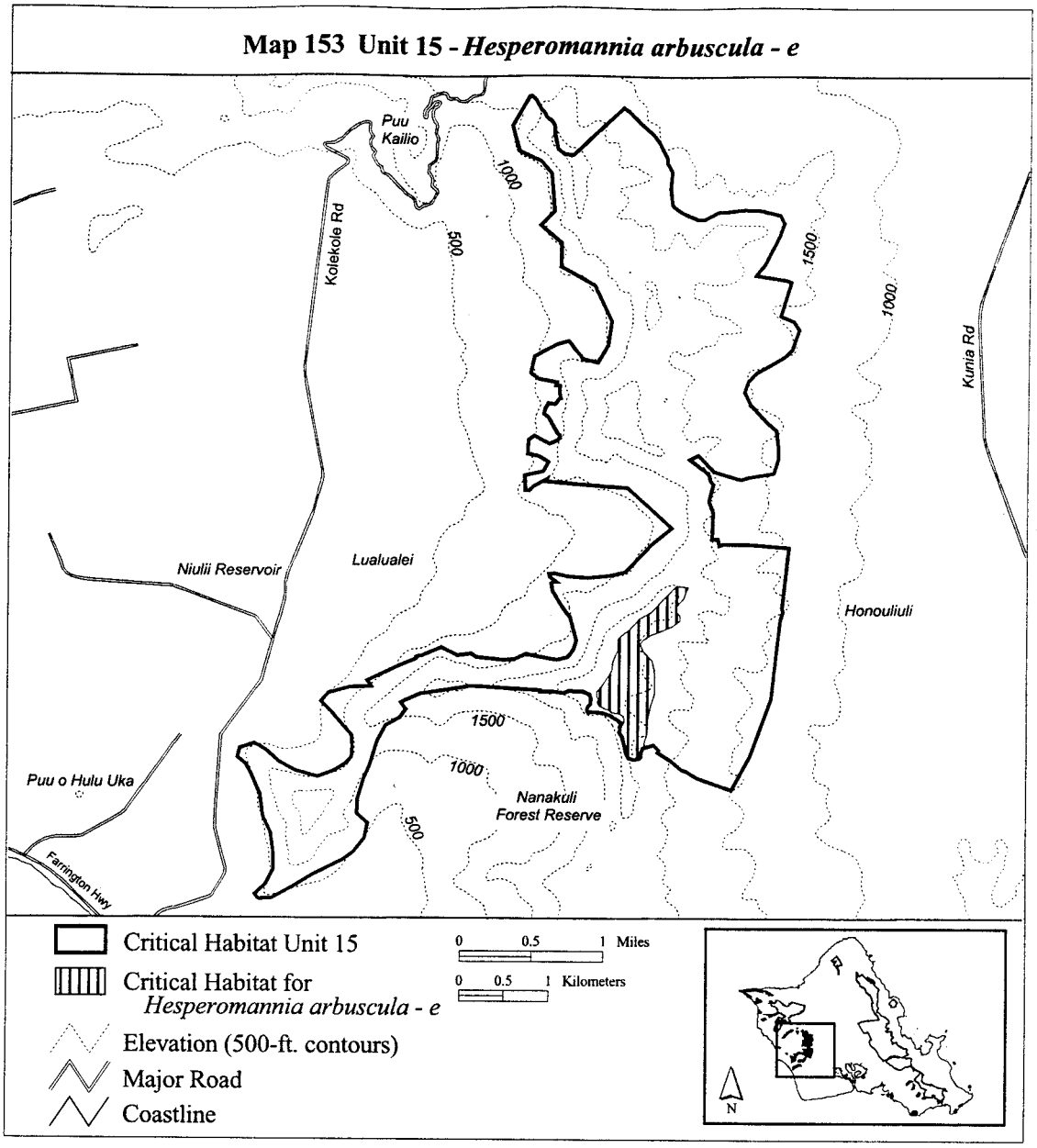
(ii) **Note:** Map 152 follows:



(153) Oahu 15—*Hesperomannia arbuscula*—e (70 ha; 172 ac)

(i) Unit consists of the following 61 boundary points: Start at 594011, 2369339; 594149, 2369329; 594118, 2369262; 594092, 2369198; 594045, 2369151; 594015, 2369114; 594015, 2369050; 594055, 2369007; 594051, 2368943; 593968, 2368886; 593834, 2368833; 593720, 2368786; 593649, 2368735; 593609, 2368682; 593639, 2368615; 593716, 2368531; 593740, 2368504; 593767, 2368400; 593773, 2368300; 593773, 2368136; 593736, 2368008; 593706, 2367881; 593700, 2367807; 593690, 2367677; 593666, 2367596; 593656, 2367533; 593626, 2367479; 593626, 2367429; 593606, 2367409; 593549, 2367395; 593489, 2367412; 593455, 2367482; 593442, 2367549; 593415, 2367647; 593381, 2367710; 593408, 2367754; 593435, 2367814; 593432, 2367878; 593375, 2367915; 593304, 2367921; 593271, 2367948; 593220, 2367968; 593157, 2368002; 593137, 2368029; 593153, 2368069; 593127, 2368112; 593127, 2368149; 593194, 2368233; 593271, 2368350; 593294, 2368400; 593301, 2368481; 593334, 2368565; 593358, 2368618; 593358, 2368746; 593432, 2368806; 593492, 2368849; 593556, 2368920; 593596, 2368970; 593733, 2369050; 593834, 2369164; 593921, 2369245; return to starting point.

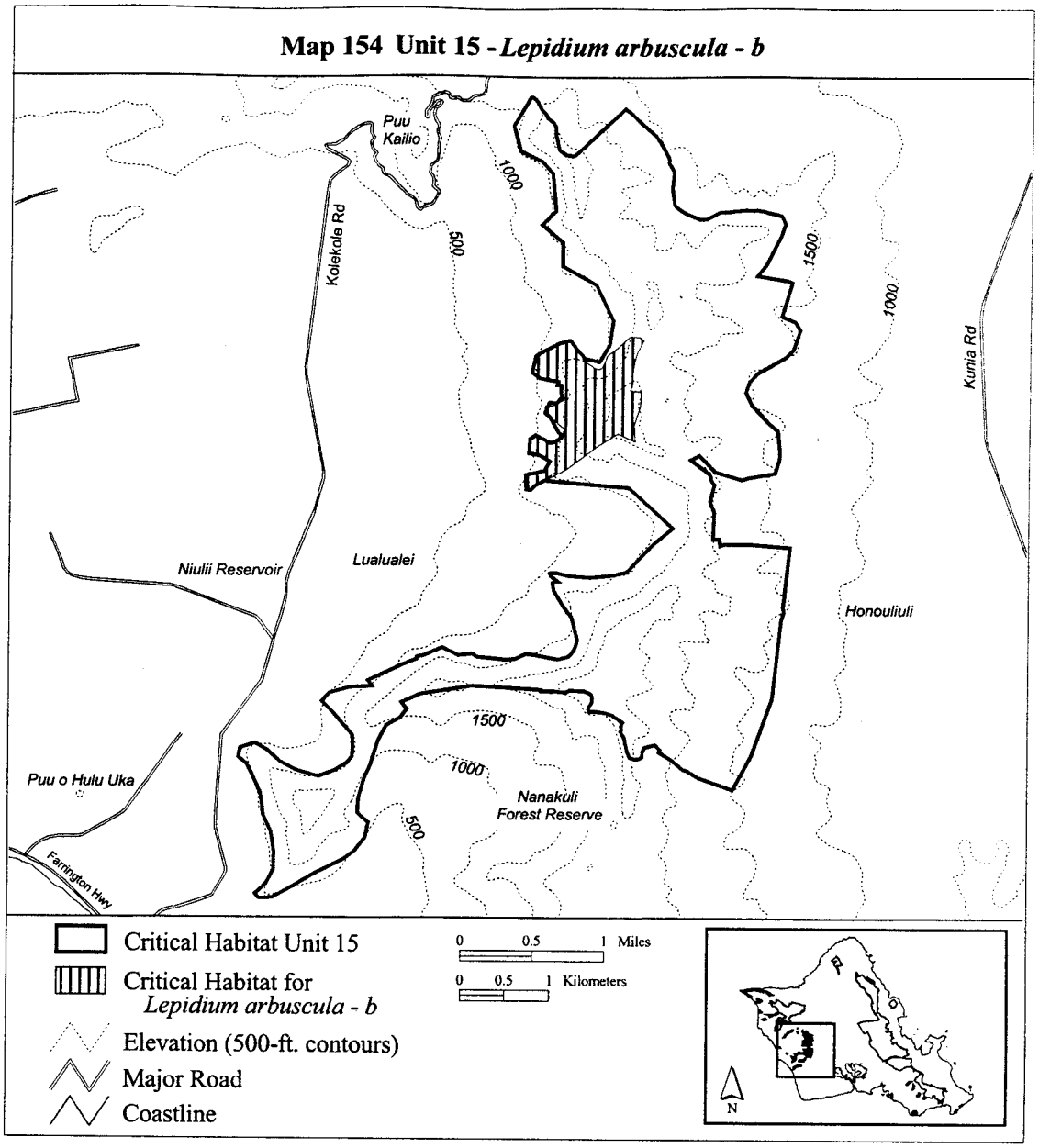
(ii) **Note:** Map 153 follows:



(154) Oahu 15—*Lepidium arbuscula*—b (119 ha; 293 ac)

(i) Unit consists of the following 53 boundary points: Start at 593447, 2372148; 593565, 2372148; 593608, 2372112; 593544, 2371984; 593505, 2371876; 593490, 2371744; 593490, 2371637; 593465, 2371547; 593585, 2371534; 593574, 2371368; 593504, 2371156; 593519, 2370975; 593331, 2371064; 593112, 2370931; 592749, 2370654; 592401, 2370473; 592348, 2370422; 592303, 2370423; 592298, 2370588; 592511, 2370640; 592568, 2370749; 592458, 2370816; 592333, 2370839; 592335, 2370994; 592399, 2371045; 592573, 2370950; 592711, 2371012; 592721, 2371121; 592630, 2371197; 592507, 2371287; 592529, 2371358; 592597, 2371374; 592711, 2371436; 592687, 2371512; 592687, 2371607; 592645, 2371609; 592655, 2371643; 592439, 2371683; 592357, 2371749; 592404, 2371930; 592511, 2371994; 592670, 2372075; 592791, 2372111; 592861, 2372016; 592921, 2371946; 592946, 2371910; 592954, 2371866; 593033, 2371823; 593068, 2371794; 593140, 2371794; 593183, 2371880; 593203, 2371941; 593316, 2372023; return to starting point.

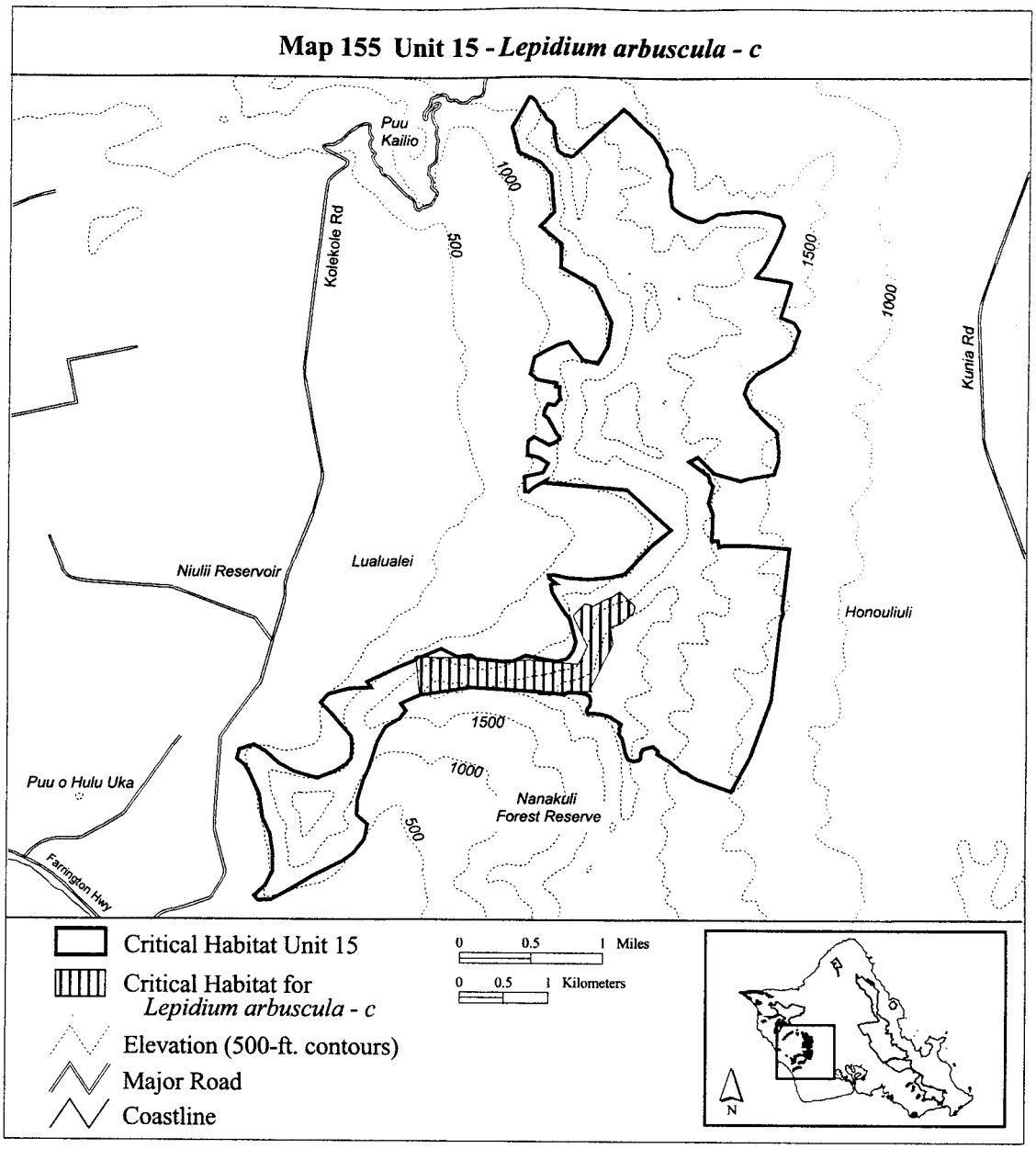
(ii) **Note:** Map 154 follows:



(155) Oahu 15—*Lepidium arbuscula*—c (99 ha; 245 ac)

(i) Unit consists of the following 25 boundary points: Start at 591090, 2368536; 591131, 2368549; 591714, 2368544; 592077, 2368508; 592367, 2368526; 592921, 2368481; 593026, 2368679; 592857, 2369023; 592994, 2369159; 593086, 2369134; 593198, 2369200; 593307, 2369244; 593378, 2369303; 593550, 2369145; 593547, 2369063; 593406, 2368937; 593278, 2368892; 593310, 2368706; 593058, 2368199; 593078, 2368178; 592491, 2368152; 592490, 2368151; 592491, 2368168; 591718, 2368217; 591140, 2368128; return to starting point.

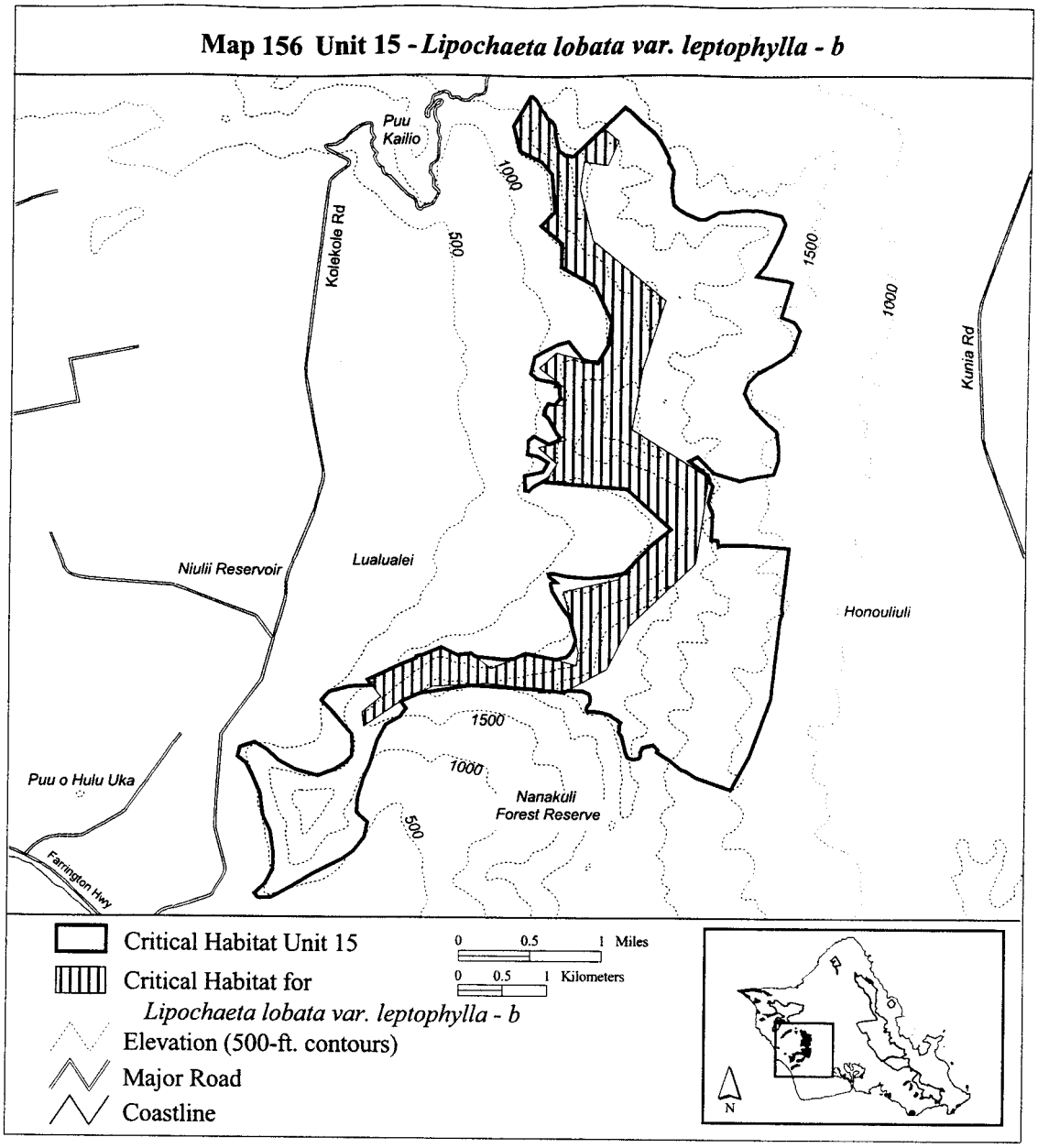
(ii) **Note:** Map 155 follows:



(156) Oahu 15—*Lipochaeta lobata* var. *leptophylla*—b (534 ha; 1,320 ac)

(i) Unit consists of the following 84 boundary points: Start at 593149, 2374492; 593322, 2374347; 593202, 2374077; 592932, 2374119; 592890, 2373813; 593040, 2373249; 593861, 2372568; 593616, 2371792; 593508, 2371124; 594371, 2370587; 594228, 2369606; 593493, 2368894; 593248, 2368404; 592759, 2368139; 591902, 2368241; 591290, 2368200; 590902, 2368016; 590508, 2367753; 590489, 2367907; 590699, 2368079; 590546, 2368270; 590910, 2368443; 591380, 2368646; 591561, 2368558; 591714, 2368577; 591944, 2368404; 592327, 2368577; 592633, 2368519; 592901, 2368443; 592920, 2368596; 592748, 2369285; 593361, 2369419; 593744, 2369821; 593954, 2369993; 593456, 2370453; 592537, 2370530; 592671, 2370740; 592461, 2370912; 592767, 2371008; 592671, 2371066; 592518, 2371315; 592557, 2371410; 592729, 2371391; 592729, 2371602; 592461, 2371812; 592652, 2371985; 593112, 2371871; 593227, 2372062; 593265, 2372330; 593073, 2372732; 592691, 2372943; 592691, 2373211; 592461, 2373402; 592614, 2373556; 592576, 2373977; 592461, 2374111; 592212, 2374226; 592135, 2374513; 592328, 2374840; 592345, 2374840; 592384, 2374811; 592404, 2374781; 592454, 2374691; 592484, 2374661; 592514, 2374601; 592514, 2374600; 592574, 2374561; 592594, 2374531; 592604, 2374492; 592604, 2374422; 592634, 2374282; 592634, 2374281; 592644, 2374251; 592664, 2374231; 592664, 2374230; 592724, 2374190; 592725, 2374190; 592726, 2374190; 592765, 2374190; 592805, 2374172; 592805, 2374171; 592806, 2374171; 592807, 2374171; 592807, 2374172; return to starting point.

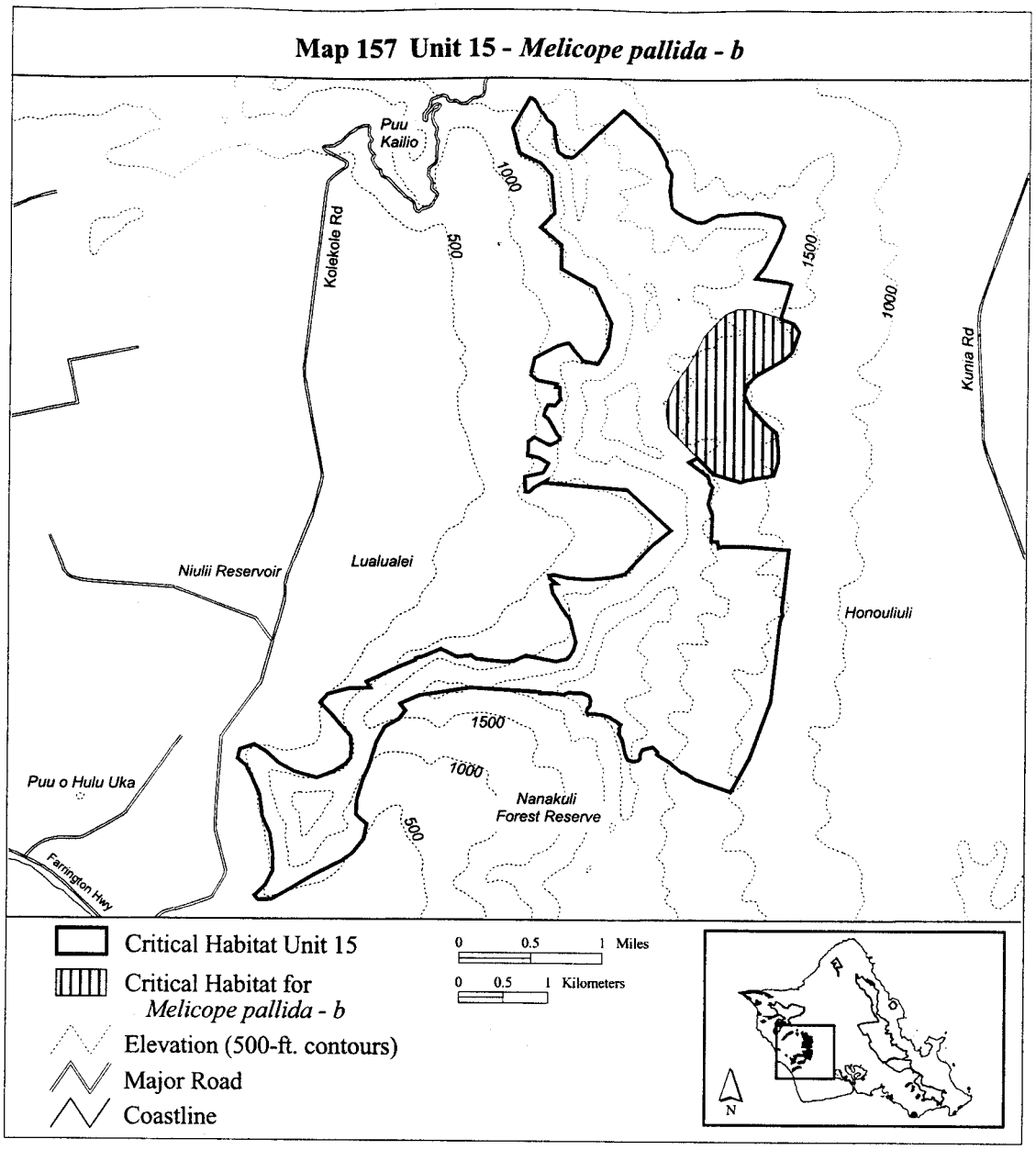
(ii) **Note:** Map 156 follows:



(157) Oahu 15—*Melicope pallida*—b (174 ha; 431 ac)

(i) Unit consists of the following 30 boundary points: Start at 593915, 2371158; 593885, 2371316; 593902, 2371460; 593968, 2371623; 594112, 2371815; 594204, 2371968; 594309, 2372178; 594405, 2372290; 594540, 2372426; 594680, 2372491; 594833, 2372491; 595130, 2372404; 595305, 2372330; 595371, 2372238; 595318, 2372089; 595292, 2372015; 595209, 2371932; 595069, 2371849; 594894, 2371748; 594794, 2371648; 594759, 2371530; 594820, 2371399; 595008, 2371202; 595122, 2371106; 595148, 2370901; 595148, 2370783; 595095, 2370625; 594811, 2370573; 594724, 2370547; 594422, 2370634; return to starting point.

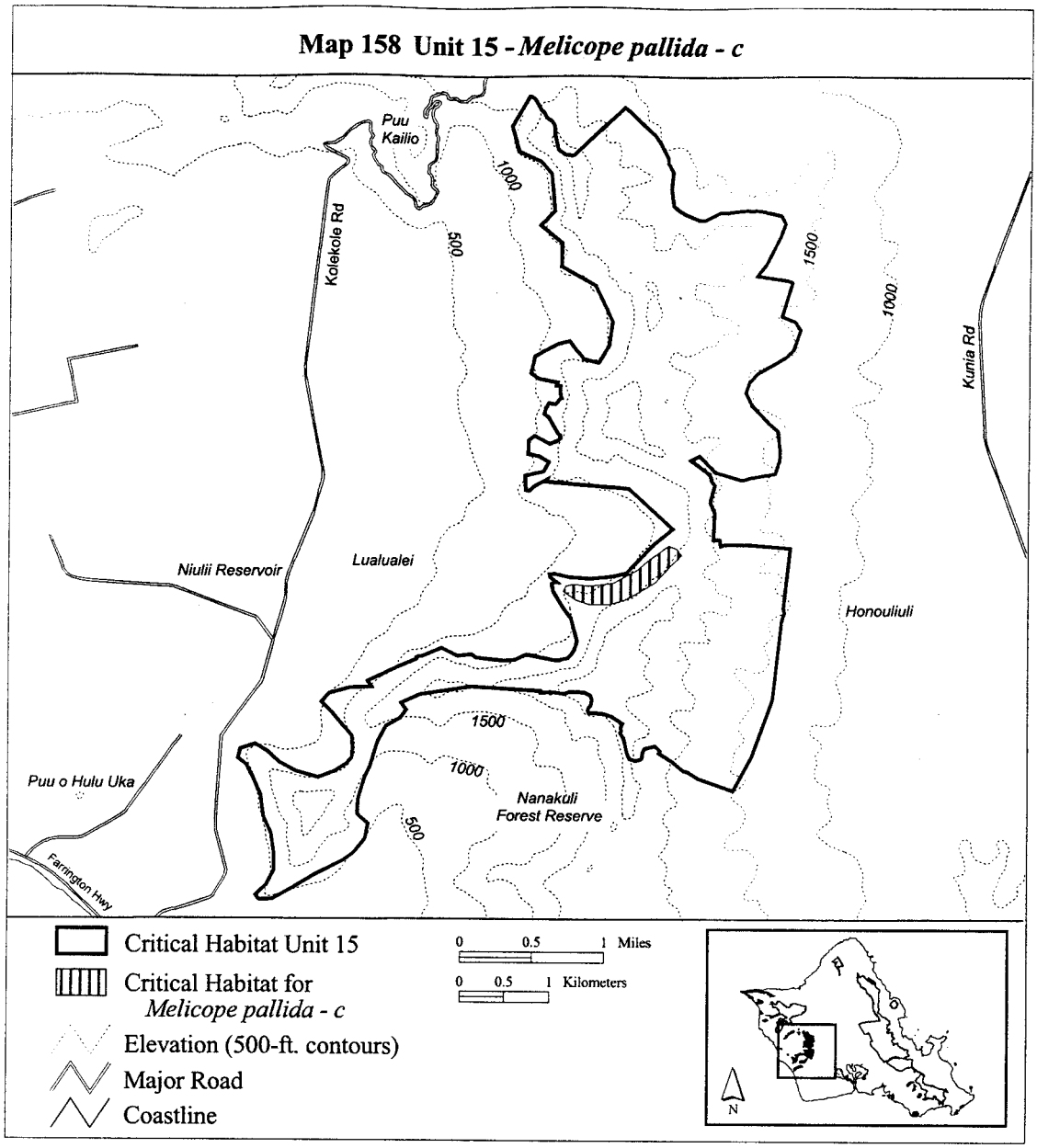
(ii) **Note:** Map 157 follows:



(158) Oahu 15—*Melicope pallida*—c (29 ha; 72 ac)

(i) Unit consists of the following 18 boundary points: Start at 592844, 2369370; 593026, 2369351; 593289, 2369381; 593556, 2369529; 593697, 2369648; 593797, 2369722; 593904, 2369803; 594001, 2369763; 594056, 2369696; 593934, 2369581; 593760, 2369392; 593604, 2369296; 593419, 2369192; 593245, 2369140; 593033, 2369140; 592885, 2369184; 592741, 2369288; 592763, 2369348; return to starting point.

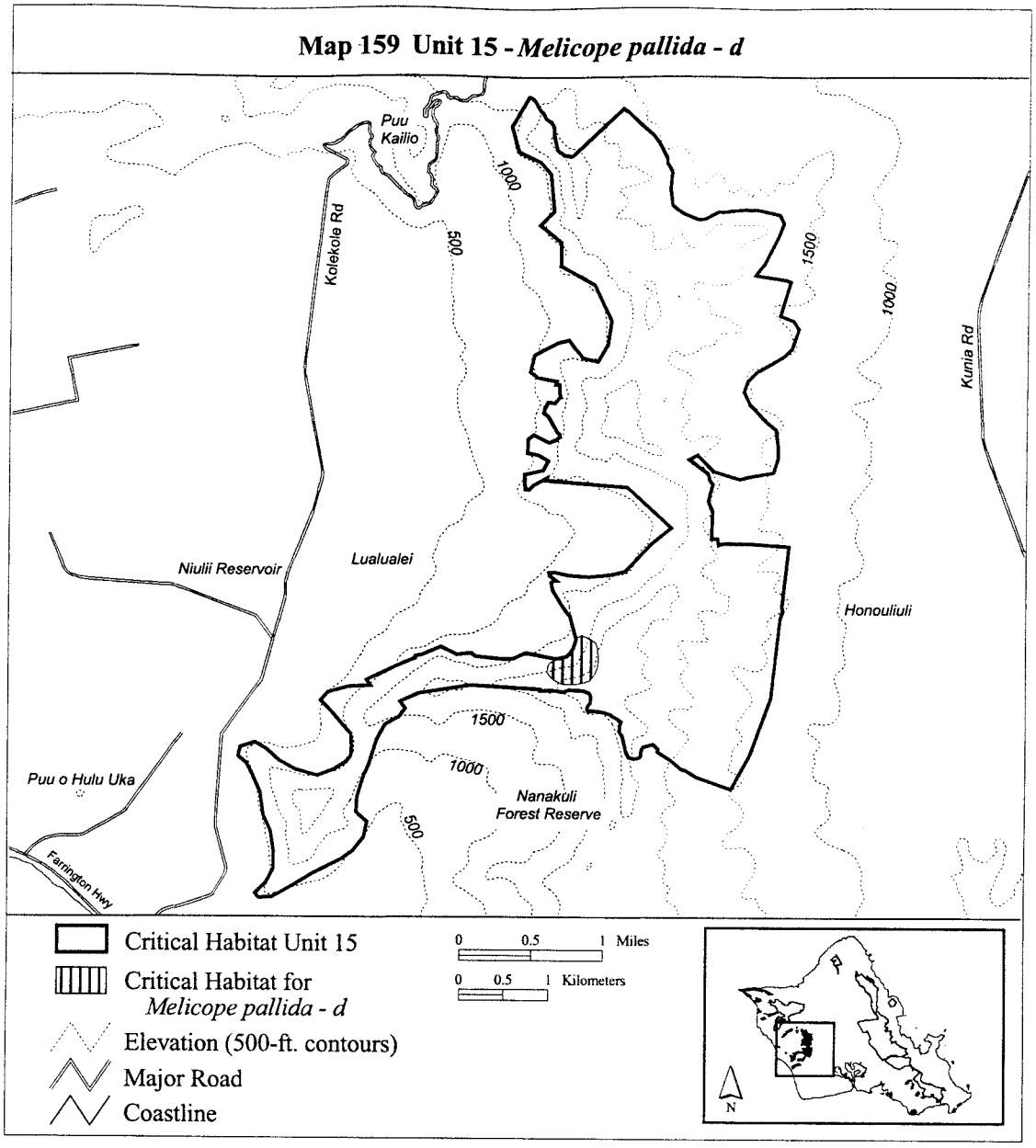
(ii) **Note:** Map 158 follows:



(159) Oahu 15—*Melicope pallida*—d (20 ha; 50 ac)

(i) Unit consists of the following 27 boundary points: Start at 593034, 2368745; 593076, 2368722; 593112, 2368689; 593130, 2368627; 593145, 2368522; 593138, 2368427; 593104, 2368340; 593057, 2368274; 592991, 2368244; 592892, 2368225; 592784, 2368227; 592748, 2368227; 592644, 2368269; 592602, 2368319; 592576, 2368352; 592576, 2368406; 592588, 2368448; 592611, 2368477; 592661, 2368503; 592732, 2368526; 592789, 2368540; 592829, 2368576; 592866, 2368639; 592881, 2368701; 592892, 2368745; 592932, 2368767; 592958, 2368772; return to starting point.

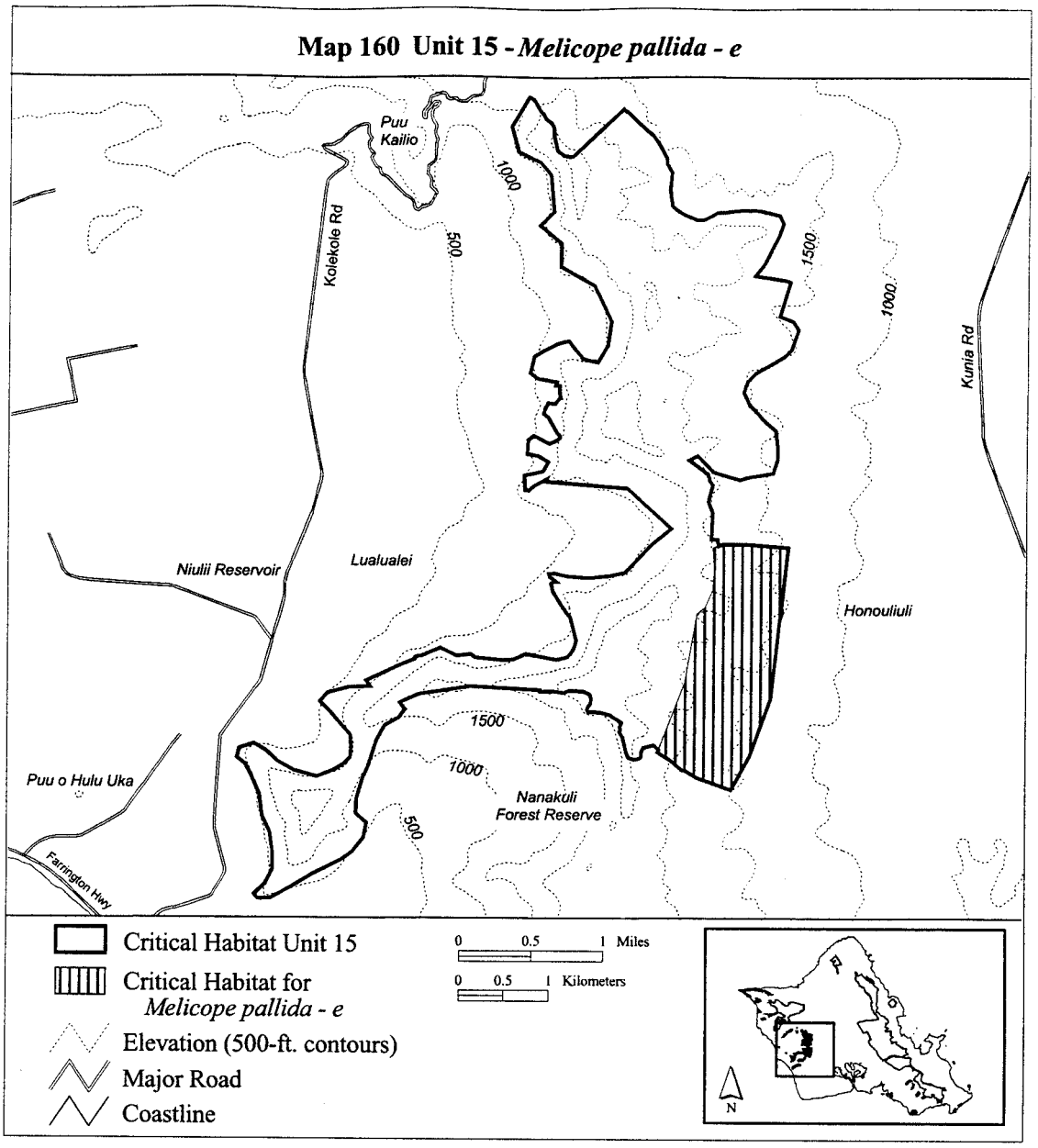
(ii) **Note:** Map 159 follows:



(160) Oahu 15—*Melicope pallida*—e (243 ha; 602 ac)

(i) Unit consists of the following 16 boundary points: Start at 594423, 2369292; 594438, 2369540; 594423, 2369777; 594527, 2369815; 594820, 2369815; 595271, 2369781; 595080, 2368083; 594844, 2367434; 594641, 2367062; 594256, 2367191; 593830, 2367465; 593813, 2367480; 594115, 2368259; 594242, 2369020; 594245, 2369025; 594338, 2369107; return to starting point.

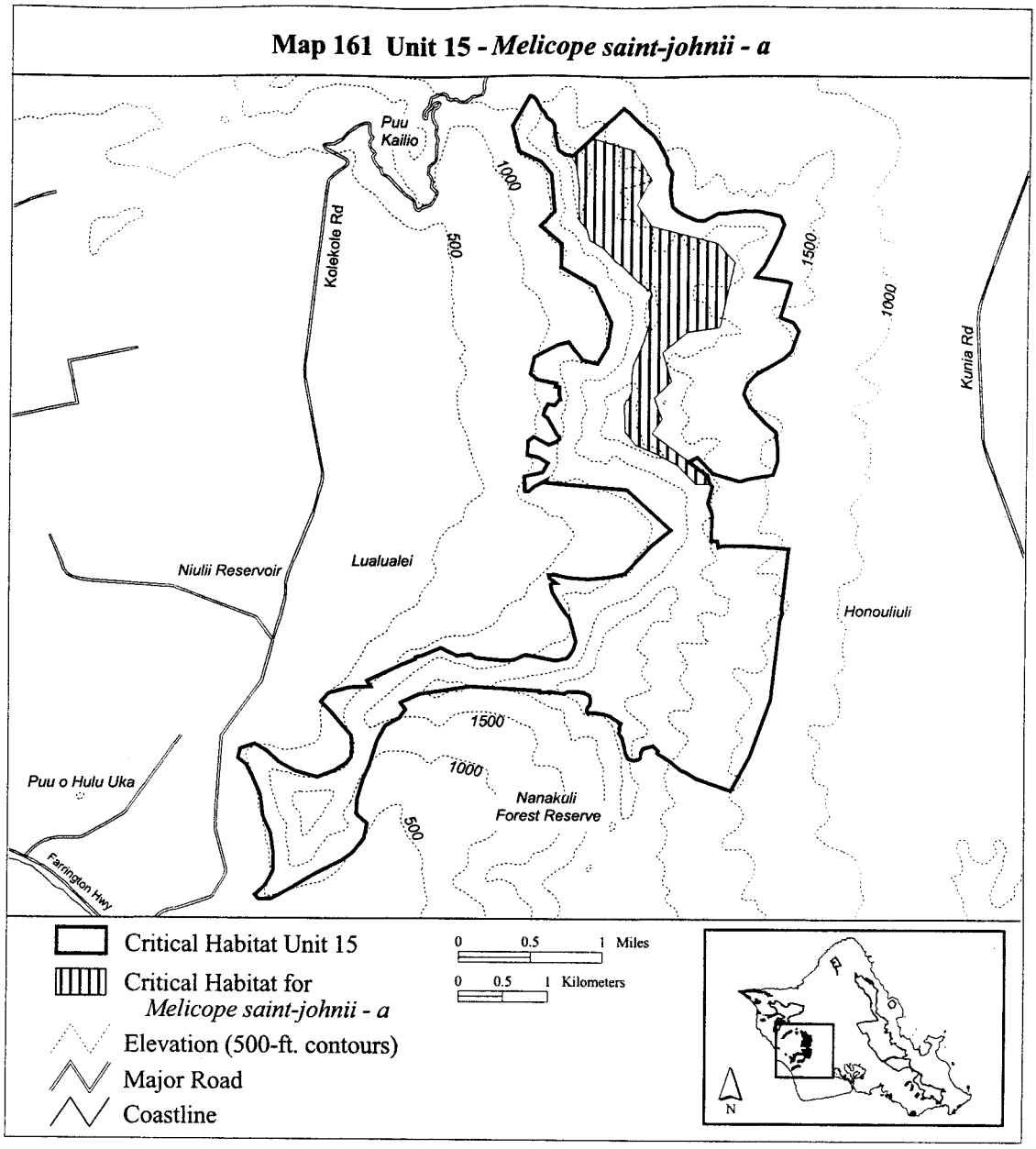
(ii) **Note:** Map 160 follows:



(161) Oahu 15—*Melicope saint-johnii*—a (244 ha; 604 ac)

(i) Unit consists of the following 59 boundary points: Start at 593044, 2374373; 593508, 2374248; 593702, 2373921; 593671, 2373883; 593545, 2373648; 593710, 2373413; 594455, 2373217; 594643, 2373004; 594488, 2372290; 594486, 2372290; 594478, 2372273; 594122, 2372225; 593844, 2371996; 593948, 2371674; 593953, 2371672; 593753, 2371488; 593844, 2371244; 593734, 2371085; 594352, 2370615; 594357, 2370618; 594377, 2370557; 594382, 2370517; 594227, 2370514; 594227, 2370520; 594022, 2370732; 593802, 2370850; 593548, 2370960; 593457, 2371077; 593432, 2371099; 593430, 2371115; 593416, 2371418; 593430, 2371418; 593434, 2371461; 593461, 2371469; 593499, 2371560; 593502, 2371727; 593510, 2371844; 593635, 2372121; 593696, 2372345; 593681, 2372557; 593719, 2372667; 593544, 2372800; 593400, 2372951; 593309, 2373012; 593173, 2373156; 593013, 2373247; 592972, 2373369; 592888, 2373460; 592884, 2373619; 592884, 2373824; 592847, 2374081; 592790, 2374178; 592805, 2374172; 592805, 2374171; 592806, 2374171; 592807, 2374171; 592807, 2374172; 593007, 2374359; 593038, 2374369; return to starting point.

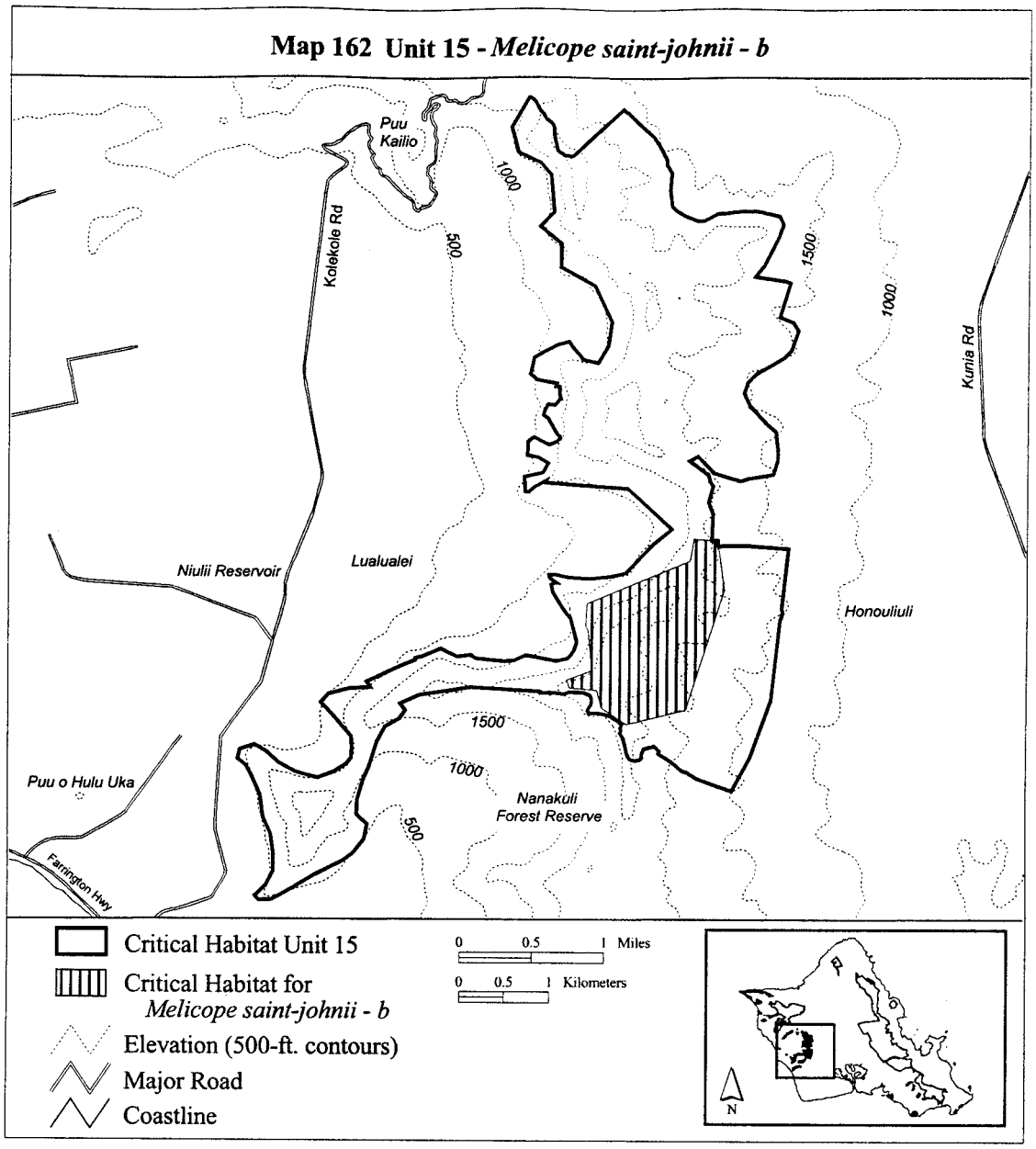
(ii) **Note:** Map 161 follows:



(162) Oahu 15—*Melicope saint-johnii*—b (214 ha; 529 ac)

(i) Unit consists of the following 17 boundary points: Start at 593451, 2367805; 593168, 2367990; 593120, 2368182; 592816, 2368208; 592780, 2368300; 593052, 2368401; 593052, 2368518; 593019, 2368854; 592993, 2368899; 593007, 2369154; 594161, 2369636; 594203, 2369883; 594473, 2369871; 594549, 2369326; 594554, 2369325; 594126, 2367970; 593462, 2367802; return to starting point.

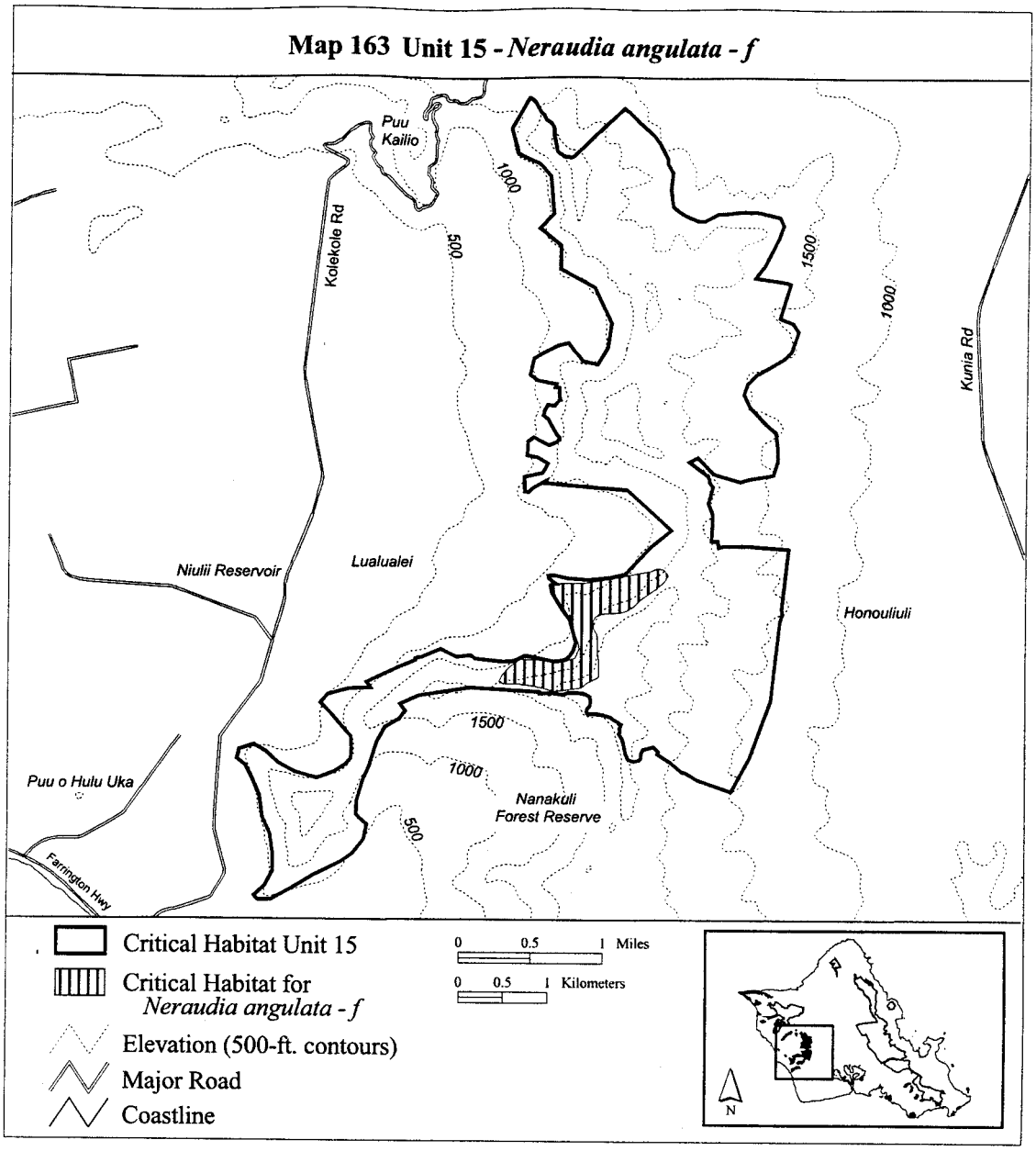
(ii) **Note:** Map 162 follows:



(163) Oahu 15—*Neraudia angulata*—f (84 ha; 207 ac)

(i) Unit consists of the following 50 boundary points: Start at 592634, 2369389; 592987, 2369396; 593220, 2369432; 593560, 2369500; 593732, 2369531; 593797, 2369561; 593873, 2369552; 593922, 2369478; 593886, 2369420; 593784, 2369328; 593631, 2369227; 593530, 2369132; 593471, 2369083; 593389, 2369058; 593232, 2369055; 593180, 2369046; 593110, 2369018; 593079, 2368960; 593085, 2368886; 593125, 2368816; 593131, 2368733; 593134, 2368613; 593149, 2368509; 593149, 2368402; 593149, 2368337; 593021, 2368270; 592956, 2368218; 592763, 2368187; 592646, 2368178; 592515, 2368215; 592355, 2368245; 592303, 2368248; 592263, 2368261; 592082, 2368258; 592039, 2368282; 592073, 2368353; 592146, 2368445; 592266, 2368531; 592530, 2368525; 592751, 2368506; 592886, 2368552; 592926, 2368656; 592919, 2368733; 592883, 2368801; 592849, 2368920; 592830, 2368978; 592784, 2369034; 592723, 2369116; 592625, 2369282; 592603, 2369371; return to starting point.

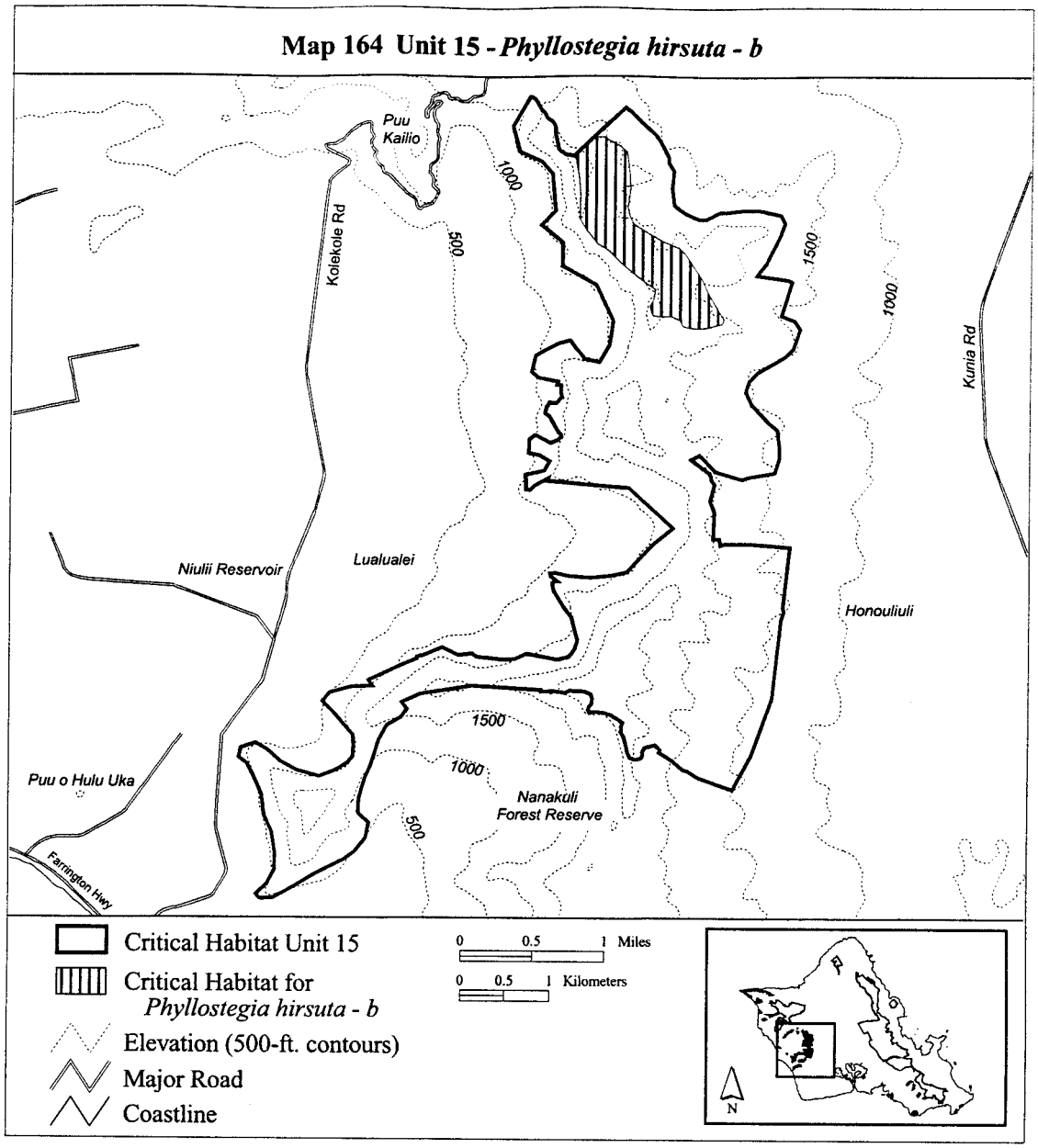
(ii) **Note:** Map 163 follows:



(164) Oahu 15—*Phyllostegia hirsuta*—b (131 ha; 323 ac)

(i) Unit consists of the following 53 boundary points: Start at 593031, 2374382; 593173, 2374381; 593174, 2374368; 593177, 2374368; 593331, 2374283; 593403, 2374220; 593416, 2374135; 593438, 2373950; 593444, 2373802; 593419, 2373604; 593435, 2373513; 593466, 2373450; 593491, 2373409; 593658, 2373311; 593815, 2373220; 594004, 2373145; 594067, 2373085; 594152, 2372953; 594255, 2372805; 594334, 2372639; 594438, 2372459; 594504, 2372358; 594504, 2372323; 594482, 2372292; 594397, 2372273; 594353, 2372254; 594265, 2372243; 594174, 2372240; 594086, 2372255; 594048, 2372274; 594007, 2372337; 593910, 2372381; 593812, 2372378; 593711, 2372390; 593671, 2372488; 593715, 2372570; 593733, 2372686; 593633, 2372749; 593488, 2372868; 593350, 2372981; 593205, 2373120; 593083, 2373195; 592957, 2373352; 592885, 2373465; 592882, 2373585; 592885, 2373764; 592872, 2373928; 592834, 2374148; 592784, 2374181; 592805, 2374172; 592806, 2374171; 592807, 2374171; 592807, 2374172; return to starting point.

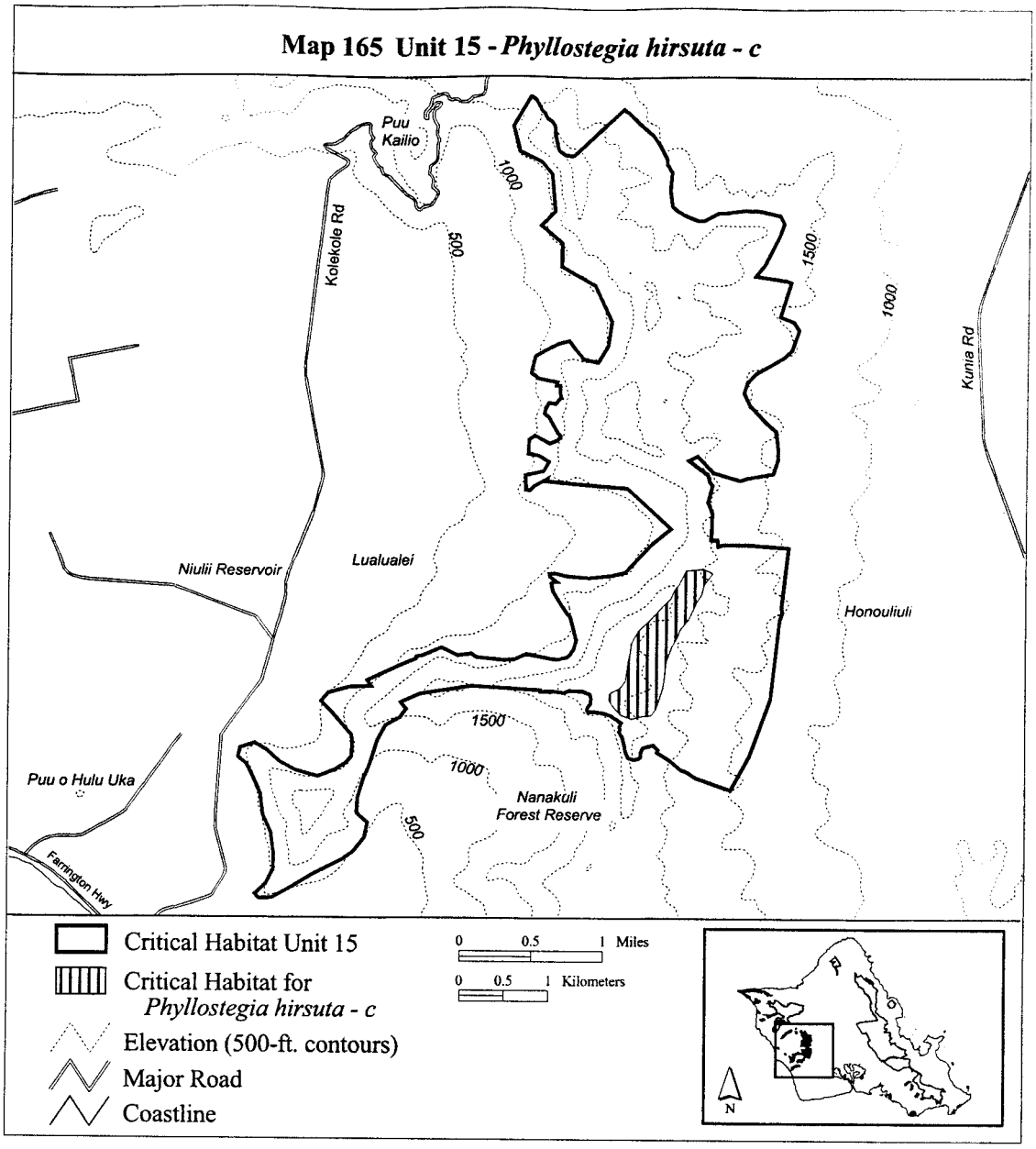
(ii) **Note:** Map 164 follows:



(165) Oahu 15—*Phyllostegia hirsuta*—c (69 ha; 171 ac)

(i) Unit consists of the following 38 boundary points: Start at 594054, 2369371; 594132, 2369522; 594326, 2369540; 594429, 2369492; 594328, 2369361; 594298, 2369245; 594248, 2369165; 594210, 2369079; 594162, 2368974; 594062, 2368848; 594031, 2368765; 593969, 2368657; 593906, 2368493; 593891, 2368300; 593876, 2368204; 593825, 2368041; 593795, 2367953; 593750, 2367890; 593659, 2367882; 593521, 2367855; 593403, 2367895; 593368, 2367928; 593310, 2367996; 593267, 2368061; 593264, 2368121; 593300, 2368149; 593368, 2368184; 593413, 2368219; 593448, 2368280; 593478, 2368461; 593501, 2368599; 593511, 2368692; 593591, 2368830; 593647, 2368886; 593732, 2368966; 593850, 2369097; 593956, 2369208; 593994, 2369293; return to starting point.

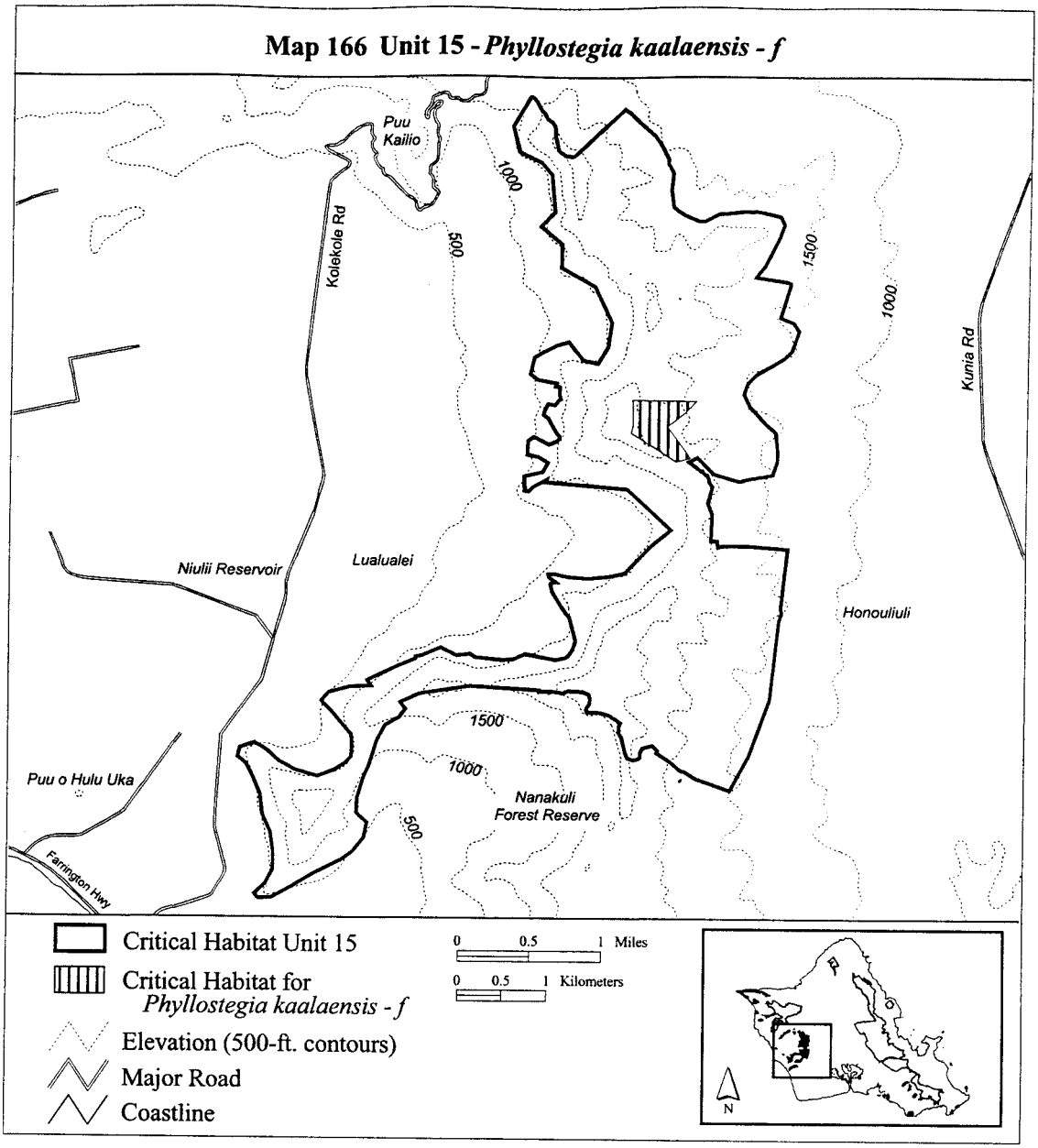
(ii) **Note:** Map 165 follows:



(166) Oahu 15—*Phyllostegia kaalaensis*—f (30 ha; 74 ac)

(i) Unit consists of the following 21 boundary points: Start at 593699, 2370957; 593696, 2370958; 593649, 2370988; 593650, 2370989; 593495, 2371087; 593508, 2371143; 593507, 2371145; 593509, 2371151; 593513, 2371169; 593510, 2371364; 593505, 2371383; 593510, 2371387; 593509, 2371460; 594222, 2371452; 594169, 2371394; 594166, 2371388; 594157, 2371381; 594109, 2371327; 593903, 2371160; 594159, 2370816; 594000, 2370766; return to starting point.

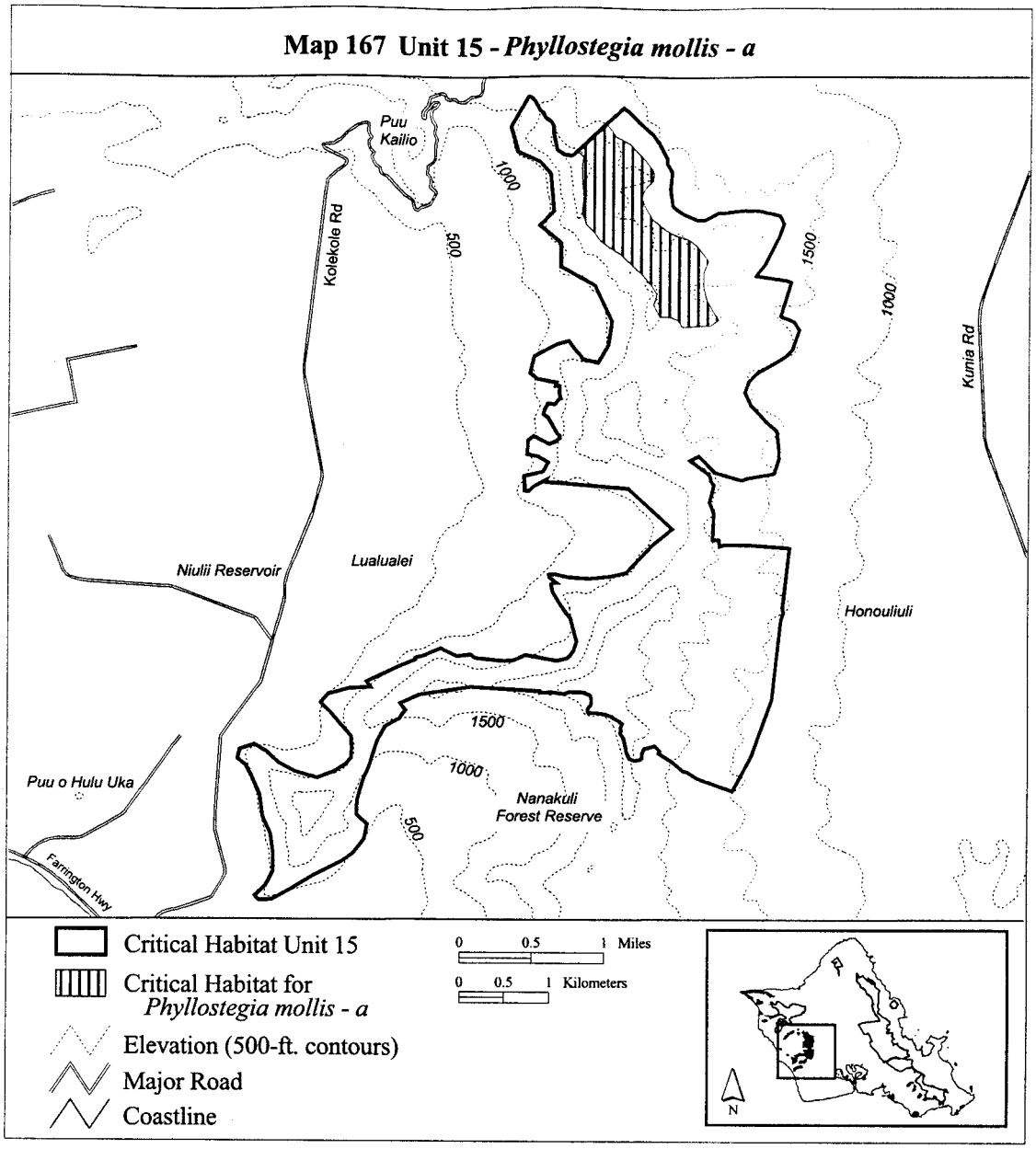
(ii) **Note:** Map 166 follows:



(167) Oahu 15—*Phyllostegia mollis*—a (152 ha; 376 ac)

(i) Unit consists of the following 56 boundary points: Start at 593194, 2374534; 593221, 2374505; 593297, 2374397; 593462, 2374312; 593547, 2374228; 593615, 2374156; 593711, 2374035; 593727, 2373975; 593719, 2373903; 593655, 2373842; 593603, 2373758; 593587, 2373718; 593615, 2373649; 593643, 2373601; 593711, 2373485; 593772, 2373432; 593872, 2373352; 593972, 2373300; 594125, 2373252; 594210, 2373183; 594290, 2373091; 594342, 2373011; 594286, 2372870; 594286, 2372713; 594322, 2372581; 594410, 2372419; 594459, 2372342; 594362, 2372278; 594262, 2372279; 594069, 2372271; 594045, 2372275; 594025, 2372307; 593997, 2372348; 593952, 2372372; 593896, 2372380; 593800, 2372384; 593772, 2372432; 593727, 2372520; 593755, 2372589; 593763, 2372645; 593703, 2372733; 593603, 2372858; 593514, 2372938; 593446, 2373007; 593354, 2373087; 593225, 2373167; 593125, 2373240; 593048, 2373340; 592976, 2373412; 592928, 2373529; 592928, 2373593; 592944, 2373714; 592928, 2373862; 592920, 2374063; 592936, 2374168; 592871, 2374232; return to starting point.

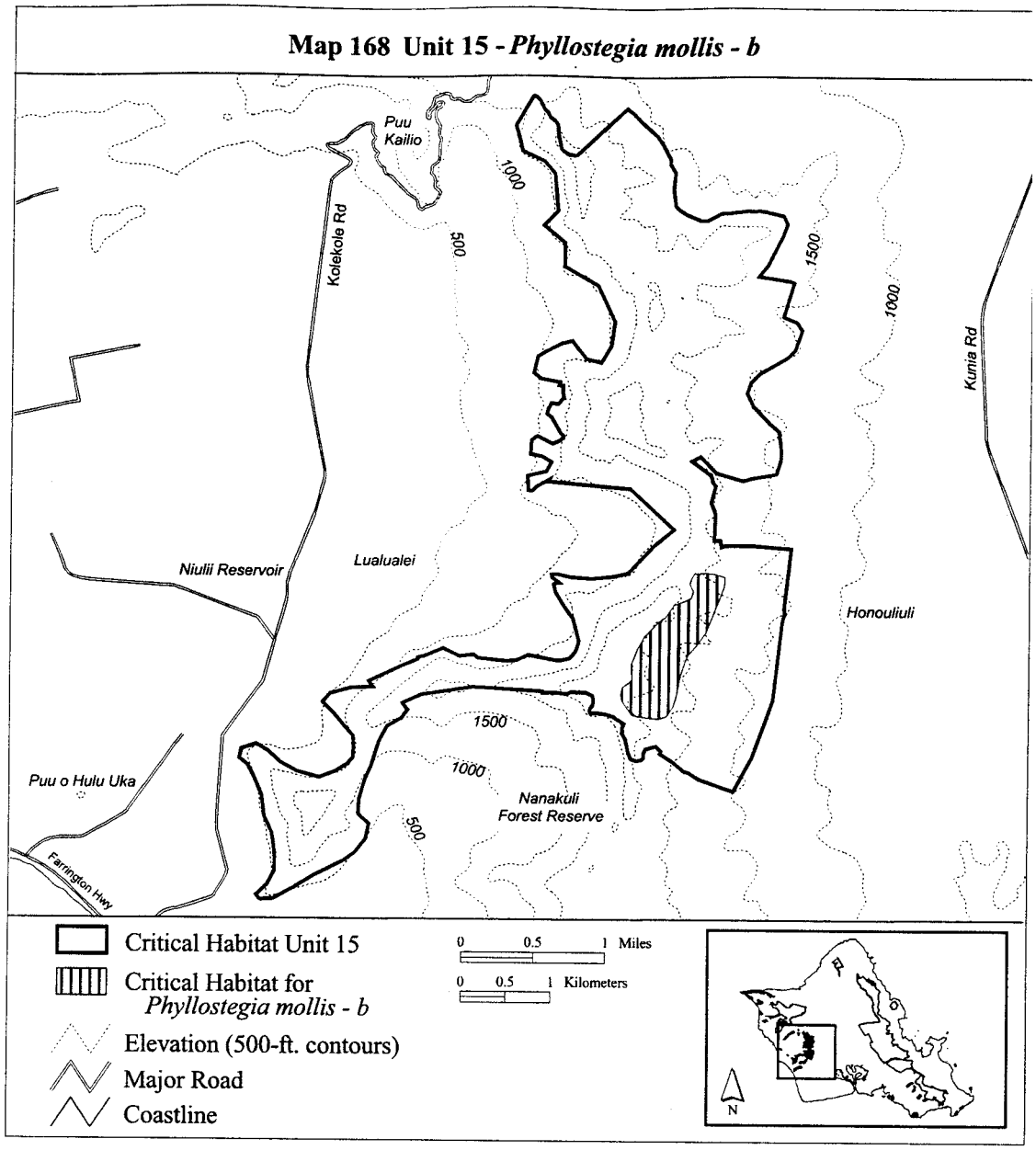
(ii) **Note:** Map 167 follows:



(168) Oahu 15—*Phyllostegia mollis*—b (85 ha; 210 ac)

(i) Unit consists of the following 42 boundary points: Start at 594134, 2369384; 594148, 2369422; 594165, 2369458; 594187, 2369496; 594246, 2369500; 594313, 2369503; 594422, 2369489; 594528, 2369461; 594528, 2369419; 594524, 2369345; 594482, 2369250; 594415, 2369071; 594366, 2368940; 594320, 2368831; 594229, 2368701; 594127, 2368592; 594084, 2368497; 594035, 2368328; 593993, 2368127; 593958, 2367997; 593887, 2367899; 593799, 2367867; 593662, 2367881; 593497, 2367913; 593440, 2367972; 593381, 2368067; 593370, 2368141; 593388, 2368215; 593458, 2368265; 593497, 2368303; 593483, 2368472; 593511, 2368550; 593553, 2368638; 593623, 2368771; 593701, 2368863; 593789, 2368947; 593870, 2369000; 593916, 2369071; 593965, 2369144; 594053, 2369176; 594148, 2369218; 594172, 2369292; return to starting point.

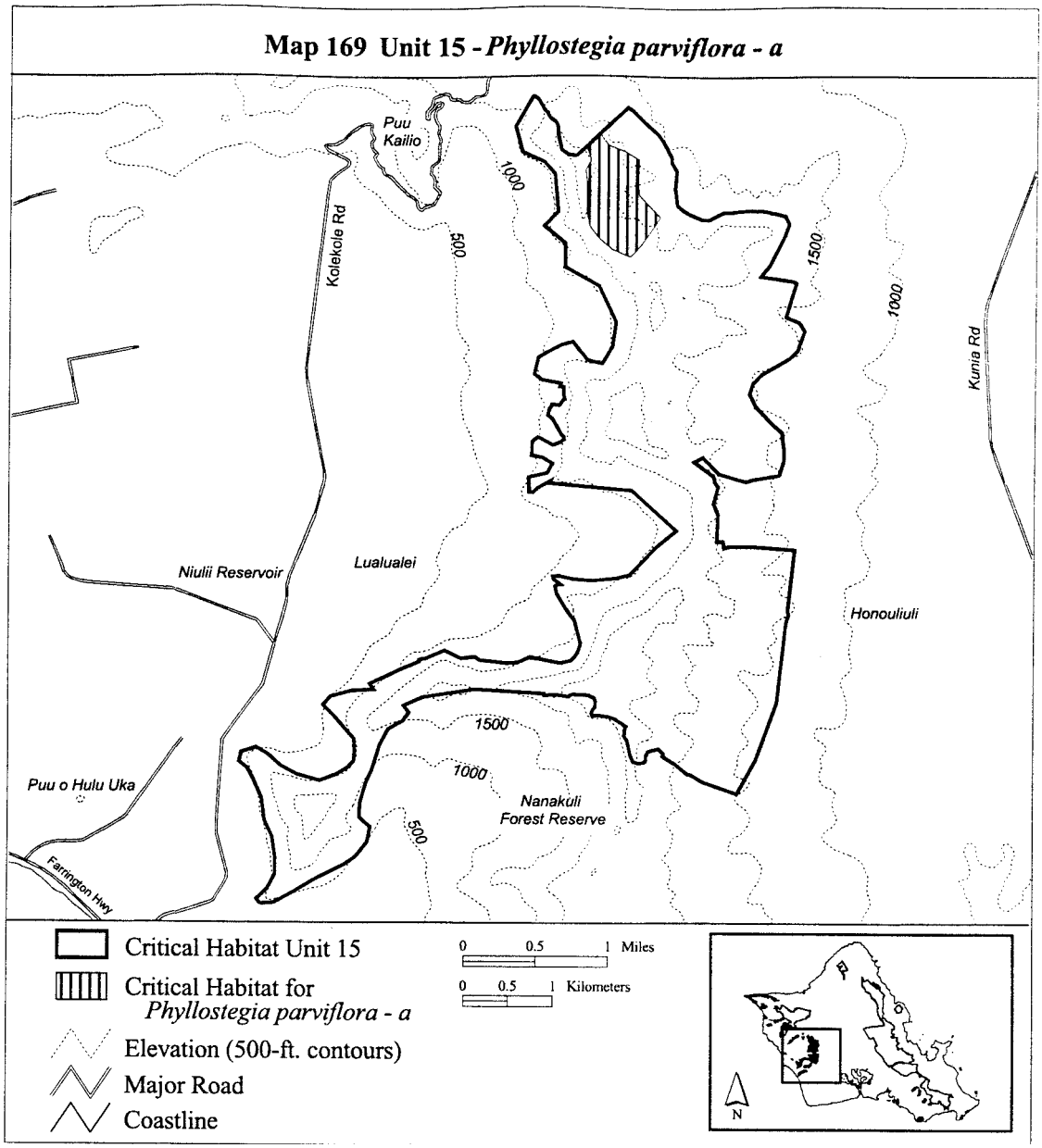
(ii) **Note:** Map 168 follows:



(169) Oahu 15—*Phyllostegia parviflora*—a (70 ha; 173 ac)

(i) Unit consists of the following 24 boundary points: Start at 593084, 2374431; 593099, 2374381; 593167, 2374293; 593344, 2374229; 593504, 2374137; 593508, 2374017; 593500, 2373876; 593512, 2373740; 593600, 2373640; 593752, 2373496; 593652, 2373340; 593564, 2373216; 593480, 2373112; 593420, 2373056; 593224, 2373140; 593067, 2373268; 592963, 2373400; 592927, 2373556; 592927, 2373744; 592927, 2373880; 592919, 2374013; 592971, 2374133; 592931, 2374261; 592909, 2374268; return to starting point.

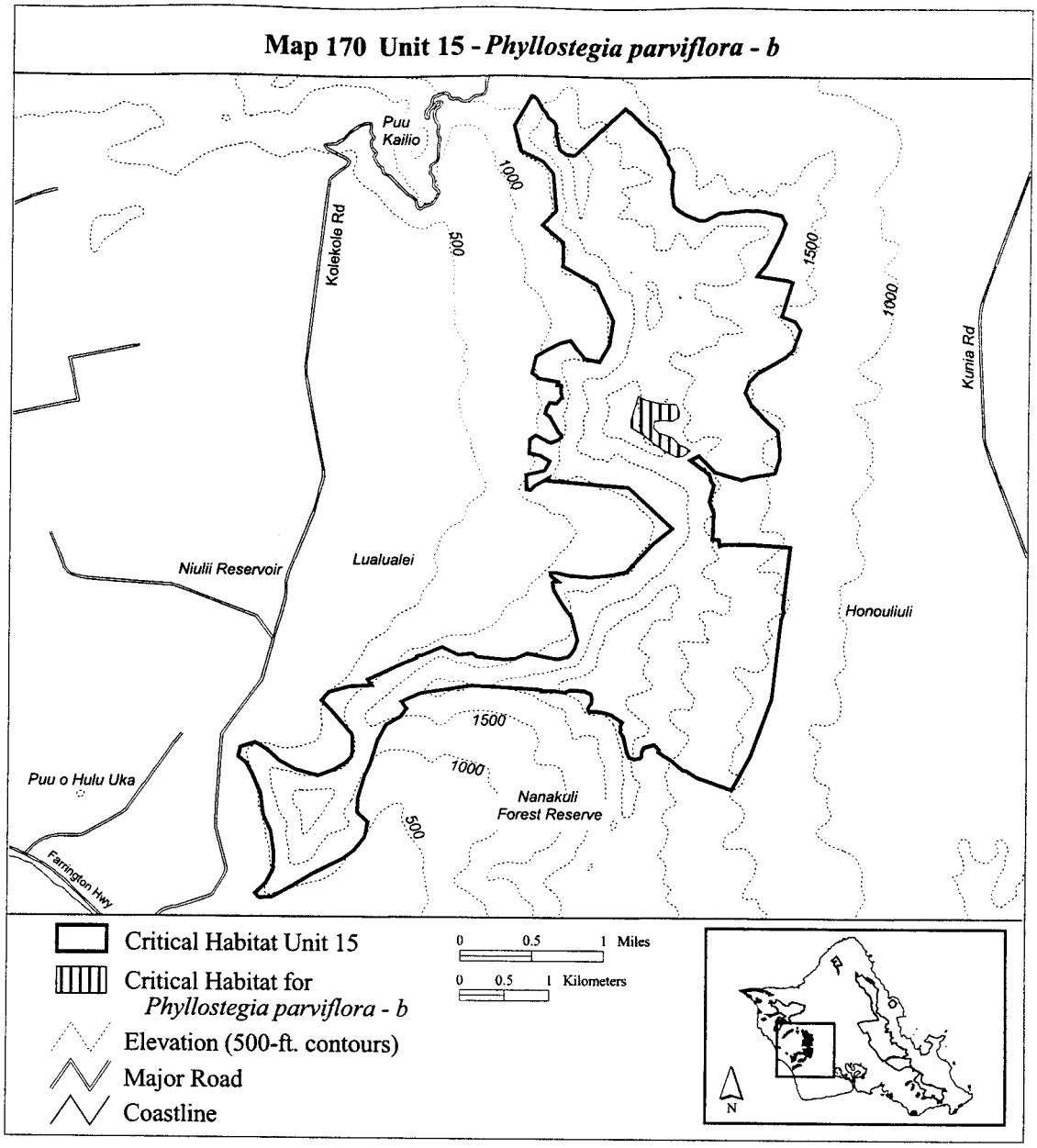
(ii) **Note:** Map 169 follows:



(170) Oahu 15—*Phyllostegia parviflora*—b (21 ha; 51 ac)

(i) Unit consists of the following 23 boundary points: Start at 593556, 2371486; 593640, 2371442; 593808, 2371405; 593984, 2371397; 594016, 2371325; 594016, 2371253; 593948, 2371209; 593860, 2371213; 593740, 2371209; 593728, 2371133; 593792, 2371077; 593944, 2371021; 594032, 2370932; 594092, 2370916; 594148, 2370880; 594124, 2370856; 594072, 2370820; 594000, 2370800; 593880, 2370856; 593740, 2370944; 593628, 2371041; 593472, 2371137; 593476, 2371209; return to starting point.

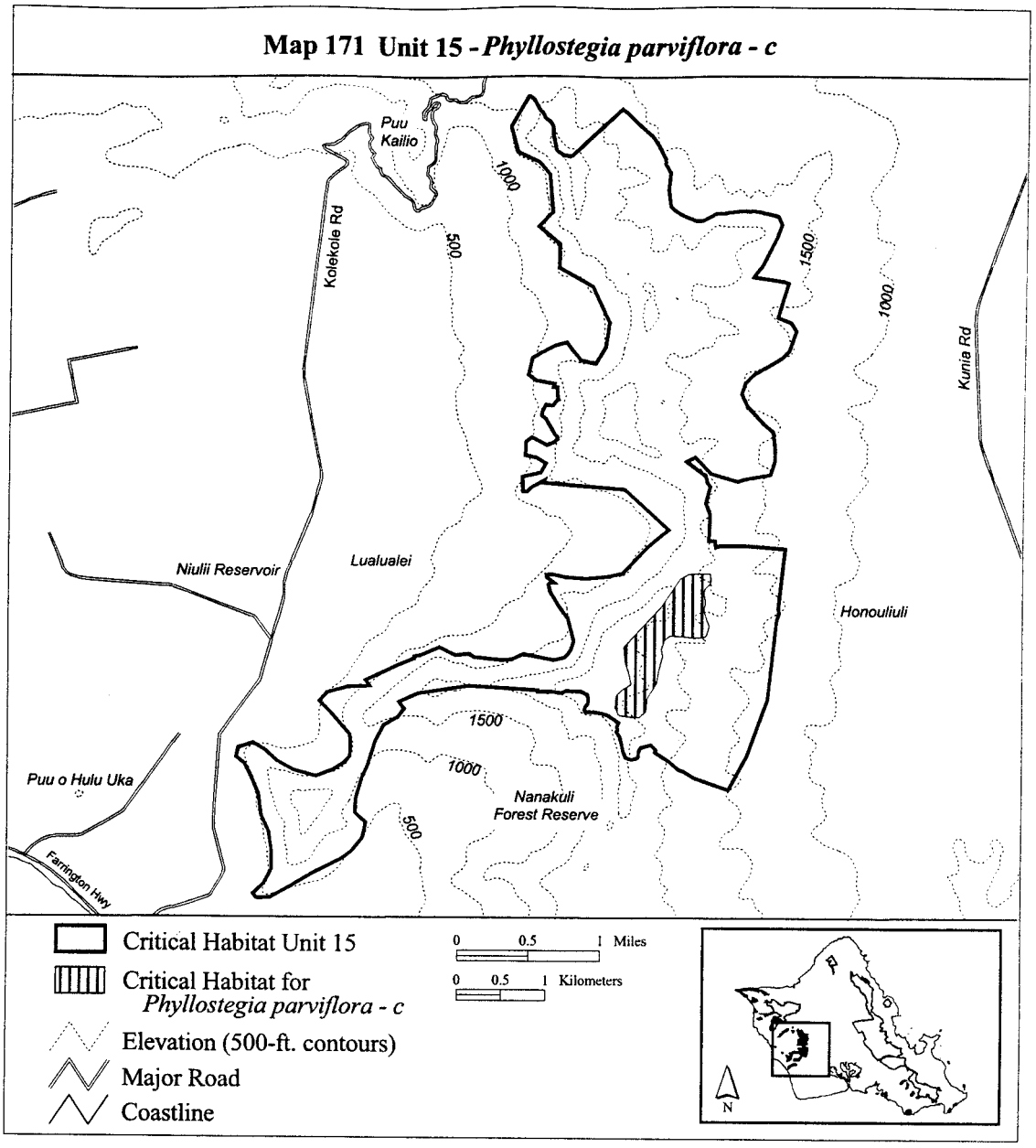
(ii) **Note:** Map 170 follows:



(171) Oahu 15—*Phyllostegia parviflora*—c (69 ha; 171 ac)

(i) Unit consists of the following 38 boundary points: Start at 594092, 2369443; 594192, 2369491; 594309, 2369499; 594421, 2369495; 594433, 2369443; 594429, 2369383; 594365, 2369319; 594357, 2369251; 594369, 2369199; 594369, 2369151; 594349, 2369087; 594377, 2369007; 594393, 2368946; 594413, 2368898; 594381, 2368790; 594349, 2368774; 594241, 2368770; 594108, 2368786; 593976, 2368790; 593912, 2368742; 593884, 2368642; 593892, 2368558; 593848, 2368394; 593824, 2368242; 593752, 2368138; 593720, 2368078; 593712, 2367937; 593640, 2367869; 593540, 2367869; 593408, 2367893; 593360, 2367981; 593376, 2368114; 593448, 2368182; 593540, 2368242; 593512, 2368370; 593472, 2368482; 593456, 2368662; 593880, 2369123; return to starting point.

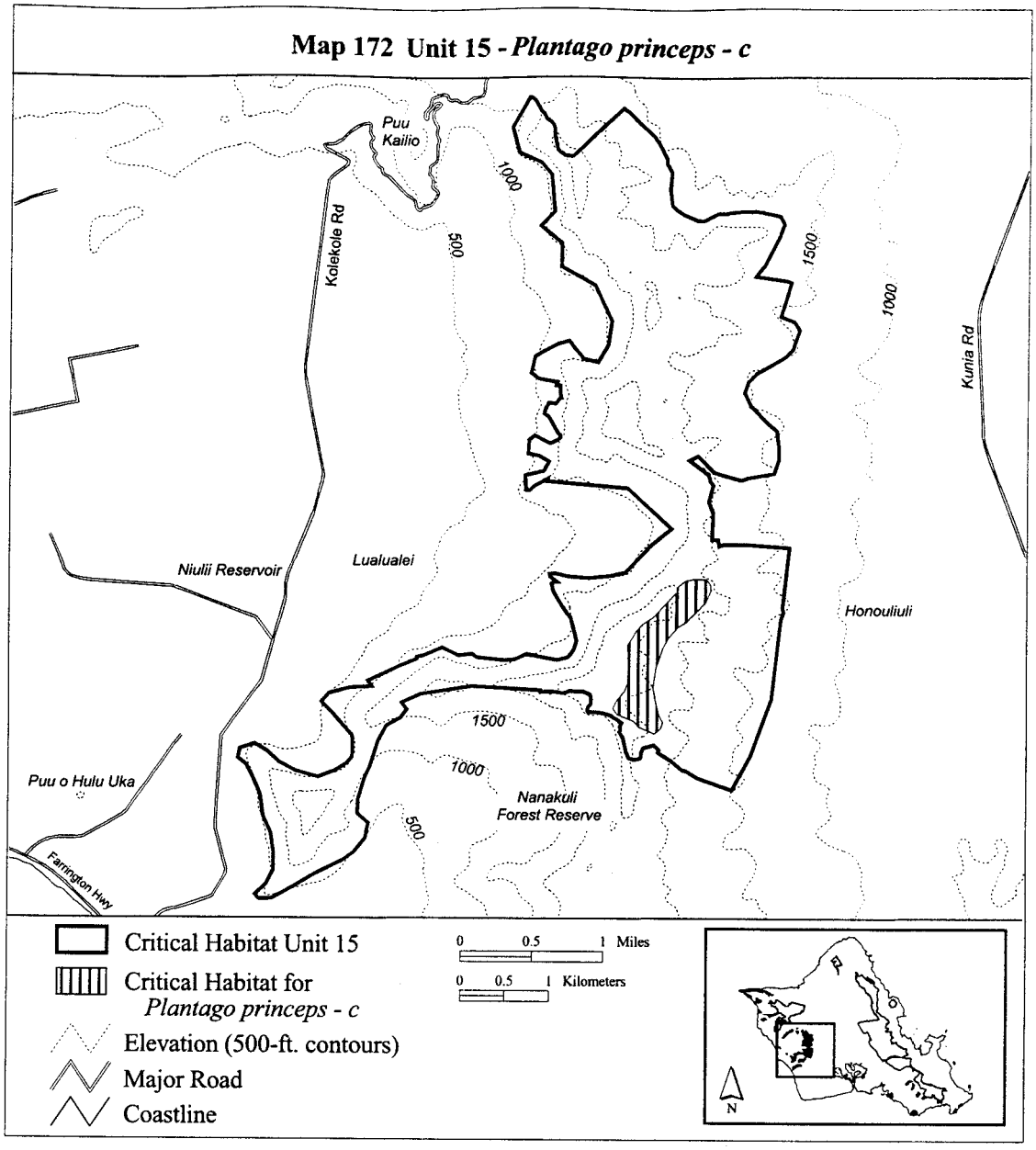
(ii) **Note:** Map 171 follows:



(172) Oahu 15—*Plantago princeps*—c (63 ha; 157 ac)

(i) Unit consists of the following 38 boundary points: Start at 594016, 2369273; 594037, 2369341; 594118, 2369400; 594198, 2369424; 594279, 2369424; 594344, 2369421; 594387, 2369363; 594393, 2369291; 594341, 2369162; 594232, 2369044; 594118, 2368933; 594025, 2368883; 593929, 2368763; 593861, 2368648; 593784, 2368419; 593756, 2368200; 593784, 2368036; 593818, 2367912; 593867, 2367816; 593846, 2367745; 593775, 2367689; 593682, 2367723; 593598, 2367764; 593543, 2367829; 593431, 2367872; 593354, 2367906; 593308, 2367968; 593351, 2368057; 593434, 2368166; 593478, 2368262; 593478, 2368364; 593475, 2368583; 593471, 2368673; 593533, 2368775; 593567, 2368828; 593642, 2368914; 593759, 2368995; 593858, 2369106; return to starting point.

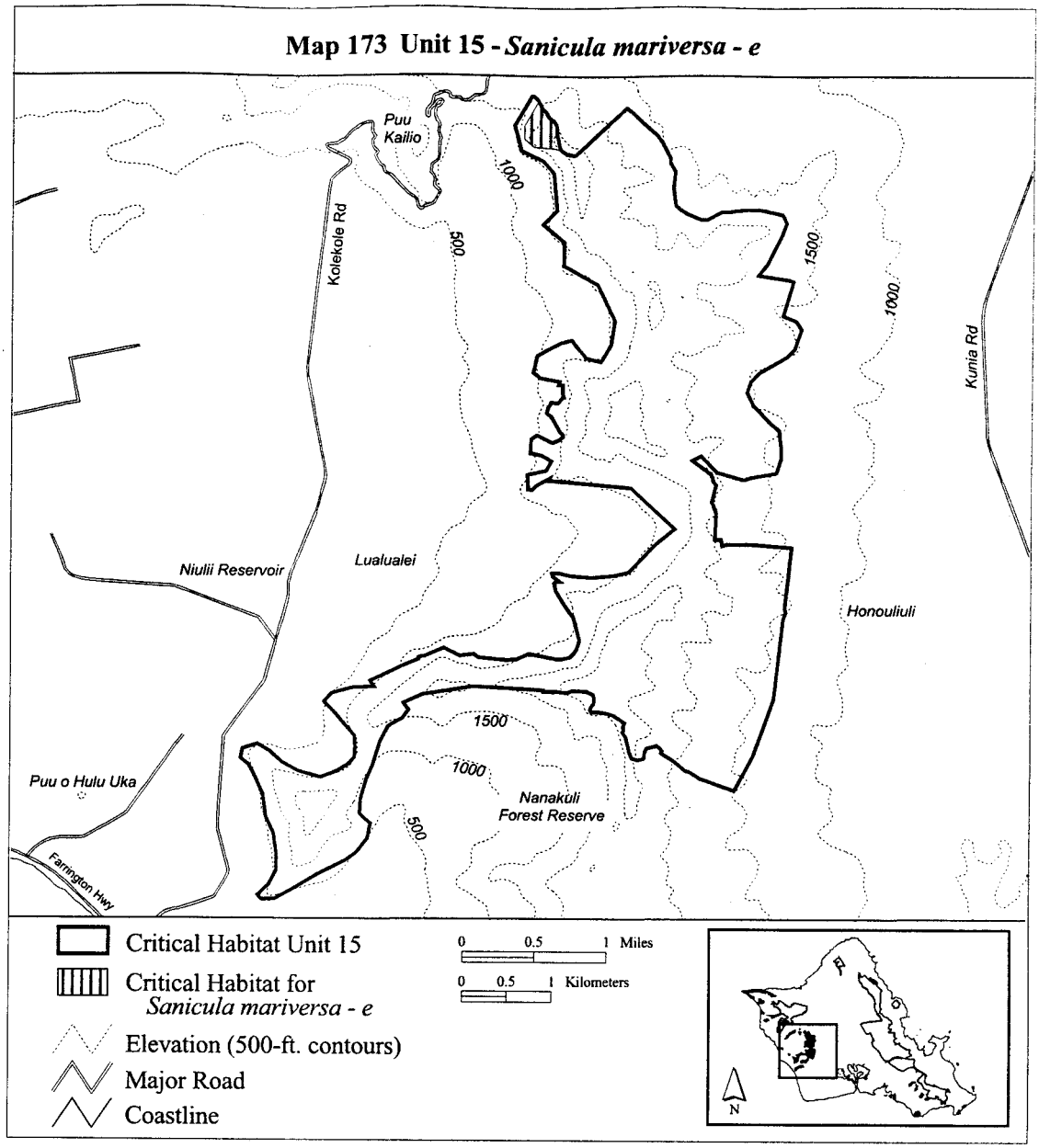
(ii) **Note:** Map 172 follows:



(173) Oahu 15—*Sanicula mariversa*—e (14 ha; 34 ac)

(i) Unit consists of the following 20 boundary points: Start at 592695, 2374210; 592604, 2374252; 592349, 2374270; 592240, 2374361; 592240, 2374507; 592403, 2374783; 592404, 2374781; 592454, 2374691; 592484, 2374661; 592514, 2374601; 592514, 2374600; 592574, 2374561; 592594, 2374531; 592604, 2374492; 592604, 2374422; 592634, 2374282; 592634, 2374281; 592644, 2374251; 592664, 2374231; 592664, 2374230; return to starting point.

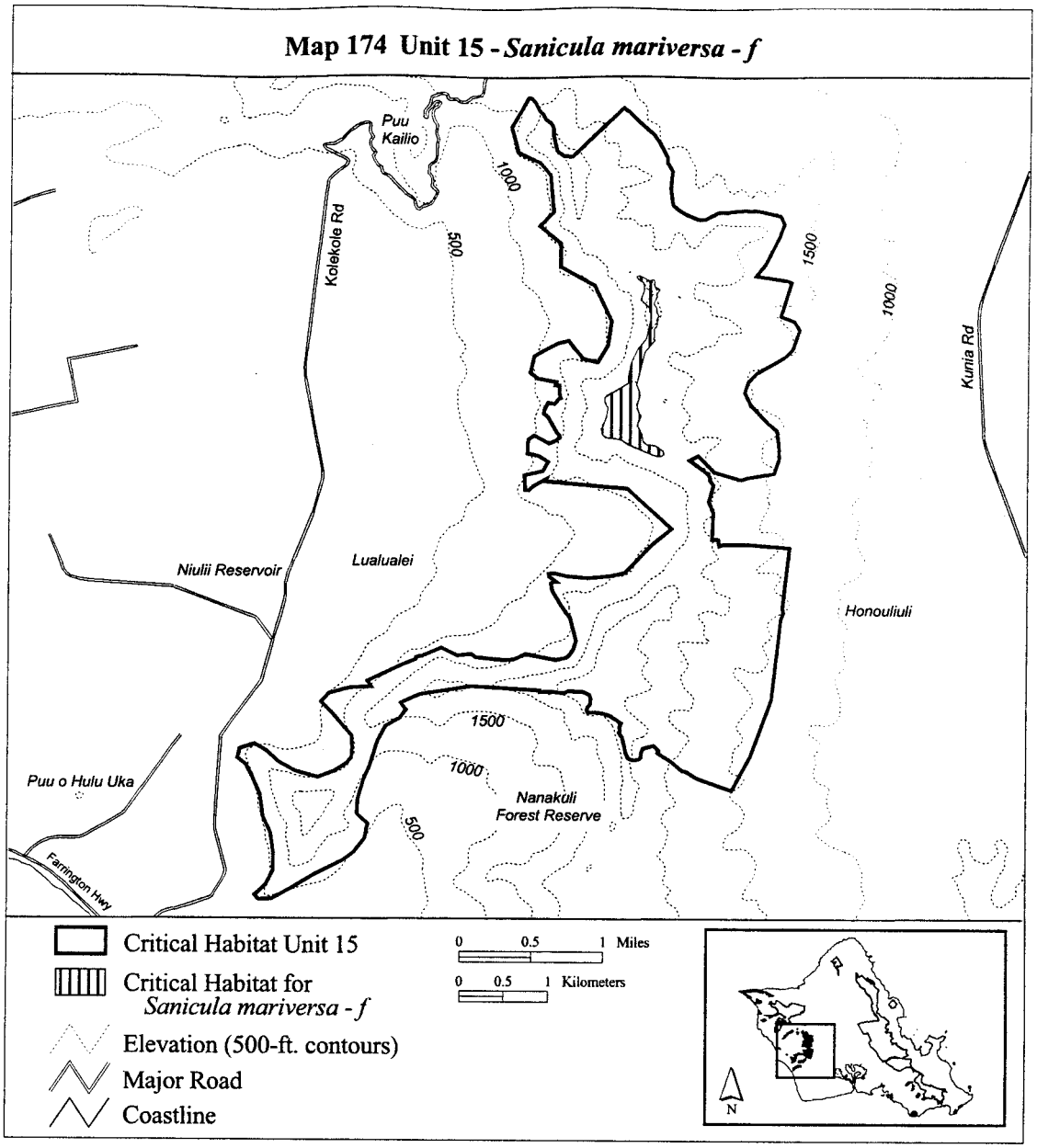
(ii) **Note:** Map 173 follows:



(174) Oahu 15—*Sanicula mariversa*—f (39 ha; 95 ac)

(i) Unit consists of the following 88 boundary points: Start at 593546, 2372831; 593574, 2372838; 593601, 2372826; 593637, 2372808; 593661, 2372788; 593706, 2372786; 593716, 2372799; 593736, 2372799; 593741, 2372781; 593743, 2372754; 593736, 2372736; 593745, 2372714; 593797, 2372686; 593797, 2372677; 593788, 2372657; 593770, 2372624; 593765, 2372606; 593754, 2372567; 593738, 2372527; 593752, 2372490; 593770, 2372472; 593770, 2372448; 593765, 2372430; 593788, 2372409; 593788, 2372385; 593779, 2372367; 593768, 2372346; 593774, 2372305; 593770, 2372269; 593741, 2372252; 593743, 2372202; 593743, 2372145; 593736, 2372130; 593757, 2372124; 593637, 2371983; 593551, 2371623; 593569, 2371575; 593587, 2371509; 593557, 2371388; 593569, 2371329; 593599, 2371272; 593563, 2371168; 593575, 2371141; 593608, 2371065; 593626, 2370993; 593664, 2370949; 593753, 2370940; 593818, 2370905; 593848, 2370875; 593859, 2370834; 593845, 2370819; 593771, 2370819; 593658, 2370866; 593478, 2370940; 593392, 2370996; 593297, 2371014; 593214, 2371020; 593179, 2371056; 593161, 2371121; 593188, 2371186; 593217, 2371260; 593235, 2371363; 593196, 2371426; 593193, 2371473; 593253, 2371515; 593380, 2371589; 593462, 2371639; 593465, 2371731; 593487, 2371858; 593561, 2372024; 593659, 2372143; 593661, 2372157; 593680, 2372252; 593706, 2372360; 593697, 2372385; 593697, 2372411; 593695, 2372429; 593686, 2372439; 593686, 2372477; 593655, 2372508; 593600, 2372556; 593587, 2372565; 593601, 2372610; 593628, 2372677; 593628, 2372702; 593616, 2372761; 593556, 2372804; 593546, 2372820; return to starting point.

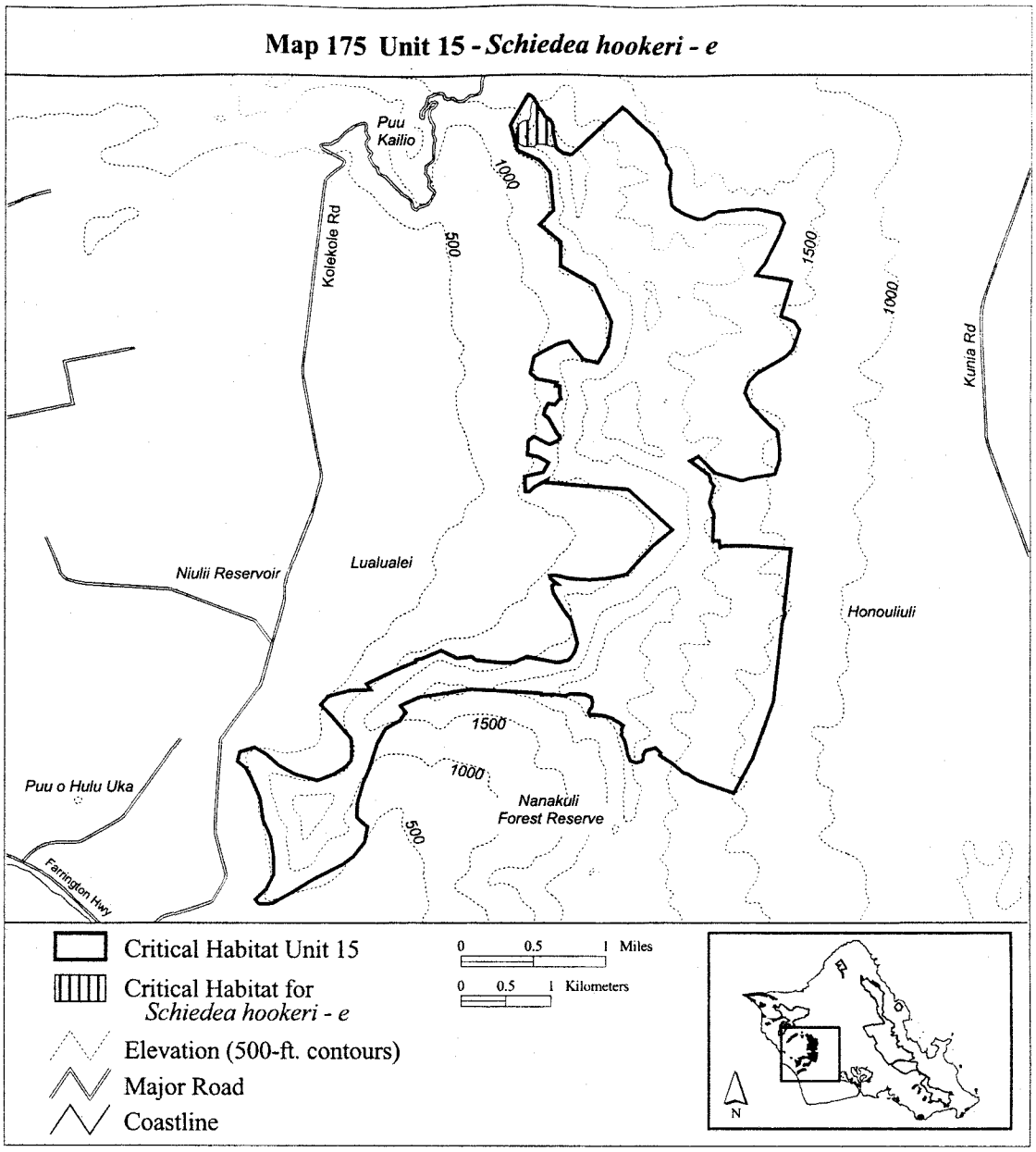
(ii) **Note:** Map 174 follows:



(175) Oahu 15—*Schiedea hookeri*—e (14 ha; 34 ac)

(i) Unit consists of the following 29 boundary points: Start at 592636, 2374256; 592600, 2374263; 592497, 2374291; 592427, 2374291; 592390, 2374263; 592295, 2374263; 592237, 2374288; 592207, 2374313; 592190, 2374366; 592195, 2374413; 592217, 2374505; 592265, 2374548; 592347, 2374563; 592357, 2374613; 592360, 2374690; 592367, 2374755; 592401, 2374785; 592404, 2374781; 592454, 2374691; 592484, 2374661; 592514, 2374601; 592514, 2374600; 592574, 2374561; 592594, 2374531; 592604, 2374492; 592604, 2374422; 592634, 2374282; 592634, 2374281; 592641, 2374259; return to starting point.

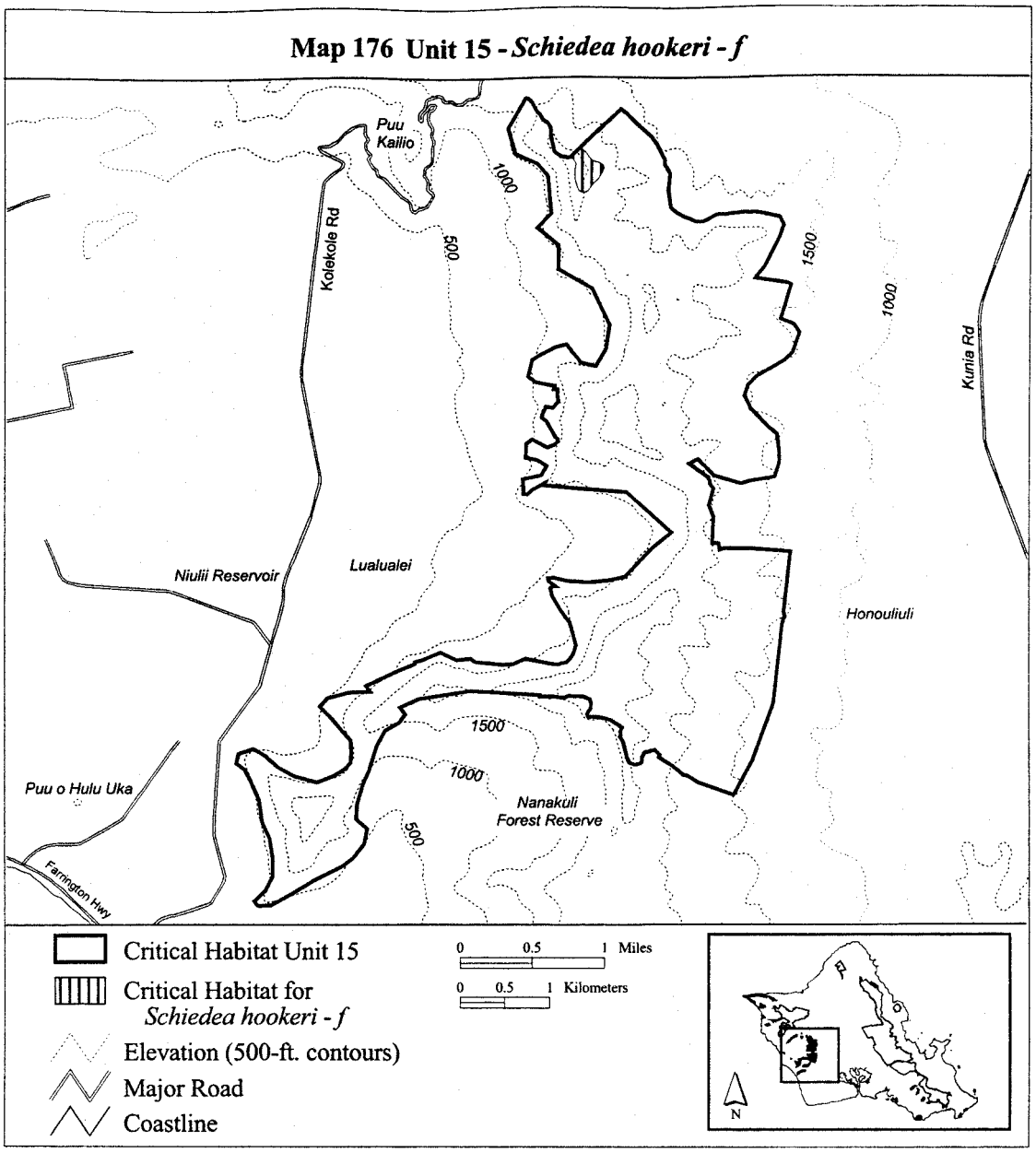
(ii) **Note:** Map 175 follows:



(176) Oahu 15—*Schiedea hookeri*—f (10 ha; 25 ac)

(i) Unit consists of the following 21 boundary points: Start at 592828, 2374186; 592930, 2374282; 592941, 2374283; 592999, 2374237; 593025, 2374195; 593073, 2374142; 593143, 2374125; 593188, 2374093; 593193, 2374058; 593169, 2373997; 593144, 2373950; 593081, 2373888; 593023, 2373812; 592974, 2373787; 592923, 2373813; 592896, 2373863; 592877, 2373923; 592870, 2374005; 592876, 2374066; 592887, 2374114; 592868, 2374150; return to starting point.

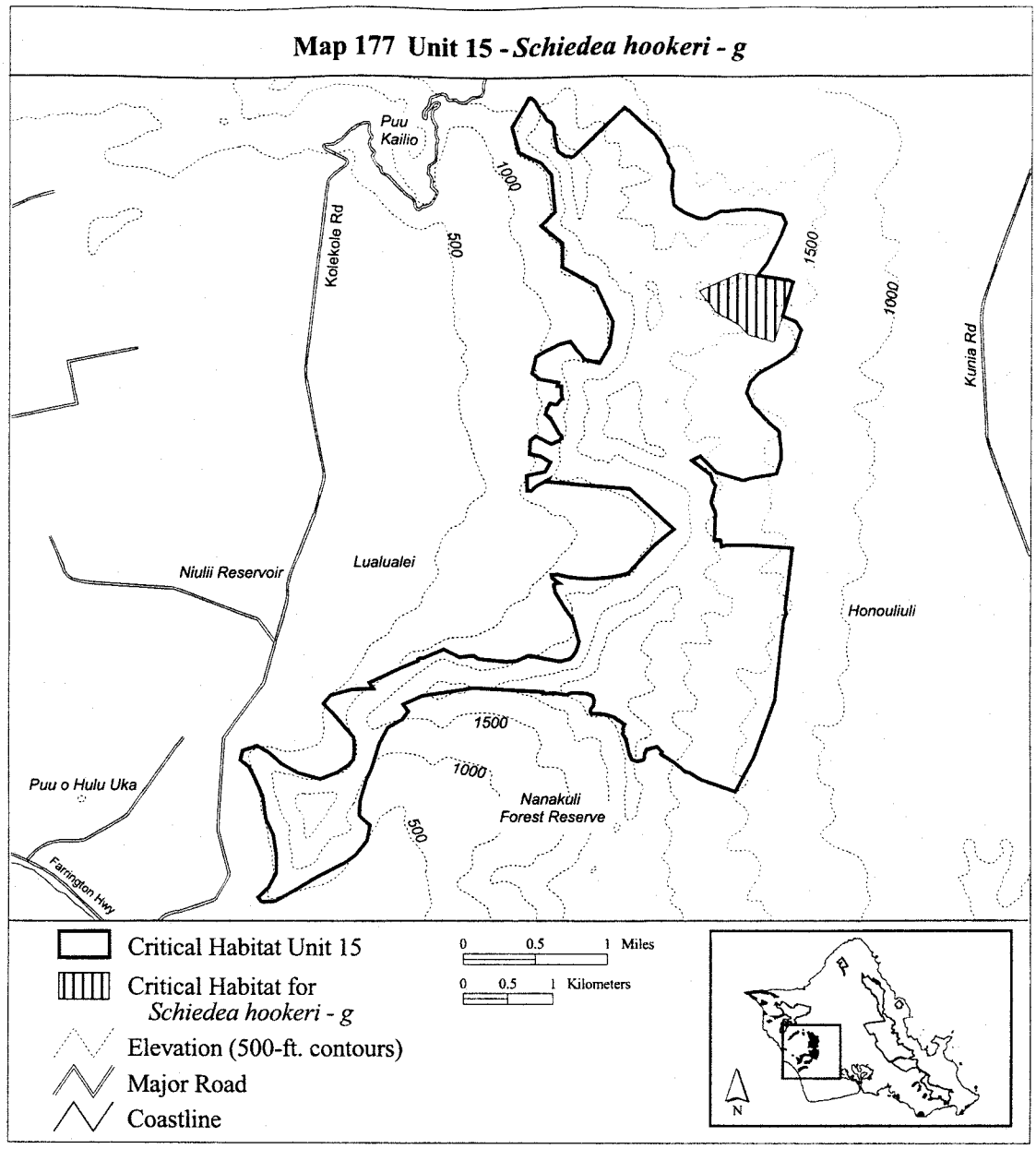
(ii) **Note:** Map 176 follows:



(177) Oahu 15—*Schiedea hookeri*—g (83 ha; 204 ac)

(i) Unit consists of the following 50 boundary points: Start at 593392, 2372040; 593458, 2372066; 593544, 2372037; 593584, 2372015; 593538, 2371923; 593524, 2371826; 593515, 2371729; 593510, 2371589; 593492, 2371512; 593430, 2371452; 593375, 2371426; 593367, 2371340; 593338, 2371257; 593295, 2371143; 593255, 2371034; 593161, 2370968; 593035, 2370917; 592927, 2370846; 592876, 2370774; 592830, 2370717; 592747, 2370663; 592721, 2370689; 592684, 2370757; 592607, 2370806; 592527, 2370848; 592530, 2370888; 592584, 2370934; 592661, 2370988; 592707, 2371048; 592681, 2371117; 592616, 2371214; 592573, 2371308; 592656, 2371348; 592687, 2371391; 592713, 2371460; 592764, 2371511; 592793, 2371560; 592756, 2371608; 592627, 2371654; 592570, 2371725; 592453, 2371805; 592530, 2371908; 592607, 2371959; 592684, 2371994; 592770, 2371939; 592910, 2371815; 593064, 2371778; 593121, 2371798; 593224, 2371883; 593287, 2371980; return to starting point.

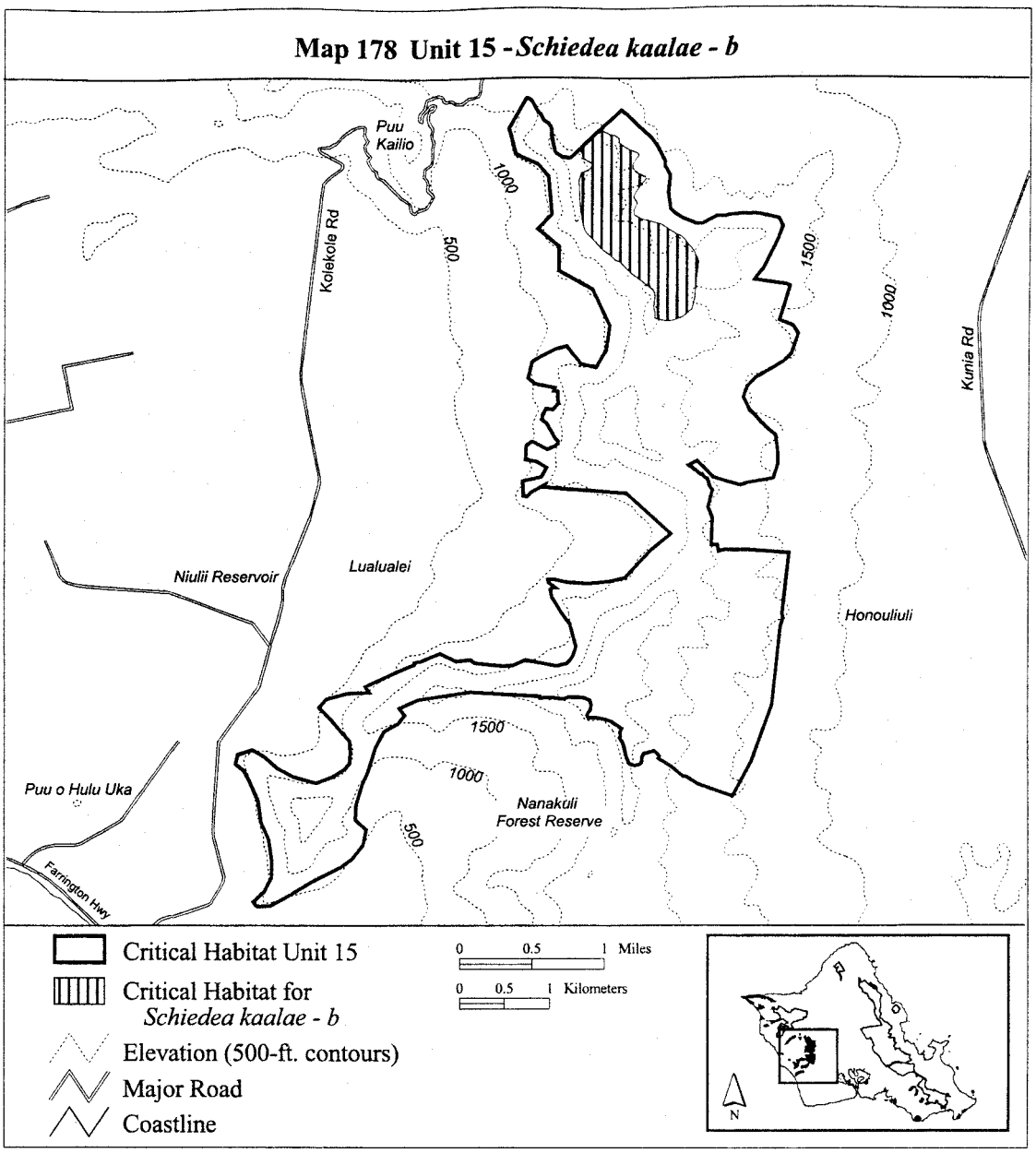
(ii) **Note:** Map 177 follows:



(178) Oahu 15—*Schiedea kaalae*—b (134 ha; 331 ac)

(i) Unit consists of the following 92 boundary points: Start at 593155, 2374498; 593197, 2374469; 593237, 2374448; 593260, 2374433; 593298, 2374434; 593349, 2374409; 593359, 2374380; 593356, 2374354; 593410, 2374316; 593474, 2374276; 593566, 2374246; 593587, 2374226; 593564, 2374188; 593532, 2374147; 593515, 2374109; 593514, 2374080; 593538, 2374043; 593550, 2374022; 593552, 2374019; 593553, 2374019; 593558, 2374019; 593580, 2374010; 593631, 2373992; 593621, 2373992; 593651, 2373980; 593667, 2373955; 593643, 2373929; 593588, 2373864; 593537, 2373789; 593523, 2373764; 593524, 2373745; 593549, 2373710; 593562, 2373680; 593552, 2373651; 593527, 2373602; 593531, 2373564; 593534, 2373551; 593593, 2373522; 593617, 2373497; 593618, 2373497; 593606, 2373516; 593837, 2373458; 593992, 2373364; 594073, 2373324; 594201, 2373169; 594259, 2373053; 594228, 2372875; 594210, 2372644; 594179, 2372515; 594081, 2372431; 593988, 2372395; 593908, 2372382; 593766, 2372408; 593766, 2372471; 593757, 2372542; 593761, 2372604; 593770, 2372657; 593761, 2372706; 593721, 2372742; 593592, 2372849; 593494, 2372915; 593383, 2373022; 593393, 2373030; 593327, 2373053; 593260, 2373115; 593172, 2373178; 593097, 2373261; 593010, 2373344; 592980, 2373386; 592951, 2373464; 592930, 2373616; 592925, 2373718; 592916, 2373835; 592916, 2373861; 592910, 2373919; 592931, 2373982; 592927, 2373982; 592933, 2374009; 592939, 2374018; 592983, 2374030; 592987, 2374030; 593030, 2374053; 593051, 2374081; 593053, 2374113; 593025, 2374136; 593001, 2374151; 592962, 2374170; 592949, 2374200; 592943, 2374227; 592931, 2374250; 592930, 2374262; 592918, 2374276; return to starting point.

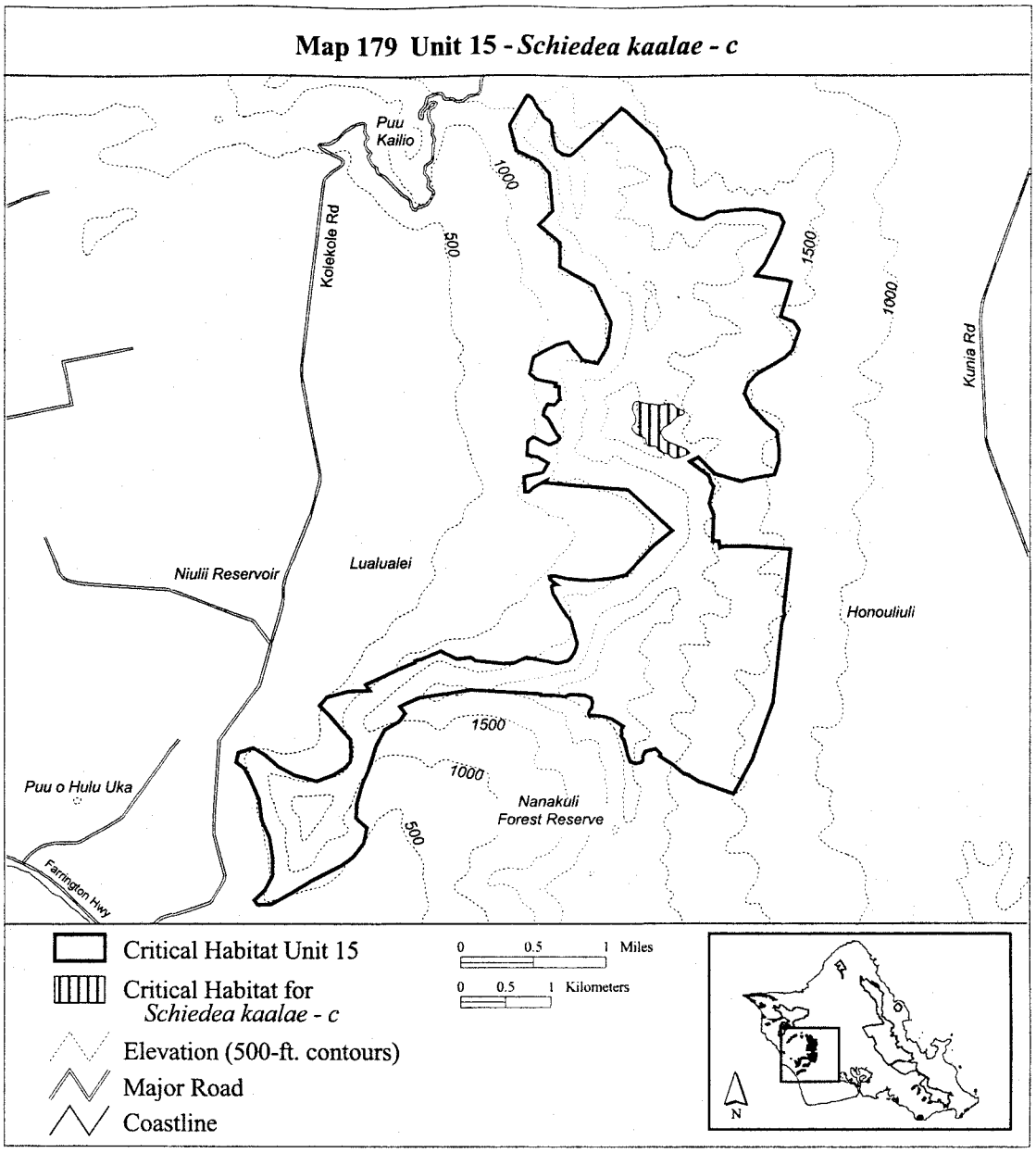
(ii) **Note:** Map 178 follows:



(179) Oahu 15—*Schiedea kaalae*—c (22 ha; 53 ac)

(i) Unit consists of the following 58 boundary points: Start at 594140, 2370857; 594018, 2370809; 593969, 2370810; 593929, 2370835; 593909, 2370861; 593885, 2370861; 593843, 2370873; 593800, 2370893; 593783, 2370921; 593765, 2370938; 593724, 2370940; 593672, 2370956; 593660, 2370978; 593658, 2370997; 593656, 2371025; 593641, 2371037; 593598, 2371051; 593549, 2371080; 593515, 2371111; 593501, 2371135; 593499, 2371158; 593516, 2371180; 593535, 2371190; 593543, 2371242; 593534, 2371288; 593499, 2371363; 593504, 2371360; 593504, 2371387; 593520, 2371421; 593542, 2371444; 593561, 2371442; 593592, 2371435; 593663, 2371418; 593696, 2371415; 593739, 2371413; 593779, 2371407; 593838, 2371407; 593904, 2371415; 593945, 2371417; 593976, 2371396; 593988, 2371370; 594016, 2371357; 594059, 2371348; 594087, 2371331; 594083, 2371312; 594066, 2371294; 594024, 2371277; 593984, 2371251; 593935, 2371193; 593855, 2371158; 593823, 2371100; 593823, 2371087; 593857, 2371024; 593926, 2370988; 593995, 2370954; 594080, 2370919; 594128, 2370899; 594149, 2370867; return to starting point.

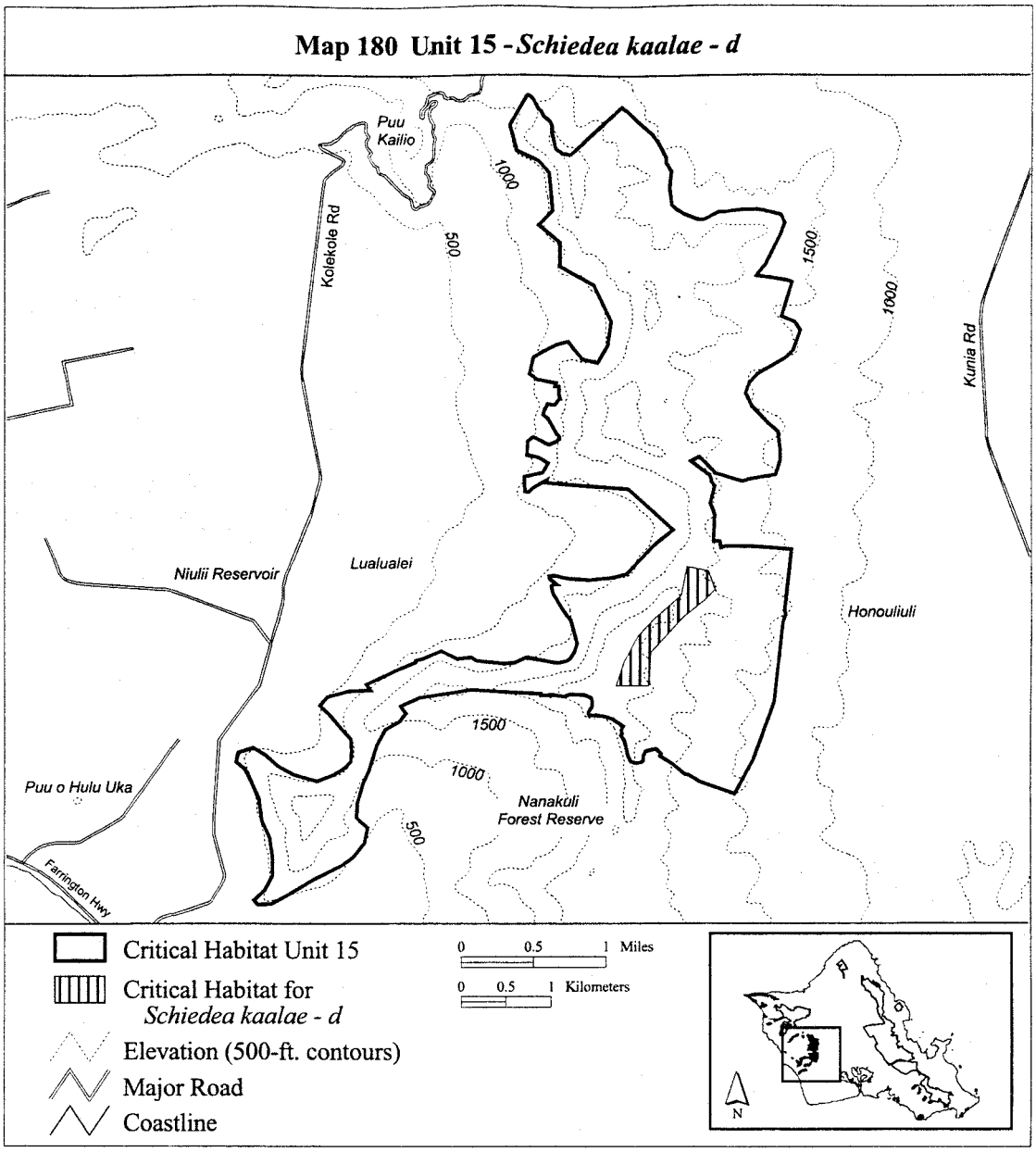
(ii) **Note:** Map 179 follows:



(180) Oahu 15—*Schiedea kaalae*—d (39 ha; 97 ac)

(i) Unit consists of the following 12 boundary points: Start at 594112, 2369585; 594345, 2369544; 594420, 2369336; 594320, 2369227; 594079, 2369036; 593713, 2368628; 593688, 2368262; 593330, 2368262; 593413, 2368512; 593571, 2368811; 593746, 2369003; 594045, 2369261; return to starting point.

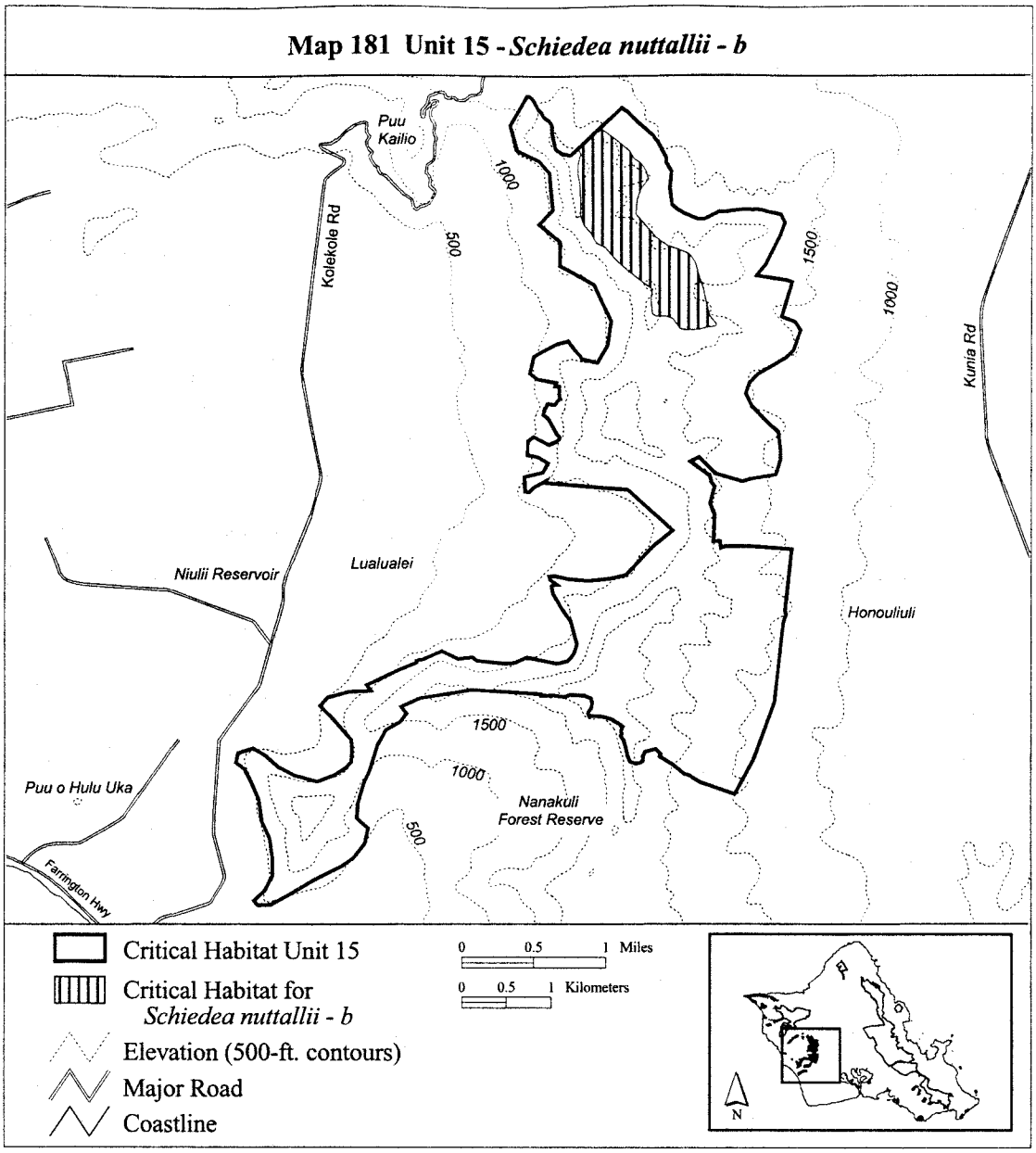
(ii) **Note:** Map 180 follows:



(181) Oahu 15—*Schiedea nuttallii*—b (141 ha; 347 ac)

(i) Unit consists of the following 53 boundary points: Start at 593145, 2374489; 593357, 2374332; 593477, 2374233; 593520, 2374152; 593601, 2374092; 593648, 2374020; 593678, 2373913; 593588, 2373793; 593554, 2373673; 593537, 2373519; 593610, 2373442; 593763, 2373267; 593896, 2373169; 594003, 2373135; 594131, 2373083; 594191, 2372994; 594229, 2372861; 594285, 2372694; 594306, 2372596; 594353, 2372399; 594392, 2372356; 594435, 2372304; 594422, 2372279; 594345, 2372275; 594242, 2372246; 594088, 2372237; 594037, 2372250; 593981, 2372314; 593947, 2372361; 593883, 2372391; 593763, 2372387; 593725, 2372412; 593716, 2372476; 593712, 2372545; 593708, 2372592; 593721, 2372690; 593639, 2372746; 593468, 2372878; 593336, 2372994; 593268, 2373071; 593199, 2373143; 593101, 2373199; 593028, 2373314; 592960, 2373395; 592921, 2373498; 592921, 2373673; 592917, 2373853; 592900, 2373960; 592900, 2374071; 592908, 2374144; 592926, 2374191; 592904, 2374246; 592904, 2374263; return to starting point.

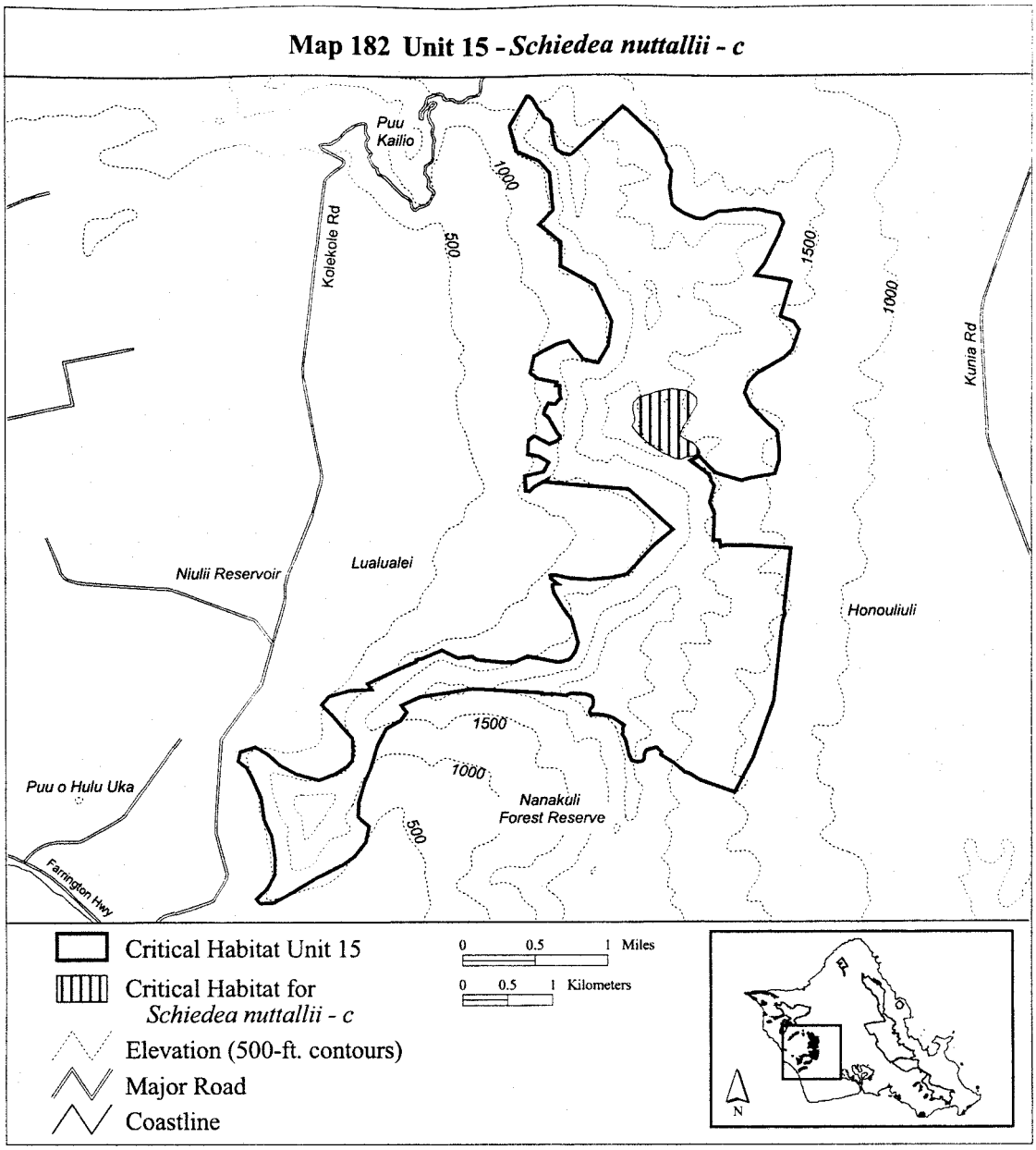
(ii) **Note:** Map 181 follows:



(182) Oahu 15—*Schiedea nuttallii*—c (41 ha; 102 ac)

(i) Unit consists of the following 30 boundary points: Start at 593505, 2371417; 593569, 2371478; 593661, 2371509; 593771, 2371547; 593929, 2371573; 594044, 2371566; 594137, 2371543; 594180, 2371508; 594217, 2371474; 594220, 2371393; 594174, 2371315; 594119, 2371211; 594067, 2371148; 594030, 2371056; 594076, 2371015; 594177, 2370963; 594235, 2370900; 594255, 2370854; 594223, 2370837; 594180, 2370822; 594111, 2370814; 594047, 2370779; 593987, 2370791; 593805, 2370871; 593710, 2370940; 593589, 2371033; 593491, 2371154; 593520, 2371200; 593520, 2371257; 593502, 2371339; return to starting point.

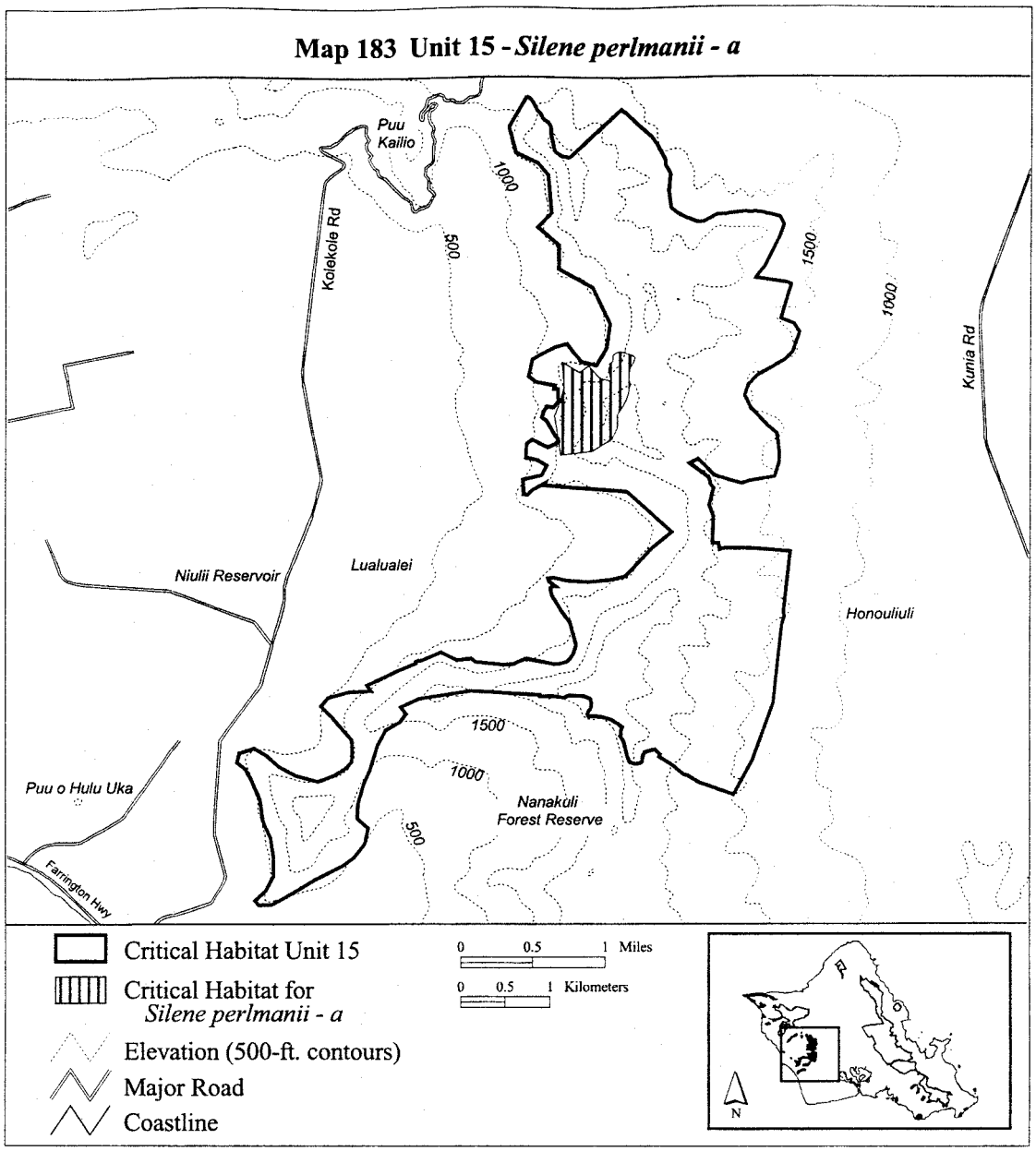
(ii) **Note:** Map 182 follows:



(183) Oahu 15—*Silene perlmanii*—a (65 ha; 162 ac)

(i) Unit consists of the following 50 boundary points: Start at 593271, 2371708; 593264, 2371736; 593259, 2371770; 593249, 2371796; 593252, 2371828; 593261, 2371847; 593266, 2371861; 593256, 2371887; 593283, 2371902; 593300, 2371921; 593299, 2371940; 593299, 2371979; 593324, 2372000; 593386, 2372020; 593443, 2372000; 593496, 2371990; 593534, 2371971; 593542, 2371950; 593542, 2371936; 593532, 2371924; 593527, 2371907; 593518, 2371887; 593506, 2371863; 593496, 2371844; 593487, 2371828; 593474, 2371784; 593472, 2371737; 593475, 2371694; 593489, 2371660; 593489, 2371639; 593477, 2371603; 593472, 2371572; 593460, 2371521; 593451, 2371492; 593436, 2371461; 593427, 2371444; 593419, 2371416; 593351, 2371318; 593347, 2371171; 593289, 2371041; 593074, 2370911; 592716, 2370866; 592649, 2371300; 592716, 2371488; 592760, 2371627; 592734, 2371905; 592926, 2371794; 593029, 2371861; 593153, 2371727; 593274, 2371691; return to starting point.

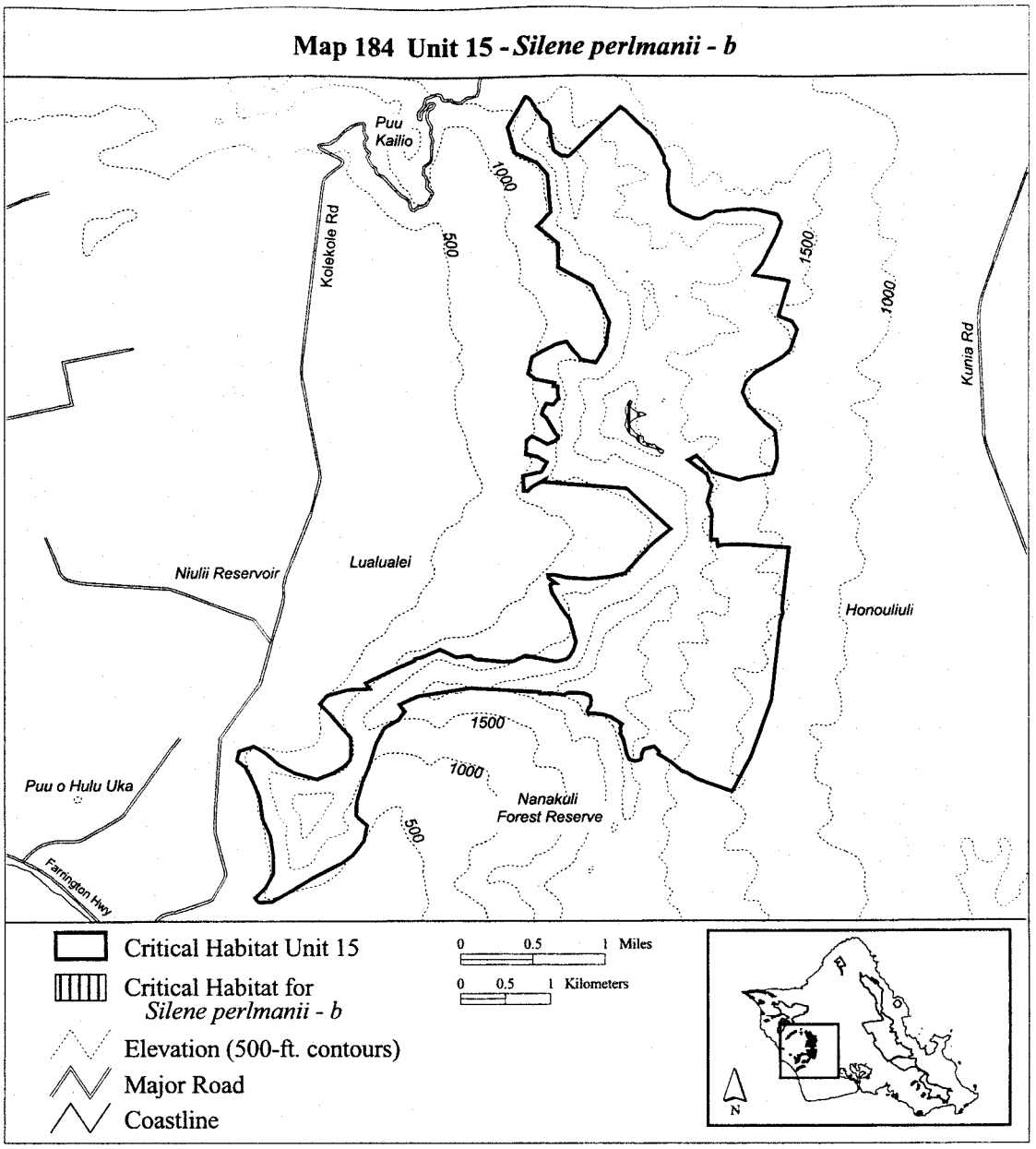
(ii) **Note:** Map 183 follows:



(184) Oahu 15—*Silene perlmanii*—b (5 ha; 12 ac)

(i) Unit consists of the following 53 boundary points: Start at 593517, 2371427; 593498, 2371382; 593504, 2371358; 593525, 2371344; 593570, 2371318; 593621, 2371309; 593669, 2371283; 593669, 2371271; 593649, 2371269; 593609, 2371257; 593559, 2371240; 593518, 2371216; 593494, 2371168; 593511, 2371122; 593544, 2371086; 593592, 2371048; 593644, 2371038; 593645, 2371017; 593649, 2370990; 593669, 2370967; 593705, 2370954; 593745, 2370947; 593772, 2370947; 593788, 2370926; 593824, 2370905; 593874, 2370871; 593872, 2370854; 593850, 2370837; 593832, 2370851; 593810, 2370868; 593791, 2370888; 593771, 2370902; 593726, 2370914; 593692, 2370923; 593647, 2370936; 593601, 2370964; 593578, 2370983; 593570, 2371005; 593565, 2371026; 593515, 2371051; 593474, 2371086; 593460, 2371118; 593438, 2371165; 593451, 2371206; 593463, 2371237; 593463, 2371259; 593463, 2371280; 593444, 2371297; 593441, 2371316; 593443, 2371348; 593460, 2371387; 593472, 2371418; 593496, 2371440; return to starting point.

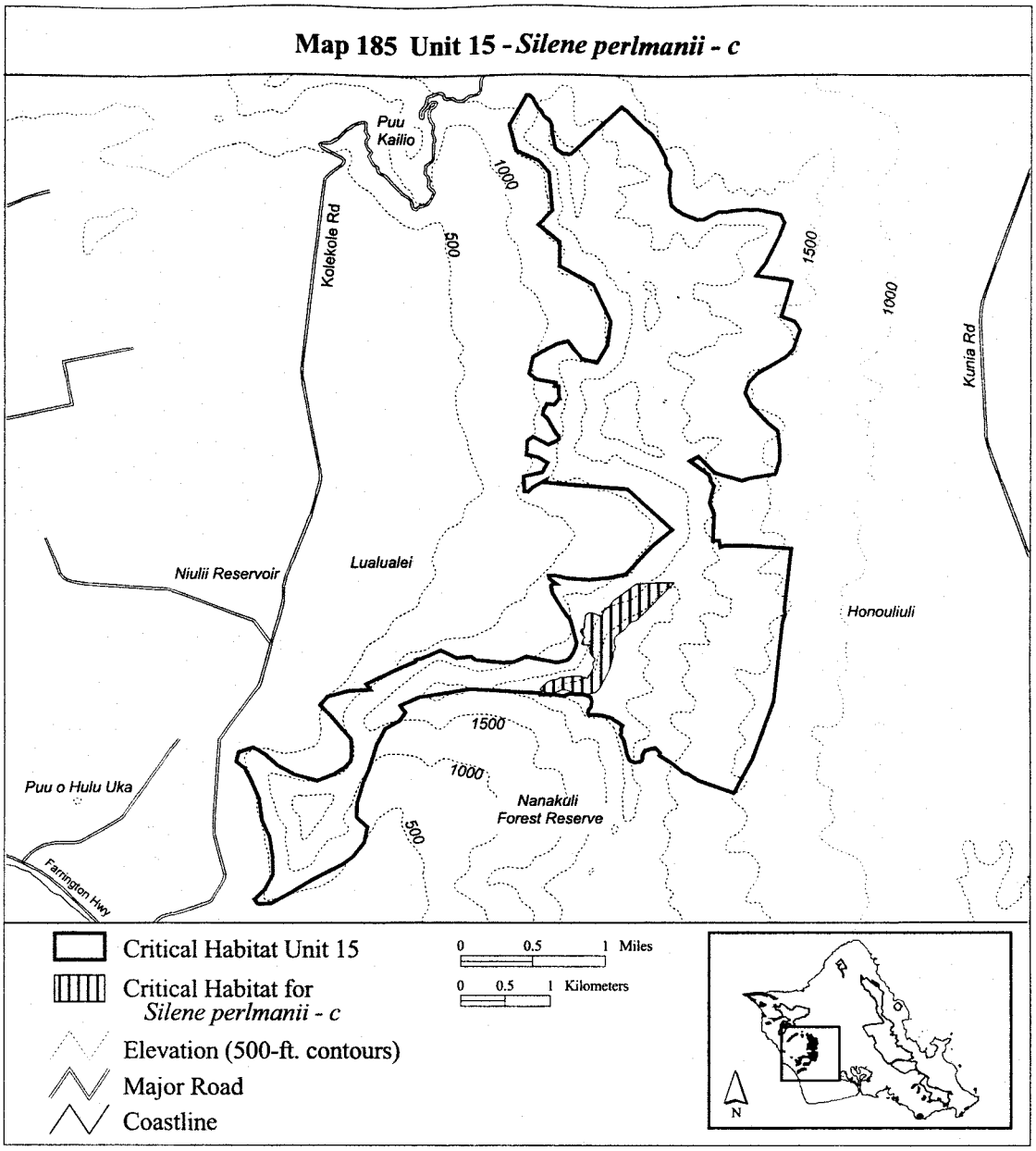
(ii) **Note:** Map 184 follows:



(185) Oahu 15—*Silene perlmanii*—c (50 ha; 124 ac)

(i) Unit consists of the following 84 boundary points: Start at 593209, 2369122; 593244, 2369132; 593296, 2369202; 593559, 2369391; 593796, 2369405; 593974, 2369402; 593563, 2368985; 593500, 2368964; 593468, 2368930; 593436, 2368888; 593385, 2368847; 593335, 2368813; 593316, 2368786; 593310, 2368732; 593320, 2368691; 593320, 2368659; 593296, 2368615; 593296, 2368574; 593276, 2368506; 593262, 2368431; 593215, 2368344; 593181, 2368281; 593157, 2368227; 593112, 2368184; 593064, 2368166; 593019, 2368162; 592969, 2368162; 592892, 2368168; 592813, 2368196; 592761, 2368206; 592712, 2368204; 592666, 2368186; 592603, 2368172; 592538, 2368184; 592486, 2368208; 592518, 2368245; 592563, 2368285; 592603, 2368307; 592639, 2368326; 592676, 2368326; 592716, 2368346; 592751, 2368348; 592773, 2368350; 592821, 2368356; 592892, 2368358; 592934, 2368364; 592967, 2368350; 593019, 2368336; 593031, 2368366; 593056, 2368405; 593074, 2368437; 593086, 2368457; 593076, 2368485; 593076, 2368504; 593096, 2368524; 593096, 2368560; 593060, 2368592; 593038, 2368625; 593044, 2368651; 593029, 2368669; 593038, 2368681; 593052, 2368700; 593029, 2368710; 592993, 2368710; 592971, 2368710; 592945, 2368726; 592961, 2368758; 592973, 2368780; 592985, 2368795; 592953, 2368823; 592936, 2368851; 592943, 2368885; 592977, 2368894; 592977, 2368910; 592977, 2368948; 592983, 2368993; 592989, 2369041; 593025, 2369063; 593058, 2369065; 593108, 2369055; 593145, 2369037; 593163, 2369037; 593179, 2369041; 593193, 2369094; return to starting point.

(ii) **Note:** Map 185 follows:

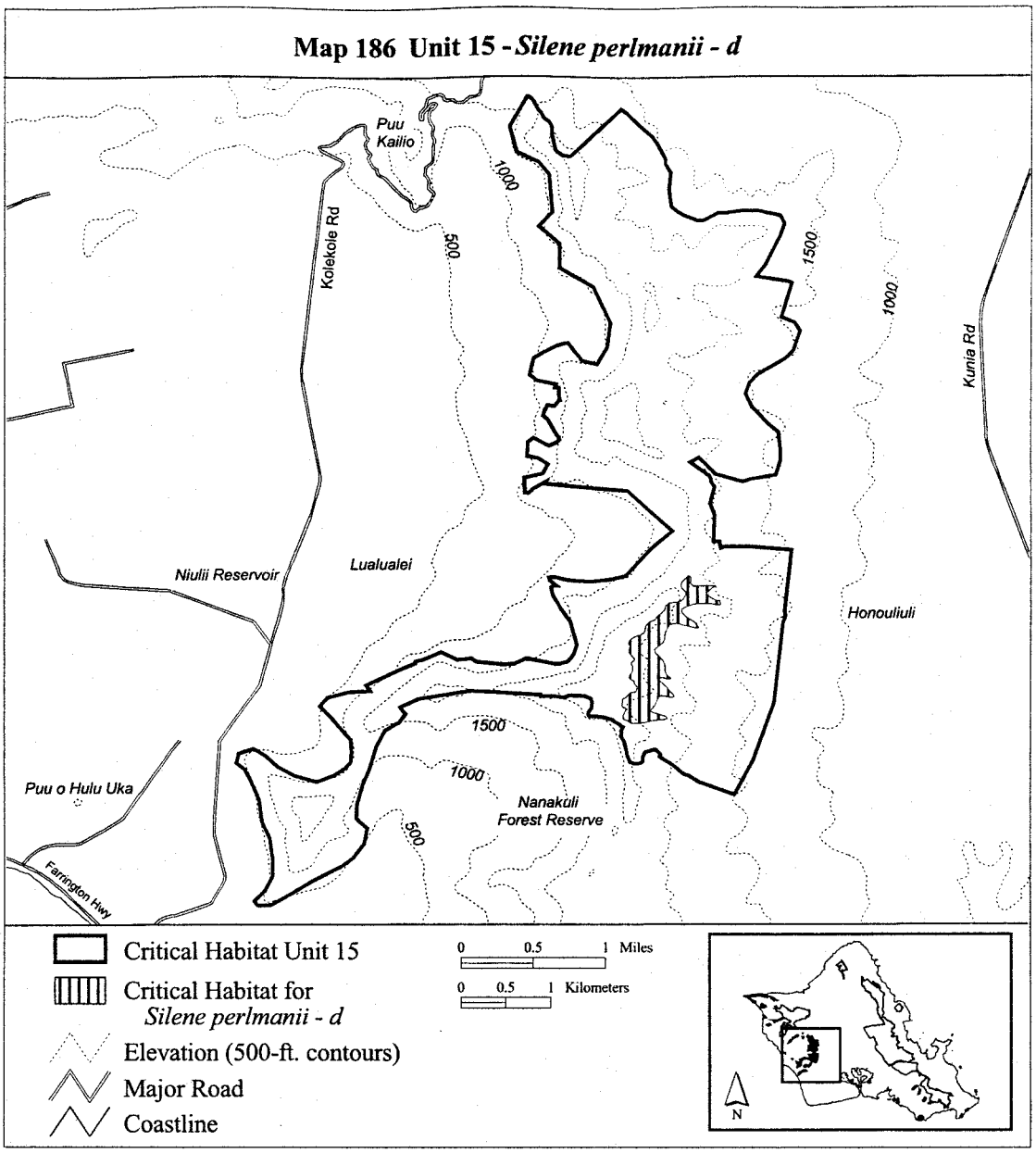


(186) Oahu 15—*Silene perlmanii*—d (52 ha; 130 ac)

(i) Unit consists of the following 143 boundary points: Start at 593997, 2368967; 593925, 2368950; 593880, 2368875; 593872, 2368831; 593866, 2368782; 593848, 2368750; 593810, 2368714; 593753, 2368675; 593763, 2368643; 593781, 2368617; 593816, 2368586; 593850, 2368546; 593866, 2368504; 593878, 2368427; 593896, 2368388; 593929, 2368362; 593931, 2368344; 593902, 2368340; 593846, 2368358; 593805, 2368348; 593816, 2368326; 593850, 2368291; 593894, 2368255; 593915, 2368223; 593959, 2368178; 593969, 2368146; 593953, 2368136; 593900, 2368142; 593836, 2368156; 593808, 2368146; 593783, 2368097; 593763, 2368051; 593727, 2368014; 593717, 2367986; 593747, 2367966; 593791, 2367956; 593826, 2367942; 593880, 2367932; 593896, 2367903; 593880, 2367893; 593785, 2367885; 593727, 2367879; 593660, 2367859; 593605, 2367853; 593514, 2367847; 593454, 2367881; 593413, 2367899; 593413, 2367934; 593428, 2367980; 593446, 2368010; 593401, 2368037; 593397, 2368077; 593403, 2368122; 593438, 2368132; 593456, 2368158; 593478, 2368174; 593506, 2368194; 593551, 2368194; 593563, 2368229; 593567, 2368261; 593529, 2368289; 593525, 2368322; 593476, 2368356; 593478, 2368374; 593500, 2368407; 593516, 2368425; 593516, 2368459; 593516, 2368489; 593502, 2368508; 593502, 2368528; 593533, 2368552; 593525, 2368574; 593502, 2368609; 593472, 2368641; 593478, 2368677; 593492, 2368708; 593470, 2368738; 593480, 2368774; 593512, 2368797; 593567, 2368825; 593611, 2368839; 593644, 2368863; 593656, 2368898; 593658, 2368938; 593702, 2368982; 593751, 2368997; 593771, 2369015; 593778, 2369030; 593775, 2369031; 593779, 2369035; 593781, 2369039; 593783, 2369038; 593818, 2369069; 593860, 2369110; 593878, 2369138; 593878, 2369156; 593919, 2369185; 593989, 2369197; 594056, 2369209; 594080, 2369247; 594099, 2369276; 594101, 2369308; 594082, 2369328; 594052, 2369356; 594044, 2369381; 594056, 2369413; 594109,

2369472; 594133, 2369494; 594157, 2369476; 594155, 2369443; 594151, 2369409; 594185, 2369379; 594240, 2369375; 594299, 2369377; 594347, 2369383; 594424, 2369377; 594383, 2369346; 594351, 2369320; 594329, 2369294; 594359, 2369263; 594400, 2369231; 594446, 2369217; 594478, 2369209; 594480, 2369187; 594483, 2369170; 594434, 2369170; 594386, 2369179; 594339, 2369179; 594305, 2369179; 594228, 2369183; 594189, 2369174; 594149, 2369162; 594111, 2369146; 594082, 2369138; 594052, 2369120; 594058, 2369077; 594113, 2369033; 594202, 2368978; 594224, 2368952; 594246, 2368914; 594226, 2368908; 594183, 2368918; 594113, 2368934; return to starting point.

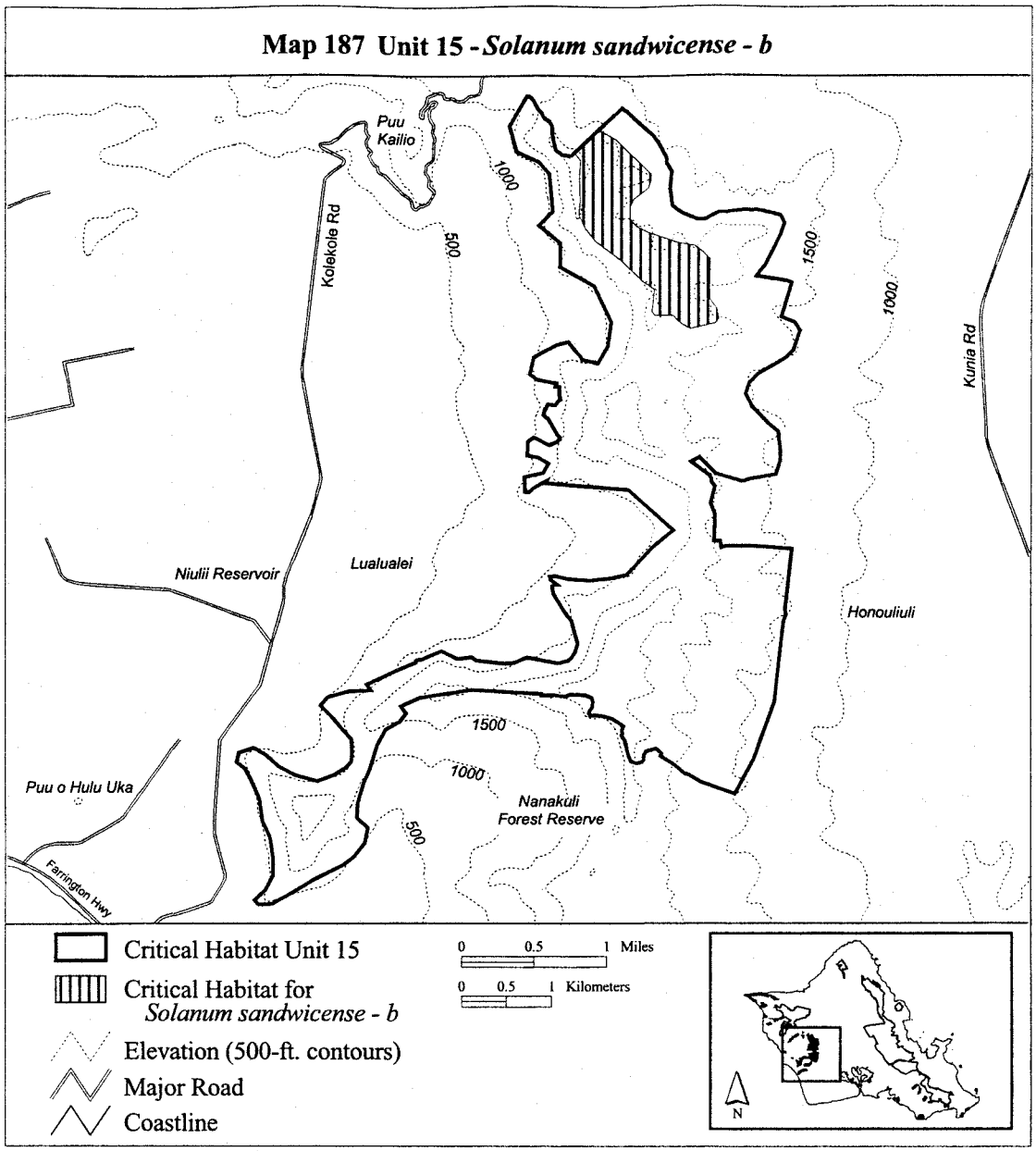
(ii) **Note:** Map 186 follows:



(187) Oahu 15—*Solanum sandwicense*—b (146 ha; 361 ac)

(i) Unit consists of the following 43 boundary points: Start at 593124, 2374469; 593130, 2374466; 593319, 2374367; 593704, 2373986; 593704, 2373909; 593670, 2373819; 593520, 2373703; 593477, 2373609; 593477, 2373480; 593550, 2373394; 593692, 2373322; 593889, 2373253; 594004, 2373206; 594184, 2373180; 594261, 2373120; 594356, 2373030; 594356, 2372910; 594351, 2372825; 594351, 2372705; 594351, 2372589; 594433, 2372481; 594454, 2372361; 594424, 2372318; 594223, 2372276; 594133, 2372255; 594039, 2372315; 593987, 2372358; 593953, 2372400; 593902, 2372405; 593747, 2372405; 593717, 2372447; 593726, 2372555; 593739, 2372696; 593614, 2372782; 593366, 2373022; 593237, 2373120; 593087, 2373232; 592972, 2373373; 592903, 2373531; 592916, 2373664; 592912, 2373960; 592925, 2374131; 592854, 2374216; return to starting point.

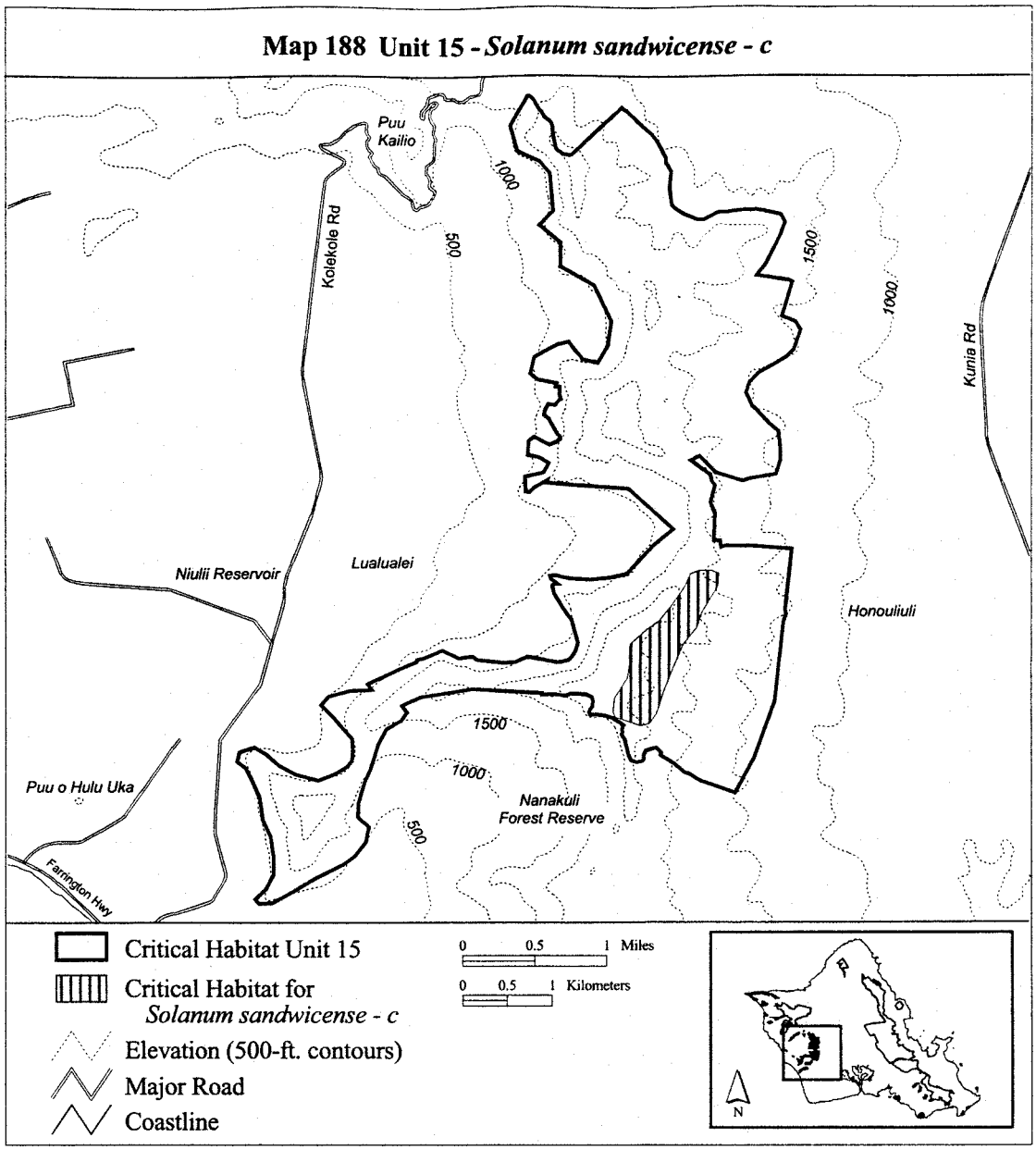
(ii) **Note:** Map 187 follows:



(188) Oahu 15—*Solanum sandwicense*—c (78 ha; 193 ac)

(i) Unit consists of the following 26 boundary points: Start at 593318, 2367895; 593284, 2367952; 593303, 2368105; 593442, 2368331; 593466, 2368474; 593466, 2368637; 593476, 2368709; 593667, 2368881; 593801, 2368972; 593931, 2369140; 594079, 2369346; 594146, 2369499; 594247, 2369538; 594381, 2369538; 594458, 2369504; 594448, 2369360; 594367, 2369217; 594266, 2369063; 594209, 2368896; 594060, 2368704; 593945, 2368431; 593859, 2368206; 593768, 2367933; 593696, 2367832; 593595, 2367799; 593495, 2367842; return to starting point.

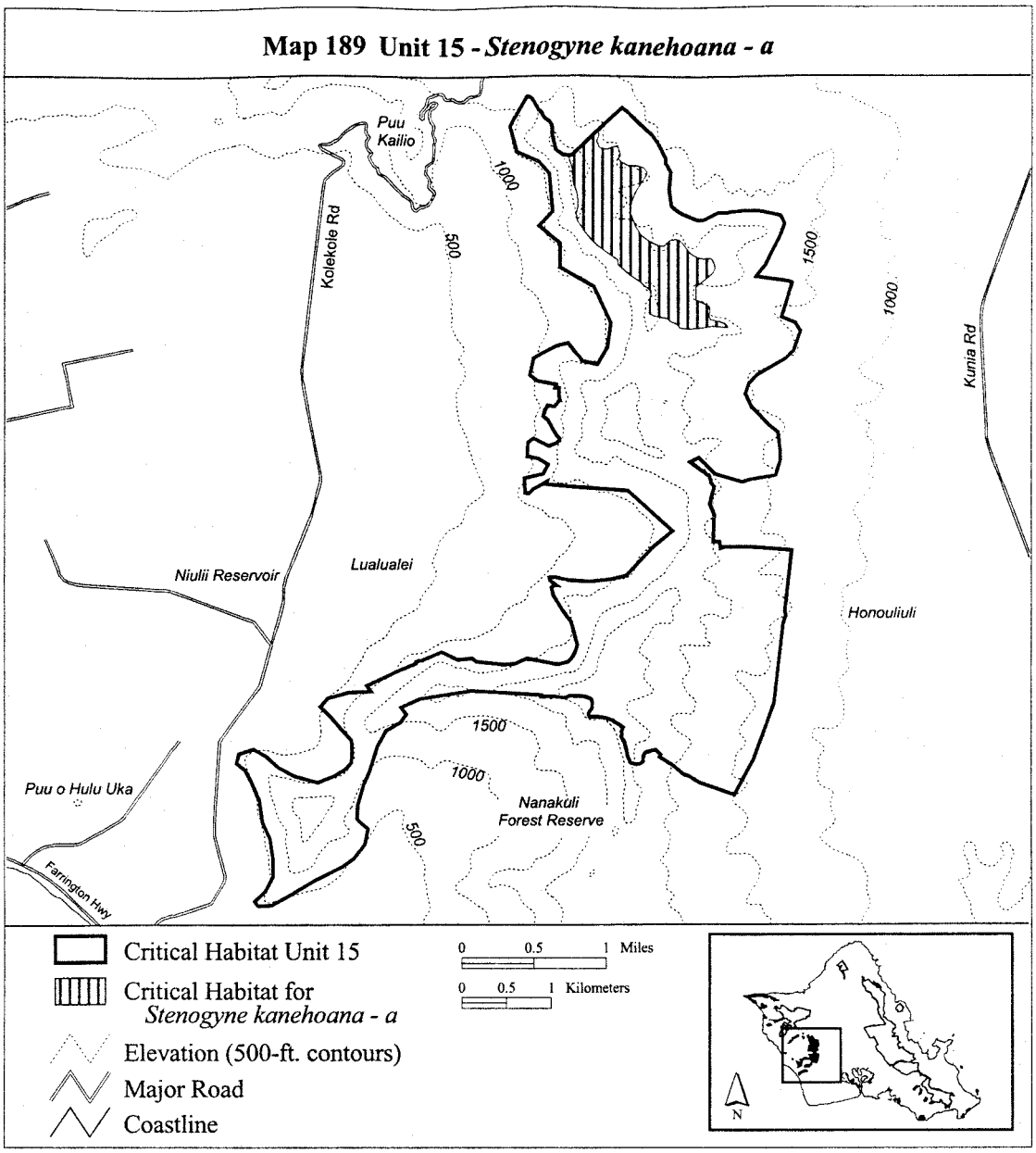
(ii) **Note:** Map 188 follows:



(189) Oahu 15—*Stenogyne kanehoana*—a (140 ha; 346 ac)

(i) Unit consists of the following 91 boundary points: Start at 593105, 2374451; 593128, 2374409; 593098, 2374338; 593128, 2374268; 593215, 2374248; 593282, 2374278; 593336, 2374291; 593353, 2374224; 593370, 2374187; 593360, 2374171; 593339, 2374154; 593371, 2374111; 593383, 2374110; 593443, 2374080; 593480, 2374073; 593558, 2374073; 593631, 2374047; 593665, 2374003; 593652, 2373949; 593548, 2373788; 593494, 2373671; 593480, 2373546; 593544, 2373392; 593605, 2373301; 593688, 2373241; 593776, 2373197; 593819, 2373181; 593863, 2373181; 593890, 2373214; 593930, 2373244; 594004, 2373258; 594048, 2373231; 594108, 2373150; 594165, 2373090; 594235, 2373050; 594293, 2373040; 594346, 2373046; 594390, 2373036; 594423, 2372963; 594423, 2372919; 594397, 2372872; 594296, 2372791; 594209, 2372721; 594209, 2372657; 594209, 2372580; 594266, 2372556; 594350, 2372513; 594370, 2372462; 594356, 2372402; 594373, 2372362; 594470, 2372341; 594544, 2372314; 594568, 2372277; 594544, 2372277; 594397, 2372290; 594266, 2372268; 594142, 2372258; 594041, 2372268; 594004, 2372311; 593940, 2372338; 593893, 2372379; 593756, 2372405; 593688, 2372432; 593692, 2372533; 593712, 2372640; 593709, 2372687; 593578, 2372795; 593480, 2372862; 593343, 2372983; 593343, 2373030; 593205, 2373117; 593115, 2373191; 593041, 2373254; 592953, 2373362; 592886, 2373466; 592873, 2373533; 592890, 2373620; 592890, 2373694; 592876, 2373775; 592843, 2373848; 592836, 2373926; 592836, 2373976; 592829, 2373996; 592829, 2374040; 592797, 2374134; 592796, 2374134; 592782, 2374182; 592805, 2374172; 592806, 2374171; 592807, 2374171; 592807, 2374172; return to starting point.

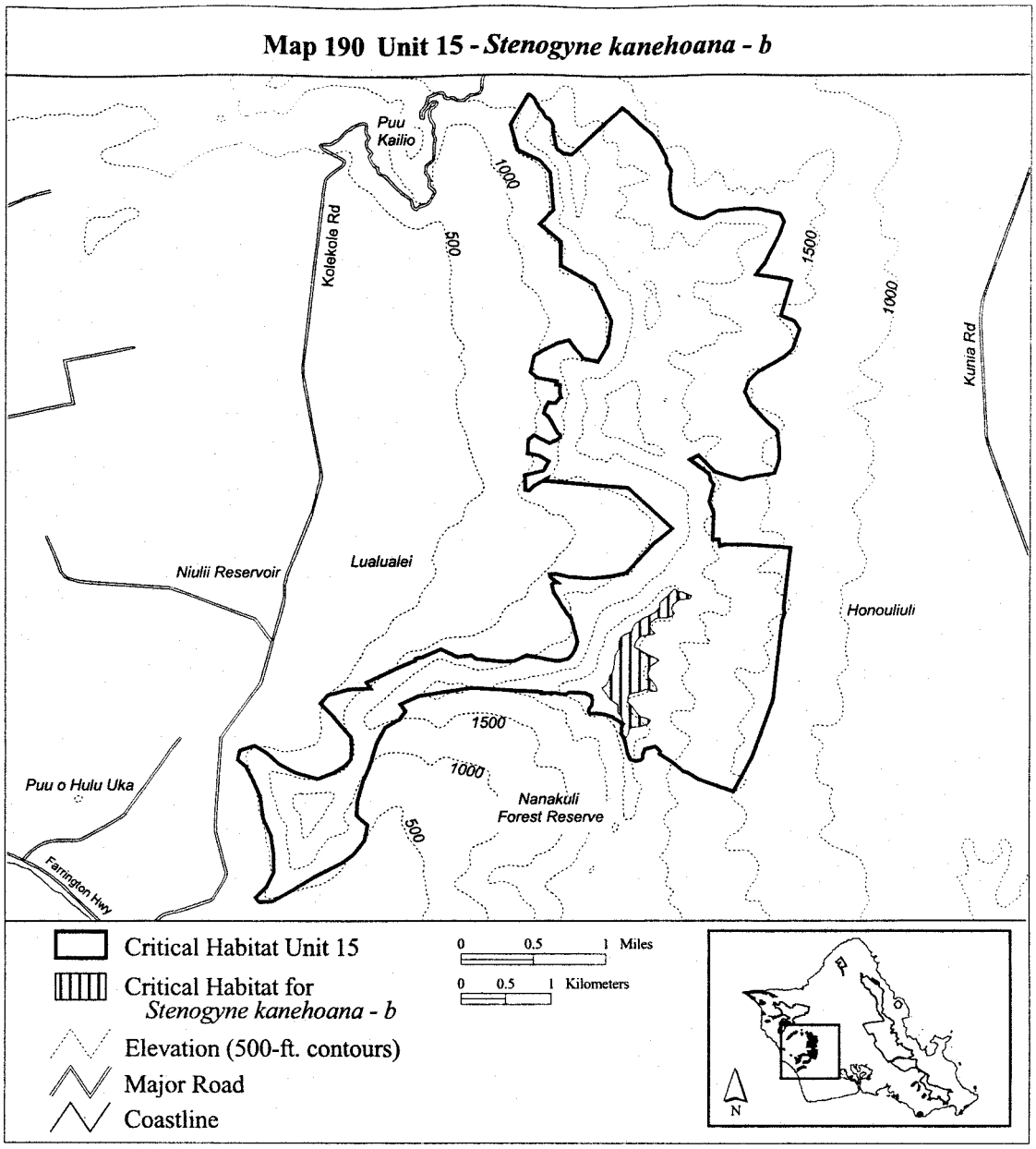
(ii) **Note:** Map 189 follows:



(190) Oahu 15—*Stenogyne kanehoana*—b (43 ha; 107 ac)

(i) Unit consists of the following 86 boundary points: Start at 593978, 2369319; 594027, 2369287; 594064, 2369287; 594165, 2369245; 594152, 2369211; 594096, 2369206; 594027, 2369197; 593967, 2369144; 593944, 2369098; 593976, 2369042; 593951, 2369014; 593909, 2369003; 593854, 2368998; 593775, 2368989; 593713, 2368936; 593701, 2368887; 593738, 2368846; 593761, 2368825; 593743, 2368809; 593604, 2368795; 593549, 2368737; 593524, 2368670; 593595, 2368631; 593671, 2368592; 593773, 2368543; 593803, 2368518; 593759, 2368486; 593704, 2368451; 593706, 2368412; 593678, 2368375; 593697, 2368326; 593743, 2368276; 593775, 2368227; 593787, 2368176; 593743, 2368176; 593660, 2368199; 593611, 2368176; 593503, 2368151; 593475, 2368146; 593454, 2368093; 593454, 2368059; 593510, 2368001; 593549, 2367948; 593595, 2367890; 593671, 2367869; 593715, 2367851; 593692, 2367814; 593627, 2367791; 593581, 2367775; 593514, 2367779; 593475, 2367742; 593461, 2367689; 593440, 2367664; 593392, 2367708; 593387, 2367761; 593408, 2367807; 593408, 2367842; 593380, 2367902; 593348, 2367936; 593346, 2368026; 593286, 2368066; 593249, 2368100; 593221, 2368144; 593173, 2368206; 593219, 2368246; 593251, 2368310; 593253, 2368345; 593286, 2368380; 593304, 2368446; 593311, 2368516; 593316, 2368571; 593327, 2368594; 593357, 2368640; 593357, 2368687; 593362, 2368735; 593371, 2368765; 593401, 2368793; 593431, 2368811; 593500, 2368846; 593514, 2368890; 593544, 2368934; 593641, 2368996; 593759, 2369051; 593810, 2369118; 593812, 2369164; 593925, 2369266; return to starting point.

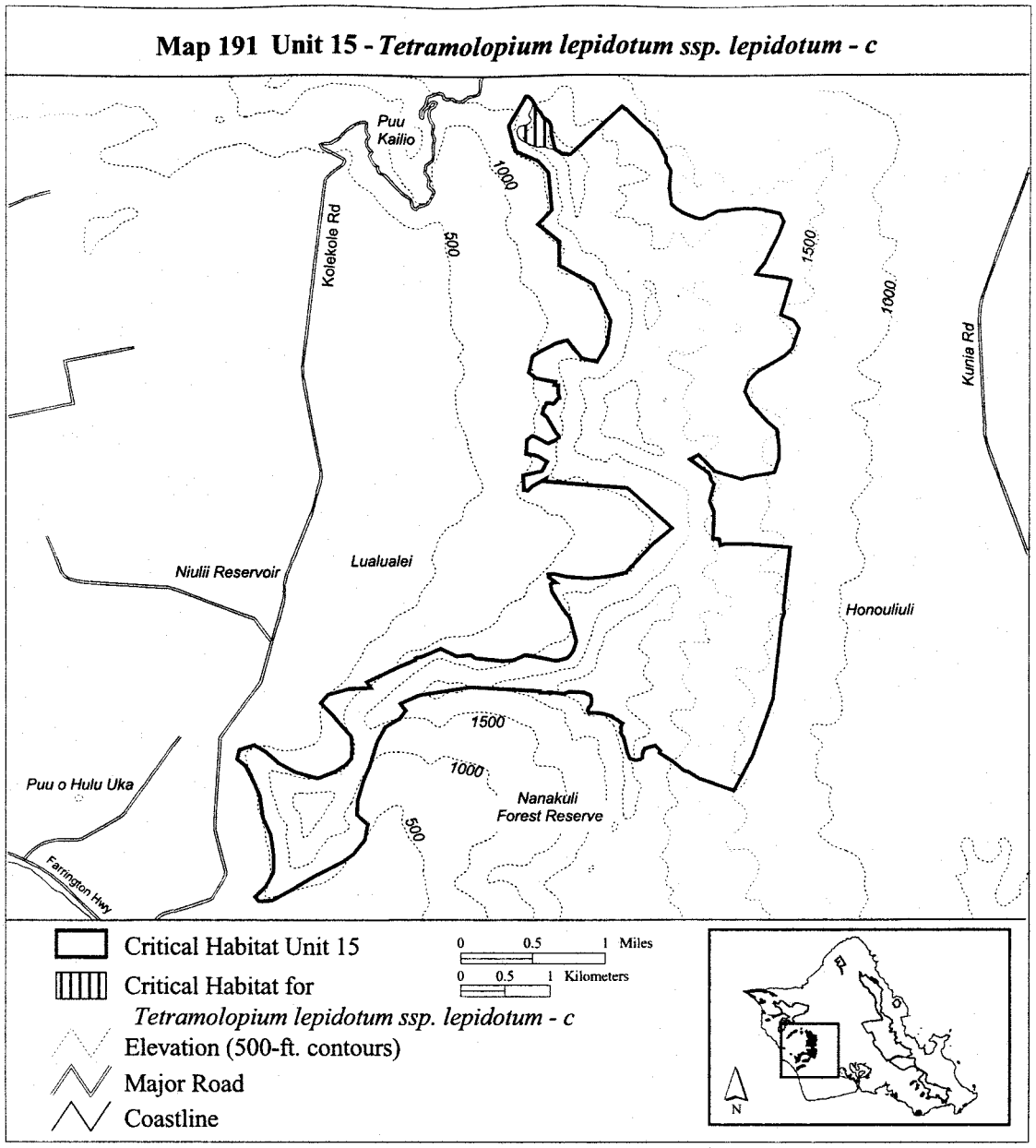
(ii) **Note:** Map 190 follows:



(191) Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—c (11 ha; 28 ac)

(i) Unit consists of the following 47 boundary points: Start at 592641, 2374247; 592622, 2374247; 592573, 2374250; 592556, 2374263; 592529, 2374272; 592492, 2374269; 592454, 2374269; 592428, 2374276; 592385, 2374295; 592356, 2374306; 592318, 2374329; 592292, 2374337; 592265, 2374361; 592249, 2374374; 592236, 2374388; 592227, 2374416; 592225, 2374439; 592225, 2374462; 592236, 2374481; 592258, 2374502; 592288, 2374511; 592315, 2374515; 592342, 2374524; 592360, 2374535; 592372, 2374549; 592382, 2374565; 592383, 2374586; 592379, 2374602; 592360, 2374624; 592366, 2374649; 592374, 2374670; 592386, 2374700; 592396, 2374725; 592402, 2374747; 592402, 2374768; 592404, 2374781; 592454, 2374691; 592484, 2374661; 592514, 2374601; 592514, 2374600; 592574, 2374561; 592594, 2374531; 592604, 2374492; 592604, 2374422; 592634, 2374282; 592634, 2374281; 592644, 2374251; return to starting point.

(ii) **Note:** Map 191 follows:

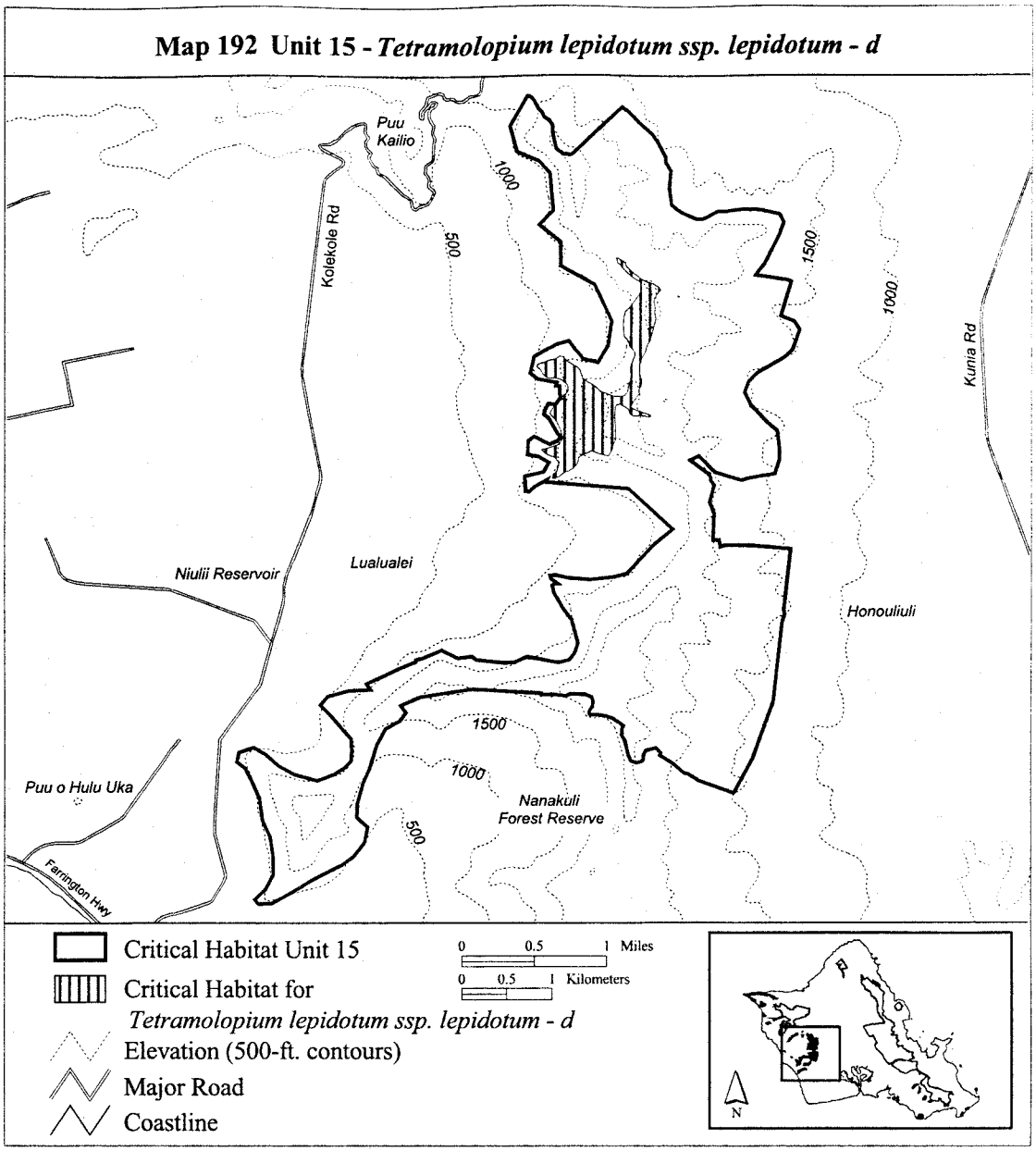


(192) Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—d (94 ha; 232 ac)

(i) Unit consists of the following 190 boundary points: Start at 593324, 2373029; 593355, 2373021; 593385, 2373001; 593415, 2372982; 593421, 2372956; 593426, 2372942; 593439, 2372931; 593471, 2372897; 593507, 2372866; 593560, 2372829; 593598, 2372794; 593633, 2372775; 593650, 2372767; 593677, 2372755; 593696, 2372755; 593747, 2372732; 593782, 2372715; 593806, 2372699; 593815, 2372672; 593777, 2372631; 593747, 2372583; 593742, 2372540; 593753, 2372480; 593750, 2372429; 593760, 2372351; 593741, 2372273; 593722, 2372183; 593718, 2372168; 593719, 2372168; 593713, 2372144; 593706, 2372138; 593706, 2372137; 593700, 2372106; 593698, 2372106; 593698, 2372103; 593668, 2372056; 593653, 2372007; 593648, 2371975; 593623, 2371940; 593602, 2371902; 593590, 2371860; 593585, 2371843; 593583, 2371798; 593585, 2371738; 593587, 2371710; 593601, 2371678; 593599, 2371635; 593593, 2371595; 593572, 2371562; 593575, 2371540; 593574, 2371511; 593558, 2371489; 593528, 2371444; 593496, 2371398; 593483, 2371378; 593499, 2371352; 593536, 2371333; 593585, 2371320; 593623, 2371305; 593687, 2371281; 593704, 2371269; 593706, 2371259; 593687, 2371254; 593650, 2371262; 593610, 2371269; 593556, 2371269; 593518, 2371265; 593493, 2371278; 593471, 2371300; 593458, 2371339; 593436, 2371362; 593398, 2371387; 593359, 2371405; 593323, 2371392; 593309, 2371362; 593305, 2371256; 593315, 2371110; 593312, 2371110; 593319, 2371035; 593309, 2370992; 593286, 2370948; 593274, 2370884; 593239, 2370829; 593201, 2370825; 593139, 2370843; 593043, 2370874; 592935, 2370835; 592898, 2370802; 592898, 2370780; 592882, 2370737; 592851, 2370694; 592786, 2370655; 592745, 2370637; 592679, 2370592; 592636, 2370569; 592606, 2370569; 592626, 2370614; 592653, 2370649; 592683, 2370749; 592632, 2370806; 592581, 2370825; 592530, 2370853; 592493, 2370896; 592528, 2370905; 592630,

2370935; 592685, 2370954; 592720, 2371017; 592700, 2371103; 592649, 2371213; 592579, 2371303; 592589, 2371328; 592642, 2371407; 592696, 2371467; 592781, 2371551; 592779, 2371571; 592777, 2371614; 592751, 2371647; 592708, 2371679; 592632, 2371694; 592581, 2371692; 592534, 2371700; 592497, 2371745; 592469, 2371792; 592436, 2371816; 592440, 2371843; 592507, 2371865; 592573, 2371894; 592638, 2371908; 592687, 2371941; 592736, 2371931; 592759, 2371892; 592790, 2371872; 592824, 2371851; 592859, 2371830; 592890, 2371813; 592908, 2371793; 592925, 2371749; 592939, 2371704; 592963, 2371679; 593010, 2371649; 593059, 2371622; 593104, 2371583; 593147, 2371547; 593139, 2371545; 593185, 2371531; 593280, 2371494; 593329, 2371484; 593388, 2371486; 593423, 2371503; 593442, 2371533; 593450, 2371578; 593458, 2371614; 593477, 2371657; 593480, 2371695; 593479, 2371746; 593477, 2371805; 593488, 2371843; 593507, 2371892; 593520, 2371927; 593523, 2371953; 593523, 2371978; 593509, 2372011; 593471, 2372053; 593461, 2372083; 593459, 2372088; 593451, 2372114; 593441, 2372123; 593432, 2372134; 593433, 2372134; 593405, 2372169; 593401, 2372308; 593404, 2372377; 593417, 2372432; 593482, 2372494; 593533, 2372559; 593564, 2372604; 593585, 2372640; 593590, 2372677; 593591, 2372724; 593591, 2372761; 593556, 2372783; 593517, 2372801; 593466, 2372843; 593425, 2372885; 593394, 2372915; 593367, 2372942; 593355, 2372959; 593332, 2372974; 593326, 2372993; 593313, 2373029; return to starting point.

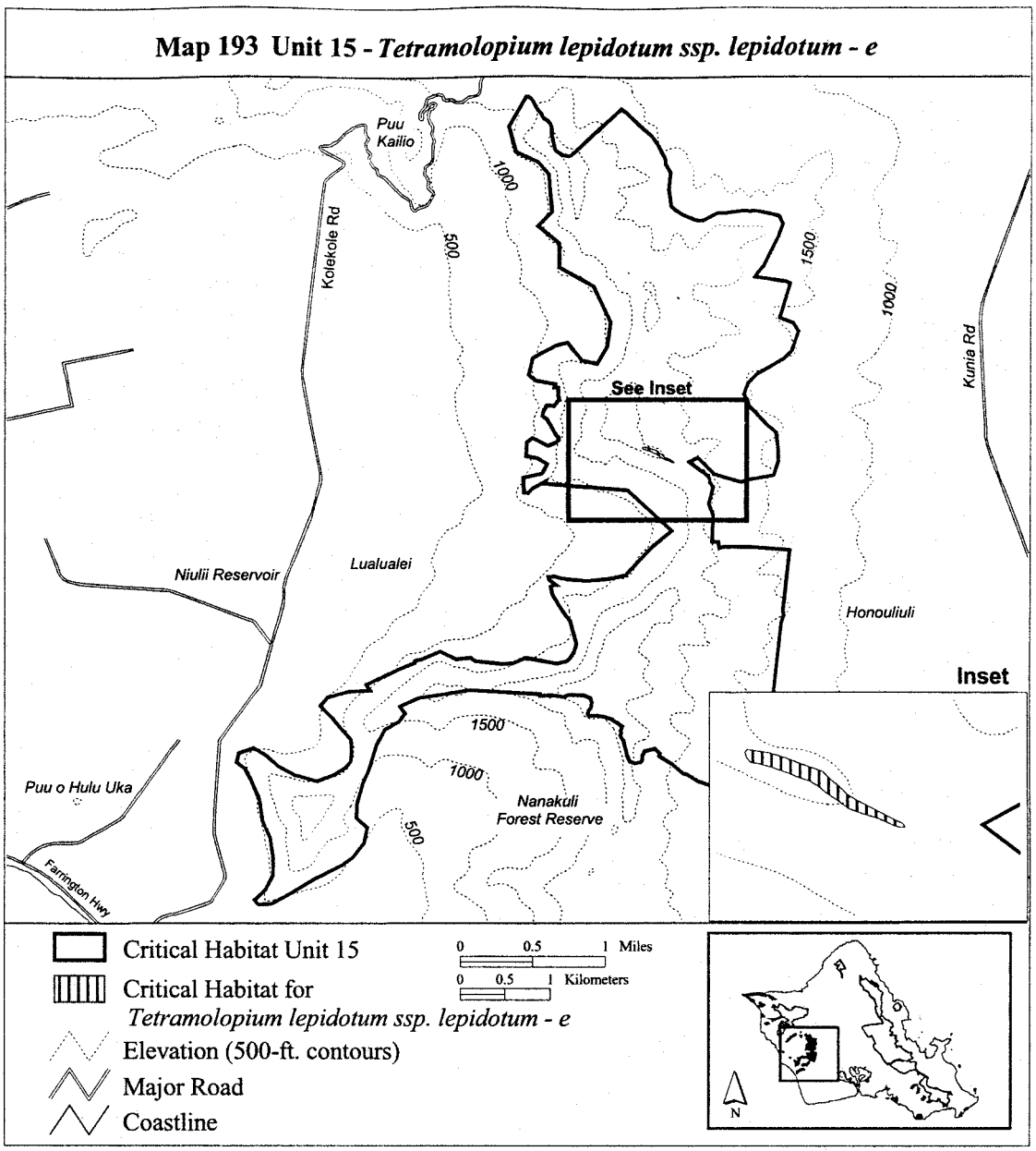
(ii) **Note:** Map 192 follows:



(193) Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—e (1 ha; 2 ac)

(i) Unit consists of the following 32 boundary points: Start at 593625, 2370937; 593672, 2370931; 593706, 2370921; 593746, 2370906; 593792, 2370889; 593811, 2370871; 593828, 2370857; 593847, 2370838; 593878, 2370820; 593922, 2370798; 593952, 2370782; 593971, 2370774; 593977, 2370765; 593966, 2370765; 593952, 2370769; 593933, 2370777; 593919, 2370784; 593903, 2370789; 593884, 2370794; 593865, 2370802; 593851, 2370807; 593827, 2370824; 593802, 2370841; 593781, 2370858; 593764, 2370867; 593737, 2370877; 593713, 2370887; 593681, 2370898; 593652, 2370906; 593633, 2370909; 593622, 2370921; 593620, 2370933; return to starting point.

(ii) **Note:** Map 193 follows:

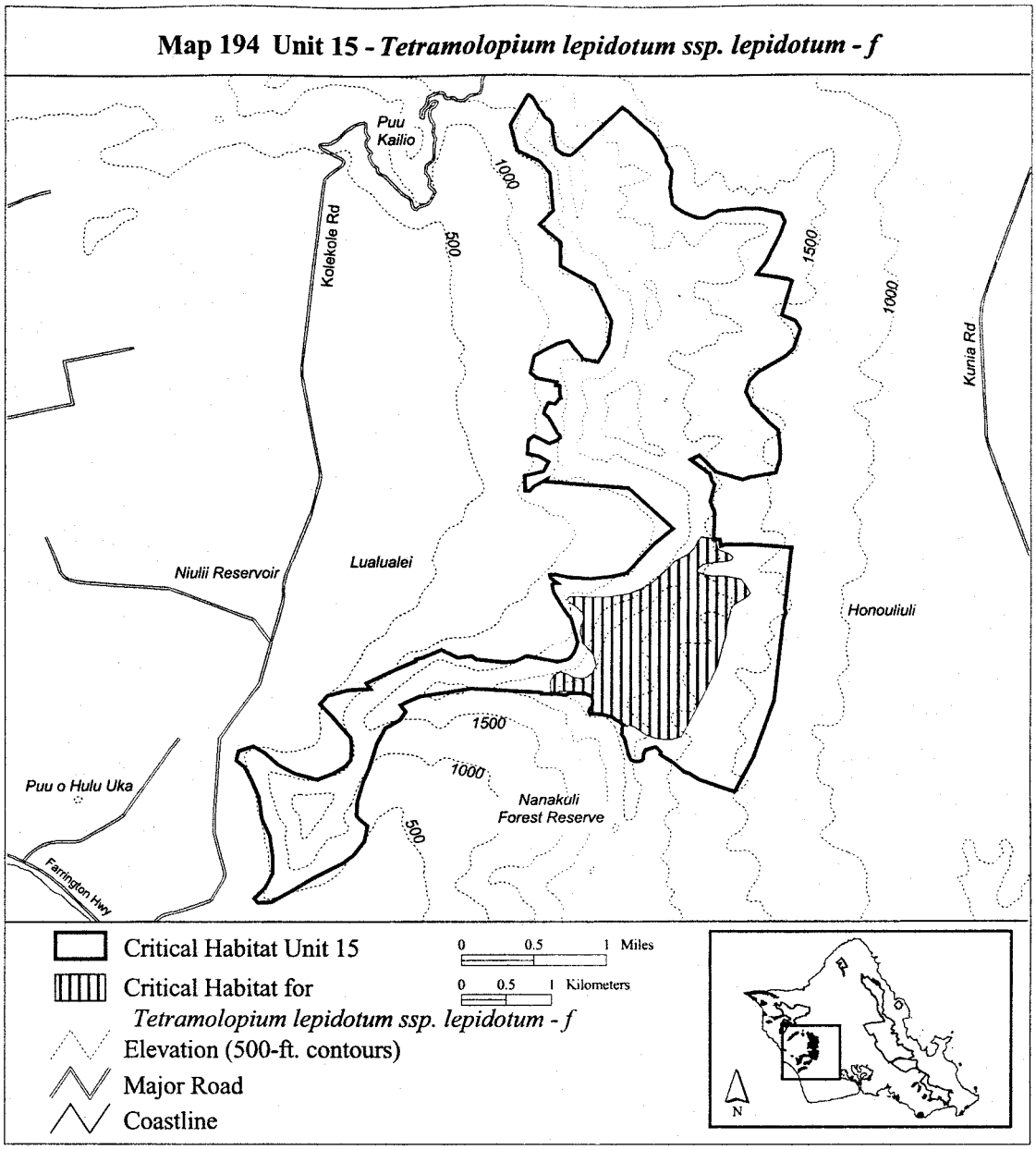


(194) Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—f (260 ha; 641 ac)

(i) Unit consists of the following 94 boundary points: Start at 594589, 2369071; 594601, 2369071; 594553, 2368922; 594541, 2368792; 594513, 2368696; 594447, 2368445; 594329, 2368194; 594169, 2367882; 594051, 2367677; 593936, 2367646; 593869, 2367646; 593773, 2367655; 593673, 2367689; 593582, 2367743; 593531, 2367785; 593482, 2367801; 593446, 2367794; 593444, 2367789; 593435, 2367797; 593381, 2367824; 593380, 2367824; 593379, 2367825; 593301, 2367885; 593201, 2367915; 593116, 2367928; 593029, 2367928; 593020, 2367955; 593029, 2367985; 593056, 2368018; 593059, 2368073; 593050, 2368127; 592986, 2368154; 592838, 2368182; 592751, 2368185; 592678, 2368175; 592611, 2368151; 592590, 2368194; 592590, 2368290; 592630, 2368363; 592699, 2368399; 592778, 2368378; 592838, 2368342; 592935, 2368321; 593008, 2368339; 593059,

2368393; 593098, 2368463; 593080, 2368544; 593071, 2368590; 593011, 2368659; 592944, 2368720; 592944, 2368756; 592920, 2368823; 592926, 2368913; 592948, 2368954; 592956, 2369031; 592941, 2369061; 592875, 2369125; 592811, 2369167; 592775, 2369213; 592802, 2369237; 592875, 2369237; 593038, 2369231; 593216, 2369234; 593452, 2369261; 593594, 2369322; 593730, 2369394; 593884, 2369536; 593975, 2369630; 594120, 2369709; 594187, 2369772; 594223, 2369845; 594262, 2369896; 594377, 2369887; 594426, 2369845; 594447, 2369778; 594474, 2369751; 594577, 2369715; 594622, 2369678; 594604, 2369645; 594541, 2369627; 594420, 2369621; 594290, 2369591; 594241, 2369557; 594220, 2369515; 594299, 2369476; 594392, 2369464; 594504, 2369464; 594601, 2369455; 594713, 2369427; 594770, 2369349; 594813, 2369267; 594770, 2369222; 594668, 2369170; 594628, 2369140; return to starting point.

(ii) **Note:** Map 194 follows:

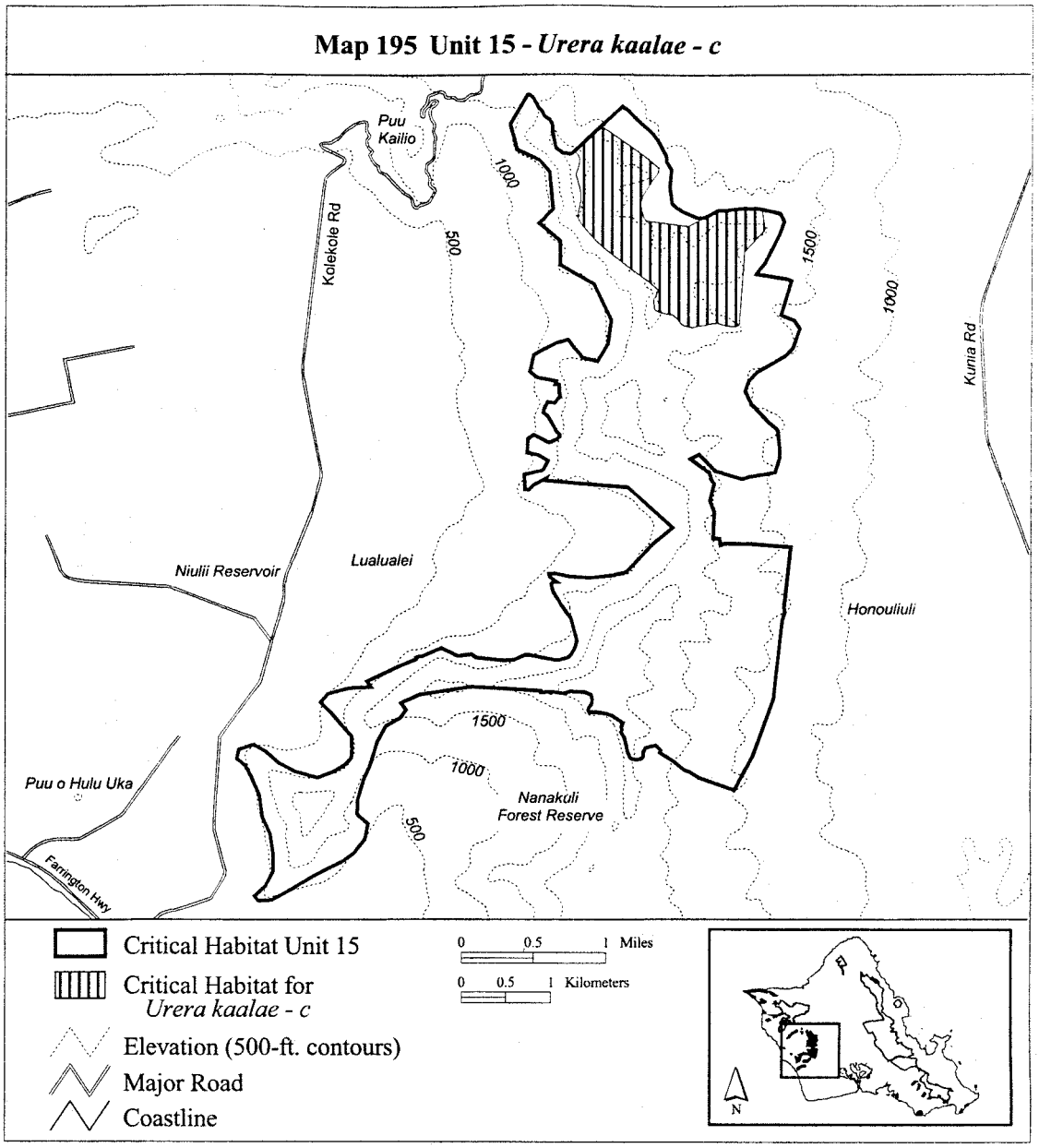


(195) Oahu 15—*Urera kaalae*—c (224 ha; 555 ac)

(i) Unit consists of the following 63 boundary points: Start at 593151, 2374494; 593315, 2374385; 593612, 2374173; 593793, 2374029; 593779, 2373964; 593731, 2373894; 593660, 2373784; 593609, 2373702; 593592, 2373648; 593592, 2373594; 593601, 2373538; 593629, 2373467; 593661, 2373423; 593652, 2373439; 594121, 2373373; 594460, 2373552; 594941, 2373564; 594974, 2373334; 594744, 2373091; 594696, 2372334; 594697, 2372333; 594697, 2372283; 594652, 2372257; 594541, 2372266; 594454, 2372294; 594400, 2372294; 594293, 2372267; 594231, 2372261; 594168, 2372241; 594126, 2372258; 594075, 2372267; 594030, 2372303; 593999, 2372354; 593948, 2372388; 593889, 2372397; 593812, 2372413; 593781, 2372425; 593756, 2372442; 593742, 2372467; 593742, 2372490; 593736,

2372521; 593736, 2372560; 593757, 2372587; 593781, 2372659; 593790, 2372662; 593663, 2372772; 593490, 2372897; 593202, 2373123; 593095, 2373213; 593019, 2373295; 592937, 2373388; 592889, 2373462; 592897, 2373535; 592908, 2373597; 592923, 2373668; 592914, 2373772; 592889, 2373866; 592866, 2373947; 592894, 2374029; 592908, 2374120; 592894, 2374162; 592860, 2374213; 592854, 2374216; return to starting point.

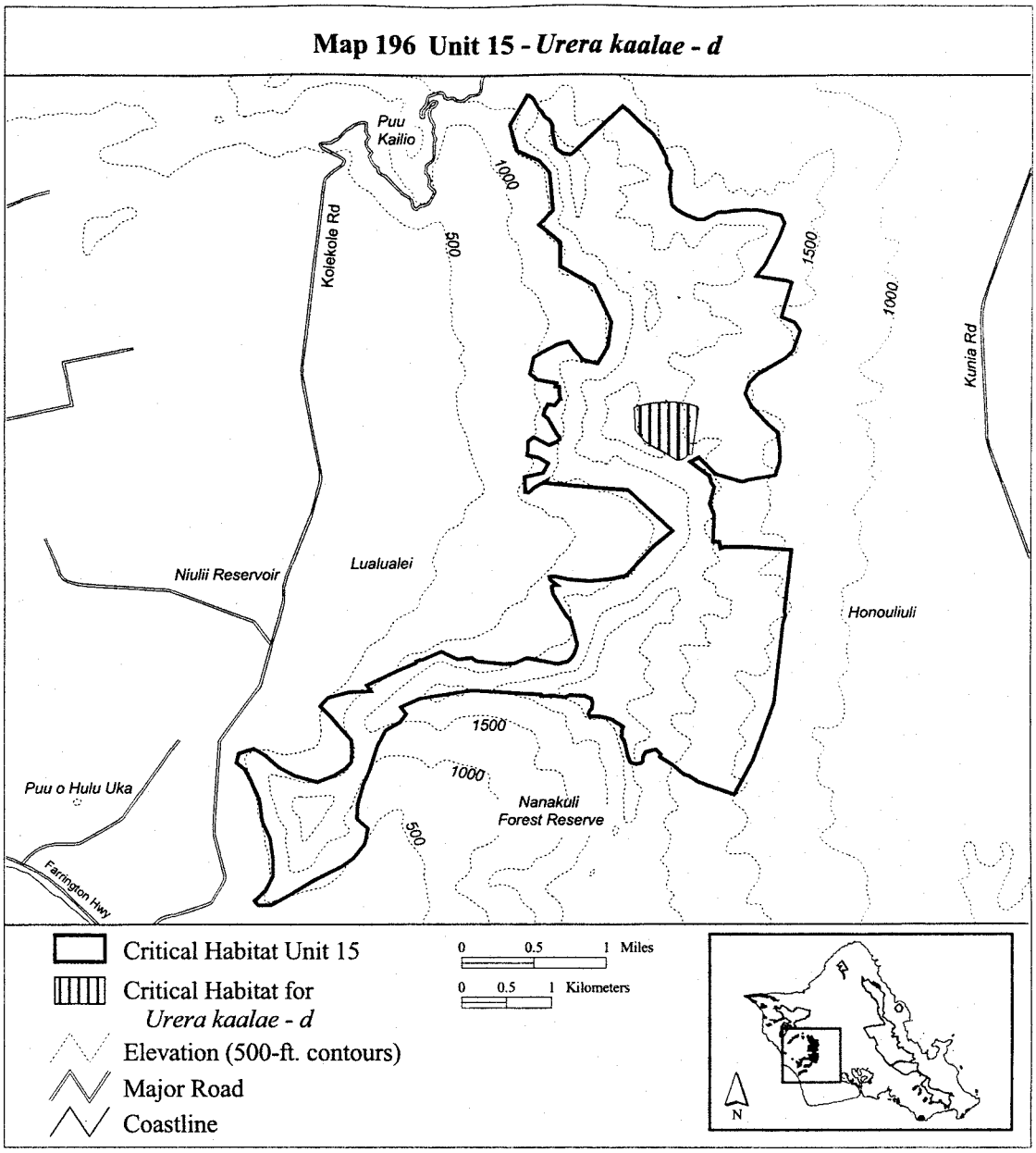
(ii) **Note:** Map 195 follows:



(196) Oahu 15—*Urera kaalae*—d (35 ha; 87 ac)

(i) Unit consists of the following 35 boundary points: Start at 594170, 2370879; 594172, 2370877; 594170, 2370855; 594166, 2370854; 594166, 2370853; 594164, 2370854; 594122, 2370843; 594090, 2370815; 594040, 2370789; 593996, 2370789; 593930, 2370827; 593852, 2370875; 593778, 2370907; 593716, 2370947; 593642, 2370999; 593602, 2371041; 593574, 2371067; 593558, 2371095; 593539, 2371118; 593531, 2371121; 593534, 2371173; 593519, 2371375; 593533, 2371375; 593552, 2371390; 593628, 2371404; 593716, 2371426; 593794, 2371431; 593876, 2371437; 593974, 2371435; 594036, 2371431; 594138, 2371415; 594190, 2371399; 594232, 2371385; 594246, 2371359; 594239, 2371354; return to starting point.

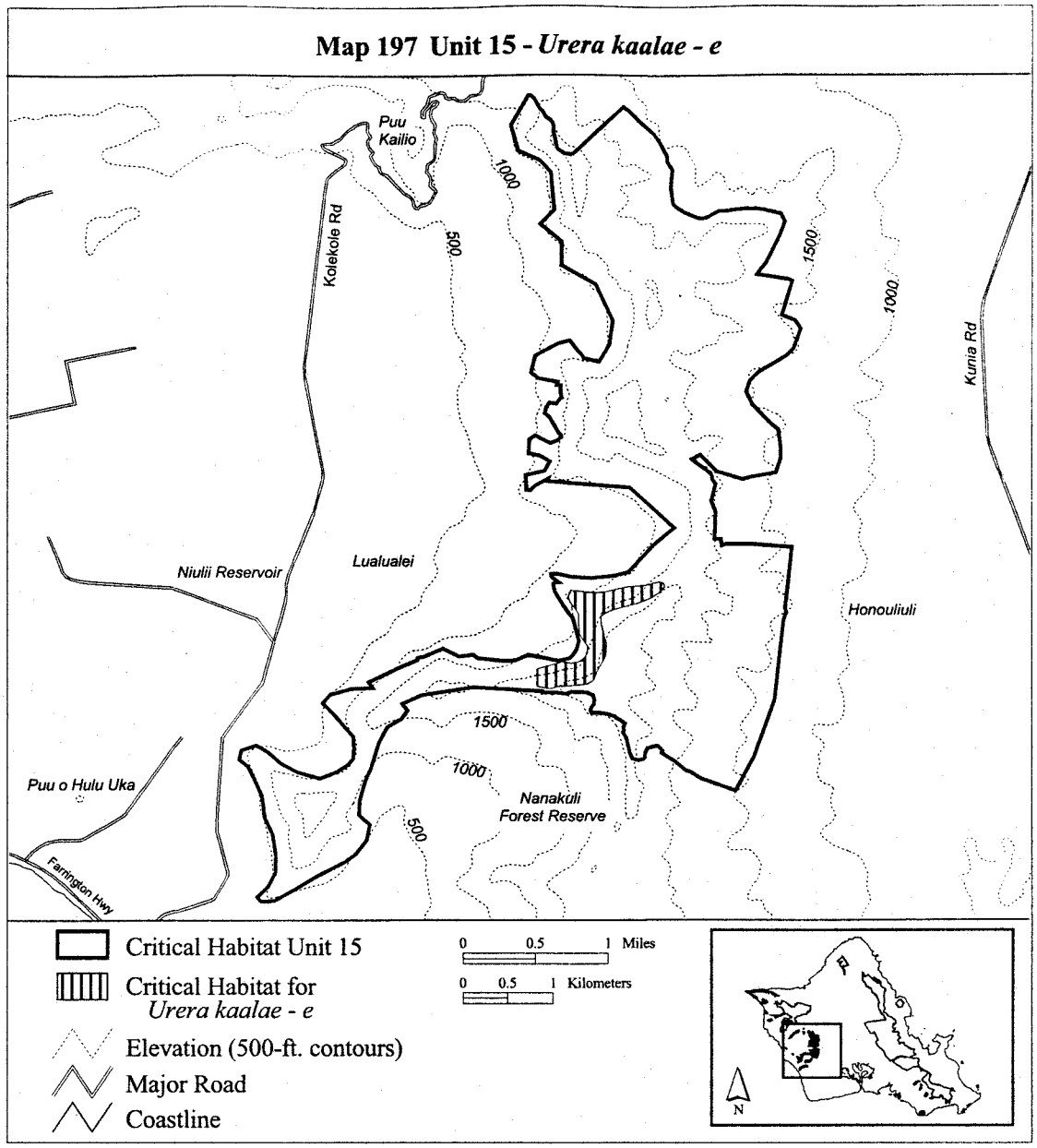
(ii) **Note:** Map 196 follows:



(197) Oahu 15—*Urera kaalae*—e (51 ha; 125 ac)

(i) Unit consists of the following 45 boundary points: Start at 592800, 2369299; 593043, 2369270; 593165, 2369274; 593420, 2369331; 593630, 2369355; 593788, 2369392; 593828, 2369376; 593845, 2369335; 593792, 2369270; 593687, 2369206; 593537, 2369149; 593367, 2369105; 593233, 2369068; 593136, 2369007; 593140, 2368926; 593161, 2368813; 593193, 2368696; 593189, 2368566; 593149, 2368485; 593088, 2368376; 593047, 2368283; 592979, 2368247; 592898, 2368239; 592744, 2368230; 592679, 2368230; 592566, 2368198; 592461, 2368222; 592426, 2368228; 592424, 2368417; 592713, 2368500; 592812, 2368483; 592900, 2368502; 592931, 2368518; 592969, 2368564; 592987, 2368616; 592989, 2368667; 592979, 2368688; 592926, 2368757; 592898, 2368821; 592885, 2368931; 592881, 2369036; 592849, 2369100; 592805, 2369141; 592784, 2369185; 592772, 2369226; return to starting point.

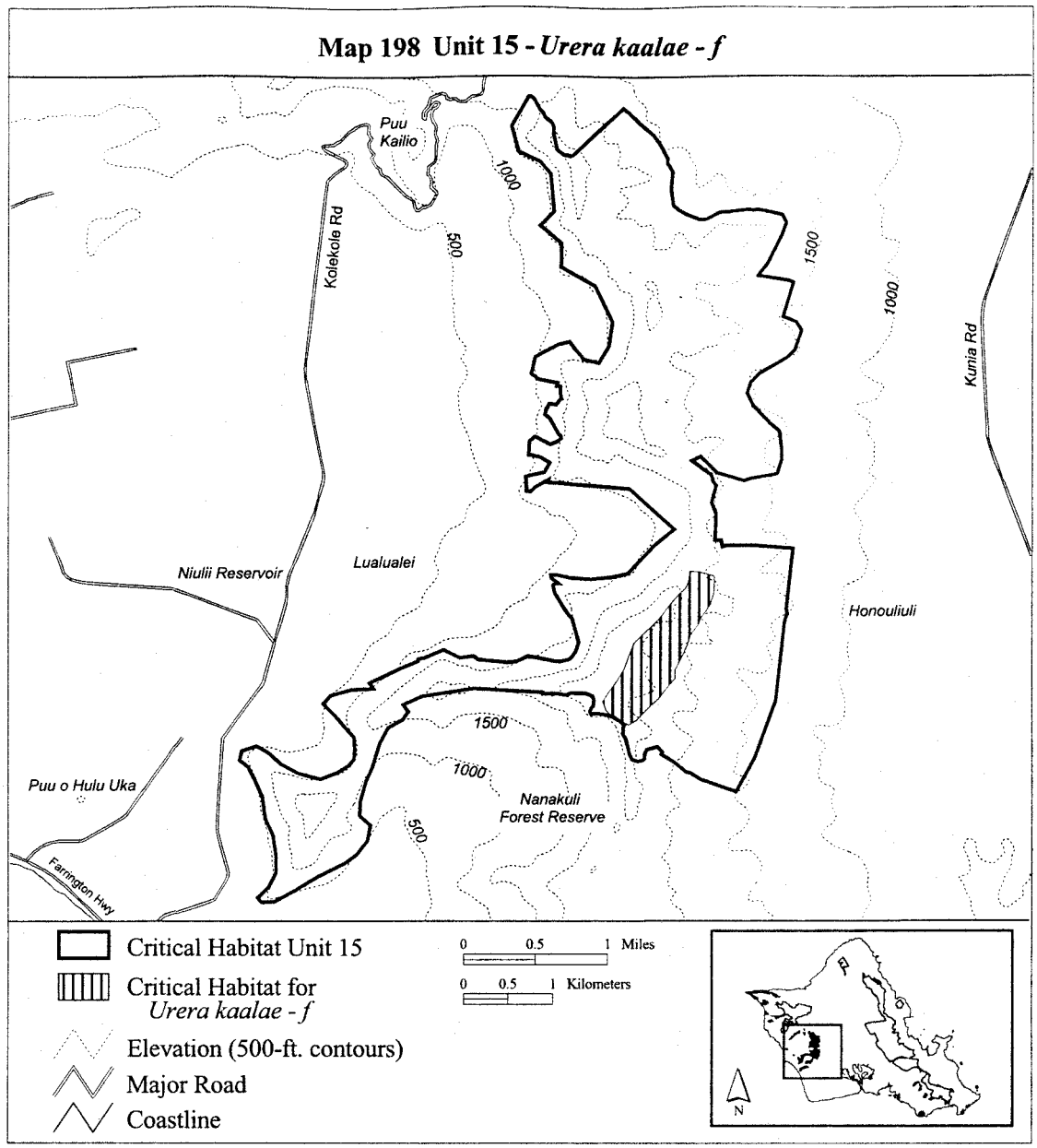
(ii) **Note:** Map 197 follows:



(198) Oahu 15—*Urera kaalae*—f (82 ha; 202 ac)

(i) Unit consists of the following 39 boundary points: Start at 594148, 2369525; 594213, 2369525; 594310, 2369497; 594395, 2369473; 594399, 2369392; 594387, 2369279; 594354, 2369153; 594302, 2369072; 594257, 2369015; 594213, 2368914; 594136, 2368809; 594083, 2368672; 594035, 2368550; 593966, 2368417; 593966, 2368324; 593909, 2368259; 593792, 2368105; 593675, 2368000; 593529, 2367854; 593448, 2367801; 593302, 2367874; 593242, 2367927; 593193, 2367967; 593165, 2368065; 593217, 2368150; 593314, 2368283; 593399, 2368425; 593448, 2368578; 593505, 2368716; 593622, 2368833; 593703, 2368906; 593764, 2368963; 593832, 2369044; 593901, 2369145; 594002, 2369262; 594079, 2369331; 594104, 2369396; 594120, 2369485; 594124, 2369521; return to starting point.

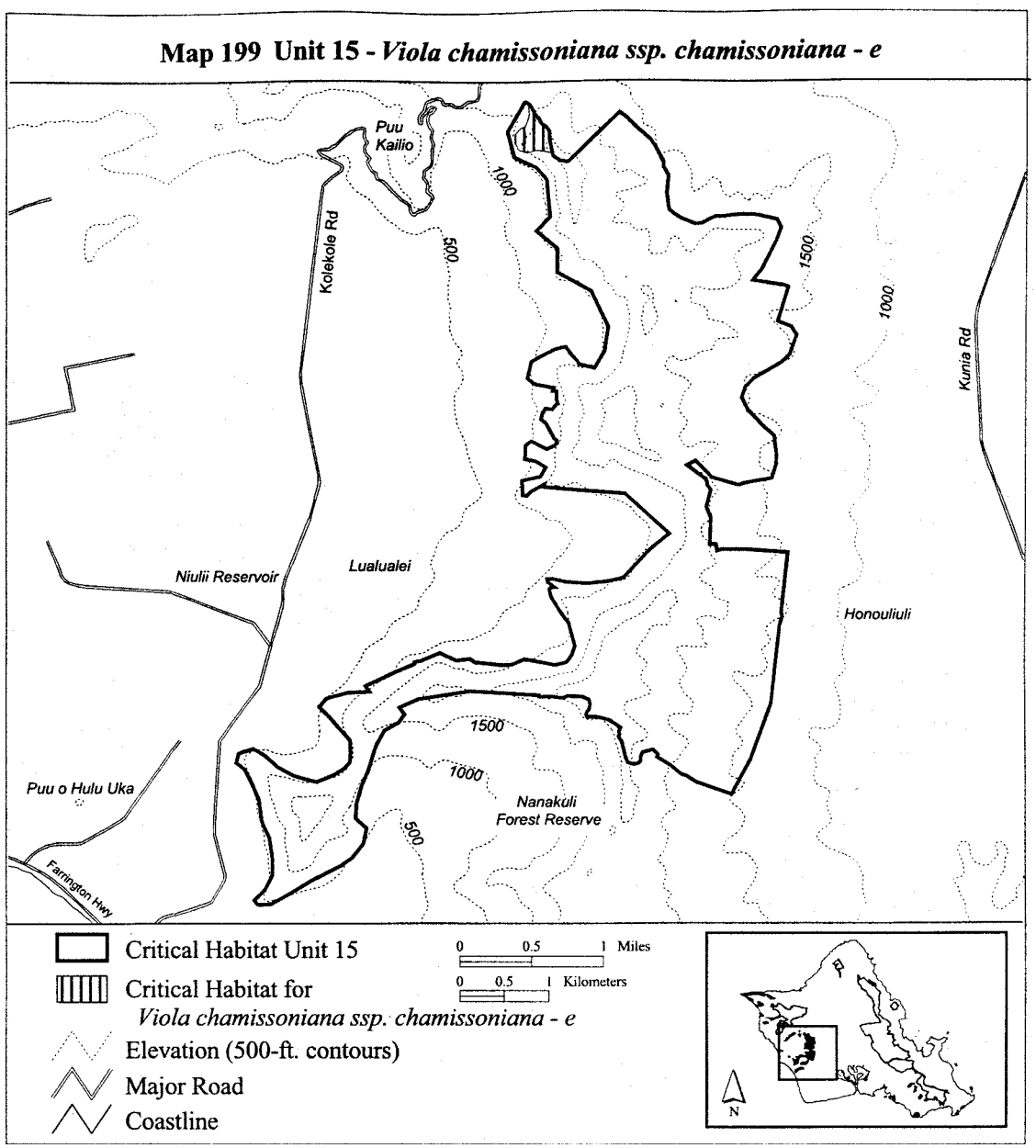
(ii) **Note:** Map 198 follows:



(199) Oahu 15—*Viola chamissoniana* ssp. *chamissoniana*—e (13 ha; 31 ac)

(i) Unit consists of the following 25 boundary points: Start at 592635, 2374276; 592624, 2374278; 592539, 2374292; 592462, 2374305; 592356, 2374278; 592262, 2374307; 592218, 2374388; 592214, 2374482; 592285, 2374553; 592331, 2374567; 592354, 2374630; 592379, 2374698; 592370, 2374786; 592391, 2374800; 592404, 2374781; 592454, 2374691; 592484, 2374661; 592514, 2374601; 592514, 2374600; 592574, 2374561; 592594, 2374531; 592604, 2374492; 592604, 2374422; 592634, 2374282; 592634, 2374281; return to starting point.

(ii) **Note:** Map 199 follows:

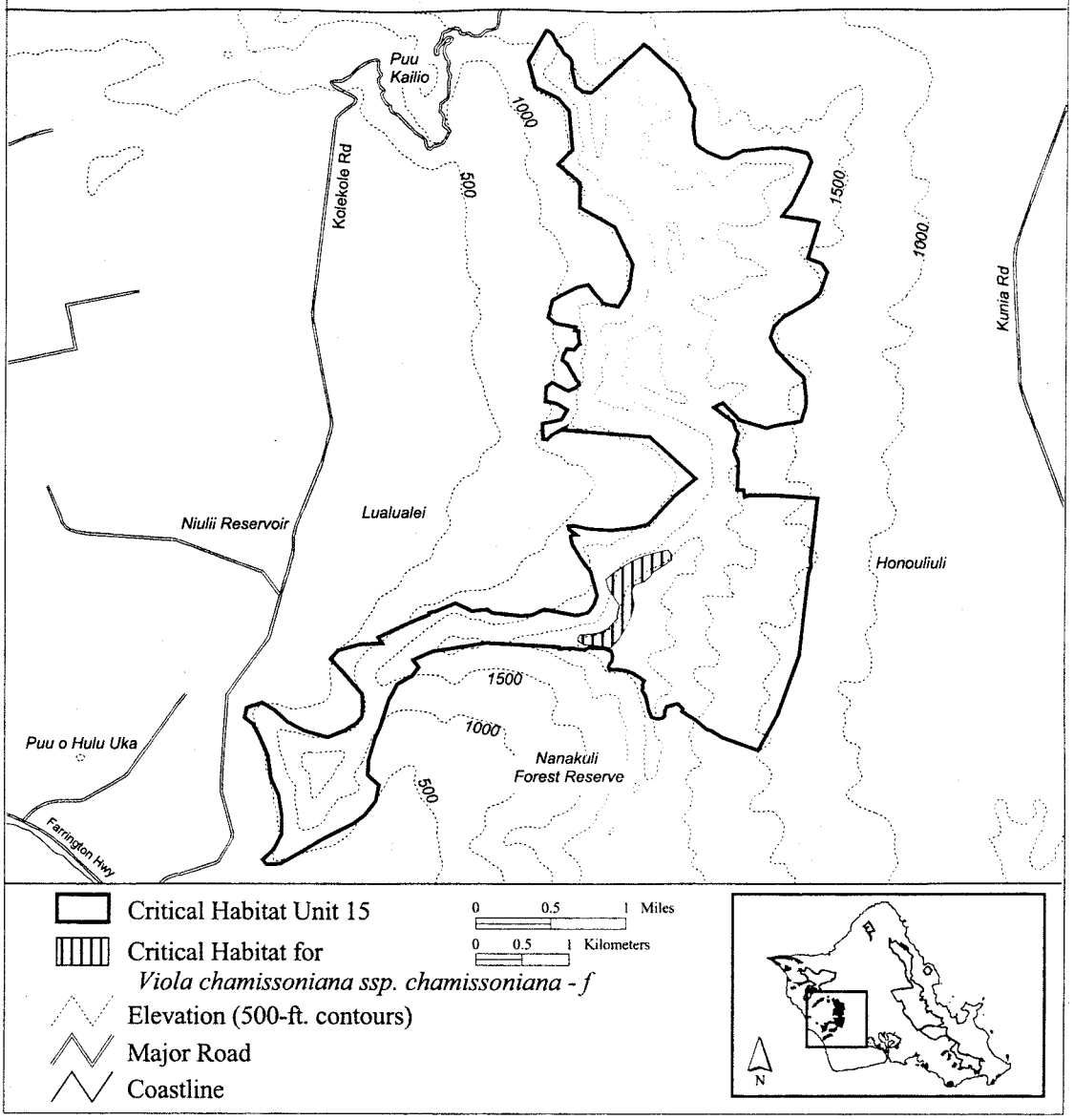


(200) Oahu 15—*Viola chamissoniana* ssp. *chamissoniana*—f (29 ha; 72 ac)

(i) Unit consists of the following 36 boundary points: Start at 593654, 2369223; 593680, 2369196; 593696, 2369173; 593696, 2369118; 593632, 2369068; 593572, 2369025; 593497, 2368977; 593467, 2368931; 593397, 2368874; 593305, 2368844; 593269, 2368785; 593269, 2368742; 593278, 2368694; 593292, 2368621; 593257, 2368493; 593203, 2368370; 593136, 2368267; 593043, 2368167; 592874, 2368187; 592760, 2368199; 592689, 2368242; 592689, 2368267; 592714, 2368301; 592817, 2368313; 592917, 2368322; 593009, 2368367; 593061, 2368427; 593107, 2368466; 593116, 2368543; 593134, 2368621; 593095, 2368676; 593013, 2368803; 592986, 2368904; 593098, 2368995; 593280, 2369105; 593410, 2369162; return to starting point.

(ii) **Note:** Map 200 follows:

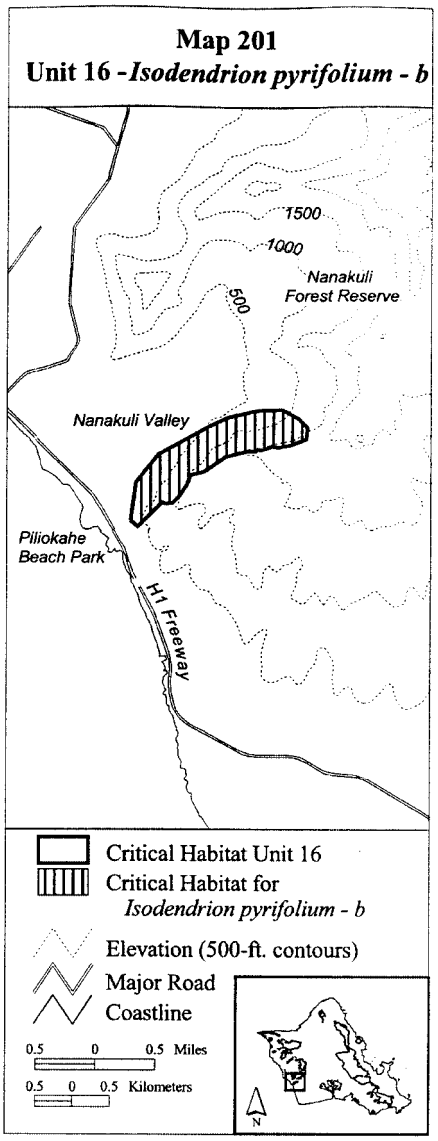
Map 200 Unit 15 - *Viola chamissoniana ssp. chamissoniana - f*



(201) Oahu 16—*Isodendrion pyrifolium*—b (129 ha; 319 ac)

(i) Unit consists of the following 27 boundary points: Start at 589674, 2363678; 589752, 2364203; 590044, 2364573; 590689, 2364934; 590964, 2365071; 591394, 2365166; 591712, 2365175; 591919, 2365063; 592048, 2364934; 592031, 2364779; 591841, 2364702; 591661, 2364667; 591575, 2364684; 591436, 2364630; 591377, 2364641; 591346, 2364612; 591265, 2364624; 590956, 2364547; 590672, 2364349; 590483, 2364289; 590427, 2364155; 590381, 2364088; 590344, 2364028; 590236, 2363915; 590142, 2363906; 590096, 2363919; 589769, 2363592; return to starting point.

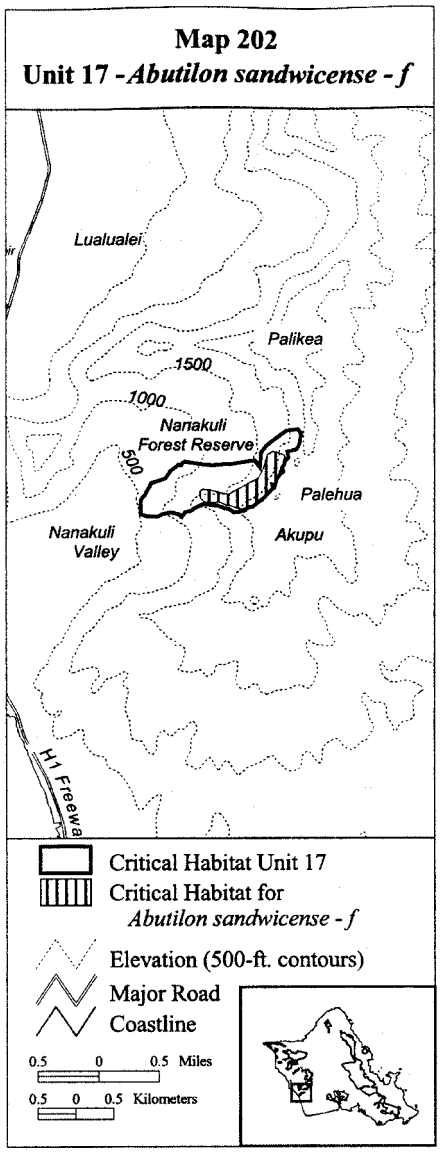
(ii) **Note:** Map 201 follows:



(202) Oahu 17—*Abutilon sandwicense*—f (30 ha; 74 ac)

(i) Unit consists of the following 35 boundary points: Start at 592994, 2366343; 592976, 2366353; 592994, 2366336; 593014, 2366317; 592998, 2366299; 592891, 2366183; 592730, 2366057; 592556, 2366026; 592434, 2366070; 592410, 2366082; 592411, 2366067; 592292, 2366117; 592150, 2366120; 592089, 2366117; 592037, 2366172; 592025, 2366265; 592072, 2366291; 592156, 2366282; 592272, 2366253; 592402, 2366227; 592815, 2366444; 592814, 2366444; 592869, 2366563; 592895, 2366650; 592924, 2366746; 592999, 2366801; 593089, 2366775; 593150, 2366749; 593167, 2366705; 593157, 2366664; 593144, 2366609; 593098, 2366549; 593089, 2366526; 593054, 2366433; 593025, 2366325; return to starting point.

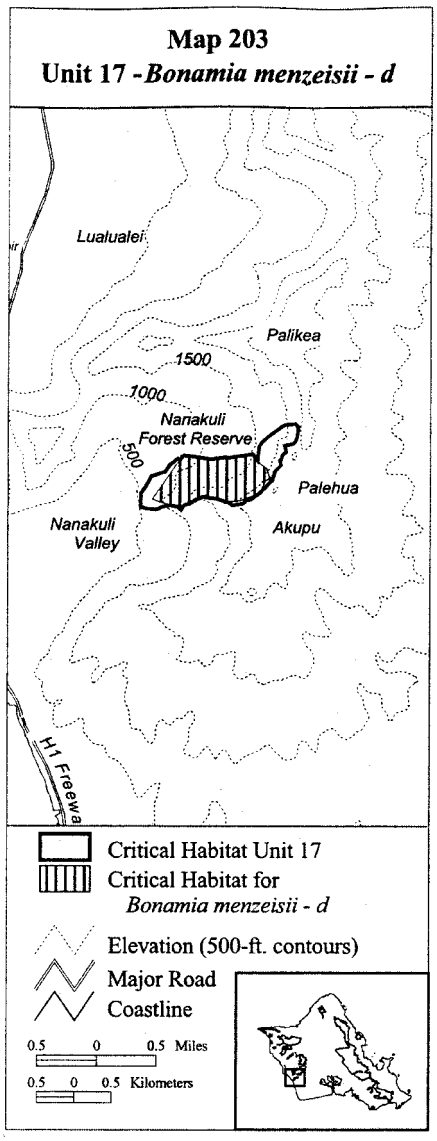
(ii) **Note:** Map 202 follows:



(203) Oahu 17—*Bonamia menziesii*—d (77 ha; 191 ac)

(i) Unit consists of the following 17 boundary points: Start at 591812, 2366666; 592269, 2366597; 592755, 2366681; 592869, 2366536; 592937, 2366491; 592983, 2366354; 592922, 2366301; 592854, 2366149; 592580, 2366042; 592390, 2366027; 592124, 2366118; 591828, 2365981; 591790, 2365921; 591743, 2365955; 591626, 2365984; 591501, 2366027; 591402, 2366065; return to starting point.

(ii) **Note:** Map 203 follows:

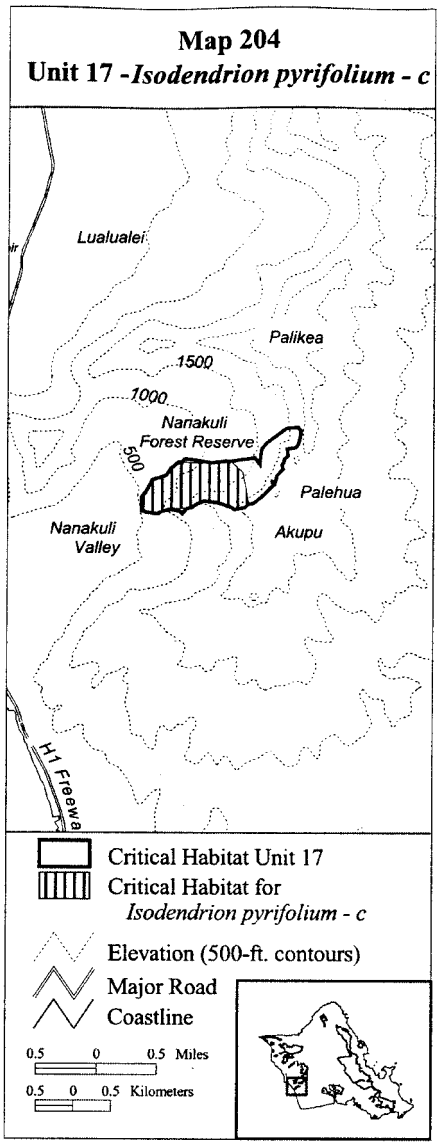


(204) Oahu 17—*Isodendrion pyrifolium*—c (73 ha; 181 ac)

(i) Unit consists of the following 22 boundary points: Start at 591235, 2365957; 591239, 2366138; 591300, 2366224; 591386, 2366378; 591566, 2366439; 591626, 2366525; 591738, 2366619; 591962, 2366602; 592194, 2366611; 592375, 2366636; 592452, 2366619; 592598, 2366482; 592676, 2366052; 592624, 2366000; 592478, 2365983; 592383, 2366052; 592031, 2366103; 591910, 2366000; 591669,

2365991; 591529, 2365960; 591455, 2365921; 591308, 2365932; return to starting point.

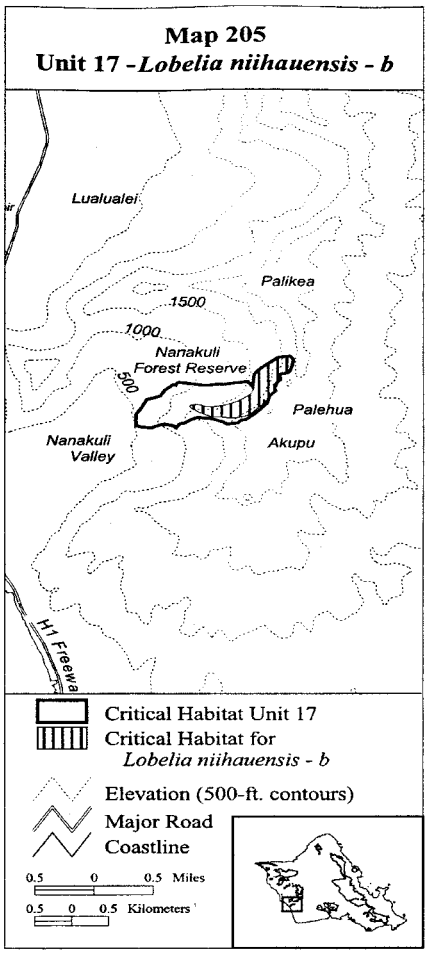
(ii) **Note:** Map 204 follows:



(205) Oahu 17—*Lobelia niihauensis*—b (41 ha; 102 ac)

(i) Unit consists of the following 48 boundary points: Start at 592843, 2366793; 592908, 2366869; 592974, 2366924; 593065, 2366996; 593127, 2367041; 593182, 2367075; 593337, 2367089; 593376, 2367046; 593376, 2367000; 593359, 2366917; 593323, 2366838; 593307, 2366815; 593193, 2366797; 593208, 2366729; 593203, 2366707; 593187, 2366695; 593187, 2366685; 593167, 2366671; 593128, 2366644; 593113, 2366633; 593111, 2366632; 593108, 2366630; 593137, 2366522; 593041, 2366425; 593003, 2366356; 592993, 2366345; 592939, 2366286; 592865, 2366205; 592776, 2366134; 592669, 2366095; 592545, 2366081; 592385, 2366091; 592258, 2366105; 592182, 2366138; 592101, 2366174; 592048, 2366208; 591991, 2366236; 591972, 2366272; 592007, 2366301; 592074, 2366298; 592208, 2366265; 592323, 2366270; 592466, 2366291; 592621, 2366353; 592719, 2366413; 592798, 2366475; 592822, 2366523; 592835, 2366686; return to starting point.

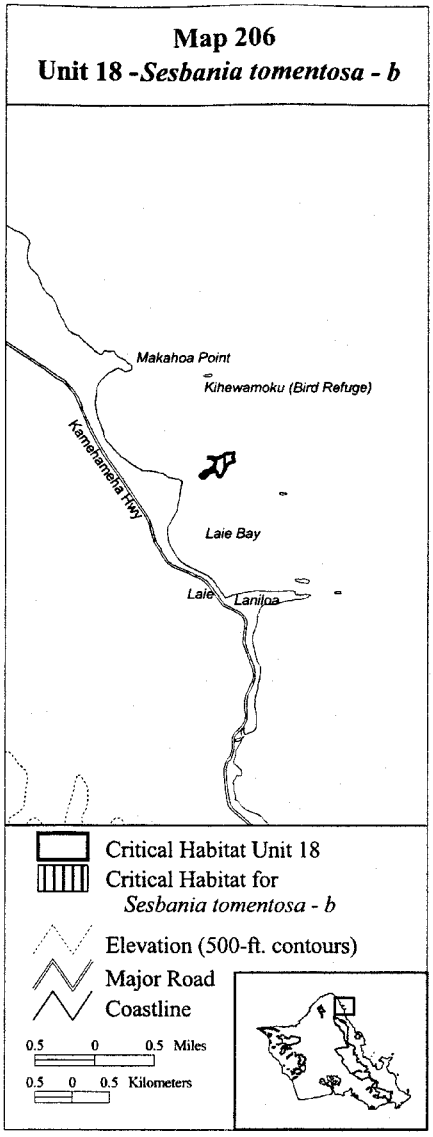
(ii) **Note:** Map 205 follows:



(206) Oahu 18—*Sesbania tomentosa*—b (5 ha; 12 ac)

(i) Unit consists of the following 117 boundary points: Start at 611637, 2395945; 611637, 2395929; 611616, 2395921; 611615, 2395920; 611614, 2395917; 611607, 2395917; 611580, 2395908; 611568, 2395898; 611548, 2395879; 611547, 2395879; 611541, 2395867; 611531, 2395852; 611526, 2395843; 611526, 2395842; 611525, 2395838; 611516, 2395820; 611515, 2395820; 611515, 2395819; 611515, 2395816; 611514, 2395815; 611513, 2395815; 611513, 2395814; 611513, 2395812; 611503, 2395782; 611494, 2395764; 611485, 2395755; 611473, 2395746; 611461, 2395745; 611455, 2395746; 611442, 2395756; 611436, 2395770; 611426, 2395795; 611425, 2395796; 611418, 2395802; 611417, 2395802; 611396, 2395803; 611373, 2395803; 611357, 2395799; 611335, 2395788; 611334, 2395788; 611326, 2395777; 611297, 2395742; 611285, 2395734; 611274, 2395729; 611254, 2395726; 611244, 2395728; 611235, 2395735; 611232, 2395741; 611232, 2395751; 611241, 2395762; 611259, 2395772; 611264, 2395778; 611264, 2395779; 611263, 2395786; 611269, 2395793; 611283, 2395803; 611338, 2395824; 611363, 2395837; 611366, 2395843; 611373, 2395846; 611374, 2395846; 611388, 2395856; 611389, 2395857; 611400, 2395879; 611407, 2395896; 611408, 2395897; 611408, 2395907; 611412, 2395912; 611412, 2395913; 611413, 2395928; 611413, 2395929; 611412, 2395930; 611411, 2395935; 611411, 2395936; 611405, 2395947; 611404, 2395948; 611399, 2395953; 611398, 2395953; 611384, 2395959; 611383, 2395959; 611355, 2395966; 611331, 2395970; 611330, 2395972; 611330, 2395978; 611337, 2395983; 611350, 2395984; 611365, 2395984; 611396, 2395977; 611419, 2395970; 611438, 2395969; 611439, 2395969; 611452, 2395973; 611453, 2395973; 611466, 2395982; 611477, 2395986; 611492, 2395990; 611493, 2395990; 611504, 2395995; 611504, 2395996; 611506, 2395998; 611510, 2396001; 611525, 2396016; 611537, 2396021; 611607, 2396032; 611622, 2396032; 611629, 2396030; 611631, 2396025; 611630, 2396005; 611624, 2395990; 611624, 2395989; 611625, 2395973; 611625, 2395972; 611627, 2395969; 611630, 2395961; 611633, 2395953; 611633, 2395952; 611635, 2395949; return to starting point.

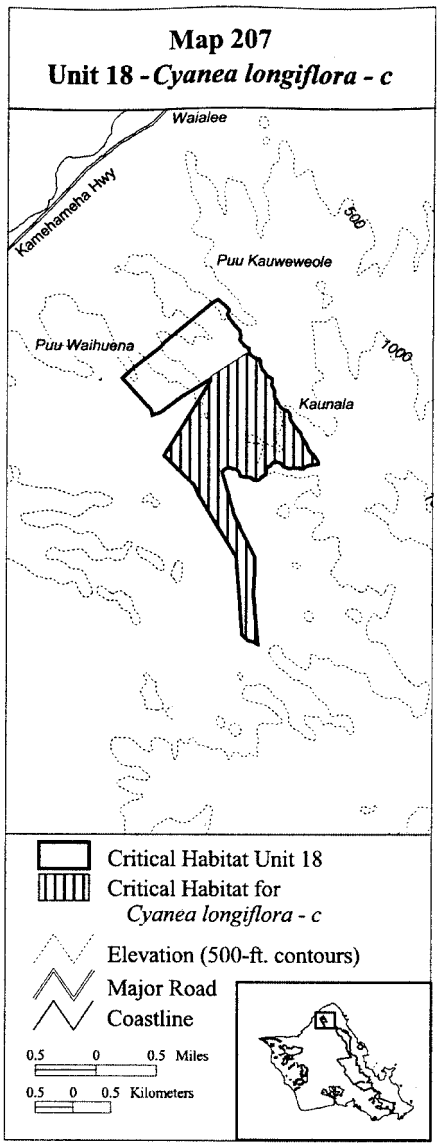
(ii) **Note:** Map 206 follows:



(207) Oahu 19—*Cyanea longiflora*—c (324 ha; 801 ac)

(i) Unit consists of the following 202 boundary points: Start at 603332, 2393228; 603224, 2393213; 603164, 2393200; 603163, 2393200; 603142, 2393184; 603108, 2393154; 603094, 2393152; 603083, 2393152; 603072, 2393157; 603054, 2393168; 603053, 2393169; 603021, 2393169; 602988, 2393169; 602983, 2393171; 602982, 2393172; 602982, 2393171; 602952, 2393170; 602918, 2393162; 602897, 2393161; 602869, 2393169; 602816, 2393190; 602806, 2393196; 602781, 2393232; 602780, 2393232; 602758, 2393252; 602757, 2393252; 602739, 2393260; 602738, 2393260; 602711, 2393260; 602662, 2393250; 602641, 2393240; 602635, 2393232; 602634, 2393232; 602624, 2393209; 602616, 2393201; 602579, 2393186; 602578, 2393186; 602578, 2393185; 602567, 2393167; 602567, 2393166; 602564, 2393147; 602554, 2393122; 602554, 2393121; 602556, 2393090; 602549, 2393075; 602492, 2393031; 602478, 2393024; 602477, 2393024; 602477, 2393023; 602467, 2393006; 602445, 2392990; 602419, 2392980; 602394, 2392979; 602382, 2392983; 602341, 2393005; 602325, 2393016; 602322, 2393020; 602321, 2393021; 602289, 2393025; 602244, 2393025; 602190, 2393036; 602171, 2393049; 602155, 2393069; 602138, 2393109; 602127, 2393127; 602126, 2393127; 602118, 2393136; 602118, 2393137; 602094, 2393149; 602093, 2393149; 602071, 2393152; 602048, 2393154; 602026, 2393164; 602013, 2393171; 602012, 2393171; 601992, 2393174; 601980, 2393173; 601979, 2393173; 601924, 2393139; 601898, 2393113; 601898, 2393112; 601897, 2393112; 601897, 2393111; 601907, 2393068; 601978, 2392805; 602085, 2392443; 602110, 2392392; 602148, 2392315; 602150, 2392310; 602186, 2392236; 602370, 2391859; 602391, 2391819; 602383, 2391680; 602368, 2391295; 602366, 2391244; 602439, 2390510; 602435, 2390510; 602412, 2390526; 602382, 2390544; 602370, 2390550; 602369, 2390550; 602314, 2390563; 602299, 2390568; 602284, 2390576; 602227, 2390632; 602226, 2390633; 602204, 2390649; 602106, 2391826; 601550, 2392745; 601471, 2392922; 601043, 2393341; 601032, 2393359; 601715, 2394477; 601720, 2394541; 602274, 2394909; 602311, 2394883; 602318, 2394874; 602318, 2394873; 602338, 2394854; 602339, 2394854; 602344, 2394852; 602375, 2394834; 602415, 2394825; 602444, 2394812; 602454, 2394803; 602460, 2394785; 602461, 2394763; 602463, 2394753; 602467, 2394734; 602482, 2394683; 602499, 2394652; 602500, 2394652; 602520, 2394623; 602547, 2394585; 602564, 2394566; 602565, 2394566; 602606, 2394536; 602607, 2394536; 602621, 2394530; 602638, 2394521; 602641, 2394514; 602641, 2394513; 602642, 2394513; 602645, 2394510; 602645, 2394489; 602642, 2394462; 602636, 2394450; 602636, 2394449; 602632, 2394427; 602632, 2394426; 602640, 2394398; 602640, 2394397; 602674, 2394348; 602678, 2394329; 602673, 2394297; 602677, 2394247; 602677, 2394246; 602687, 2394224; 602704, 2394204; 602768, 2394098; 602768, 2394097; 602769, 2394097; 602793, 2394068; 602793, 2394067; 602794, 2394067; 602801, 2394063; 602827, 2394049; 602828, 2394049; 602844, 2394045; 602871, 2394032; 602887, 2394018; 602900, 2394002; 602916, 2393968; 602910, 2393929; 602910, 2393912; 602910, 2393911; 602933, 2393881; 602988, 2393800; 603003, 2393780; 603040, 2393735; 603041, 2393735; 603051, 2393726; 603070, 2393696; 603083, 2393654; 603104, 2393614; 603105, 2393614; 603125, 2393588; 603155, 2393538; 603167, 2393516; 603193, 2393448; 603201, 2393431; 603201, 2393430; 603202, 2393430; 603213, 2393417; 603232, 2393392; 603233, 2393391; 603242, 2393389; 603275, 2393357; 603287, 2393339; 603325, 2393282; 603333, 2393261; 603332, 2393229; return to starting point.

(ii) **Note:** Map 207 follows:

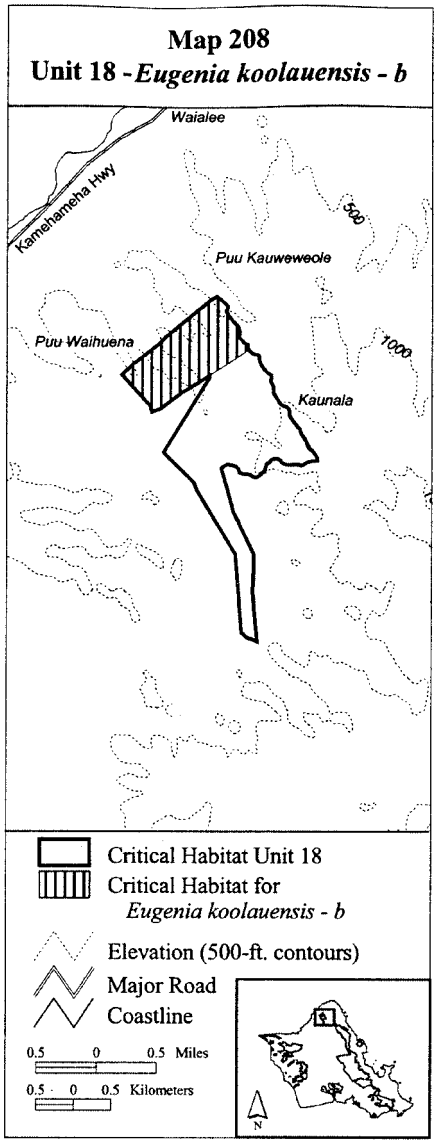


(208) Oahu 19—*Eugenia koolauensis*—b (150 ha; 371 ac)

(i) Unit consists of the following 56 boundary points: Start at 600799, 2394083; 600408, 2394520; 600561, 2394661; 600963, 2394982; 601045, 2395072; 601721, 2395631; 601756, 2395655; 601822, 2395697; 601906,

2395628; 601960, 2395579; 601990, 2395546; 601990, 2395525; 601973, 2395502; 601972, 2395501; 601966, 2395486; 601966, 2395485; 601965, 2395470; 601965, 2395469; 601970, 2395453; 601970, 2395452; 601978, 2395439; 601979, 2395439; 601982, 2395435; 602044, 2395359; 602081, 2395304; 602121, 2395260; 602130, 2395252; 602146, 2395229; 602160, 2395198; 602167, 2395166; 602167, 2395141; 602163, 2395125; 602156, 2395114; 602155, 2395114; 602155, 2395113; 602152, 2395099; 602152, 2395098; 602152, 2395097; 602174, 2395061; 602175, 2395061; 602213, 2395027; 602220, 2395021; 602219, 2395012; 602220, 2395011; 602282, 2394972; 602287, 2394960; 602292, 2394915; 602292, 2394914; 602302, 2394895; 602293, 2394888; 602107, 2394761; 601575, 2394420; 601284, 2394239; 600993, 2394008; 600858, 2393961; 600831, 2394050; return to starting point.

(ii) **Note:** Map 208 follows:

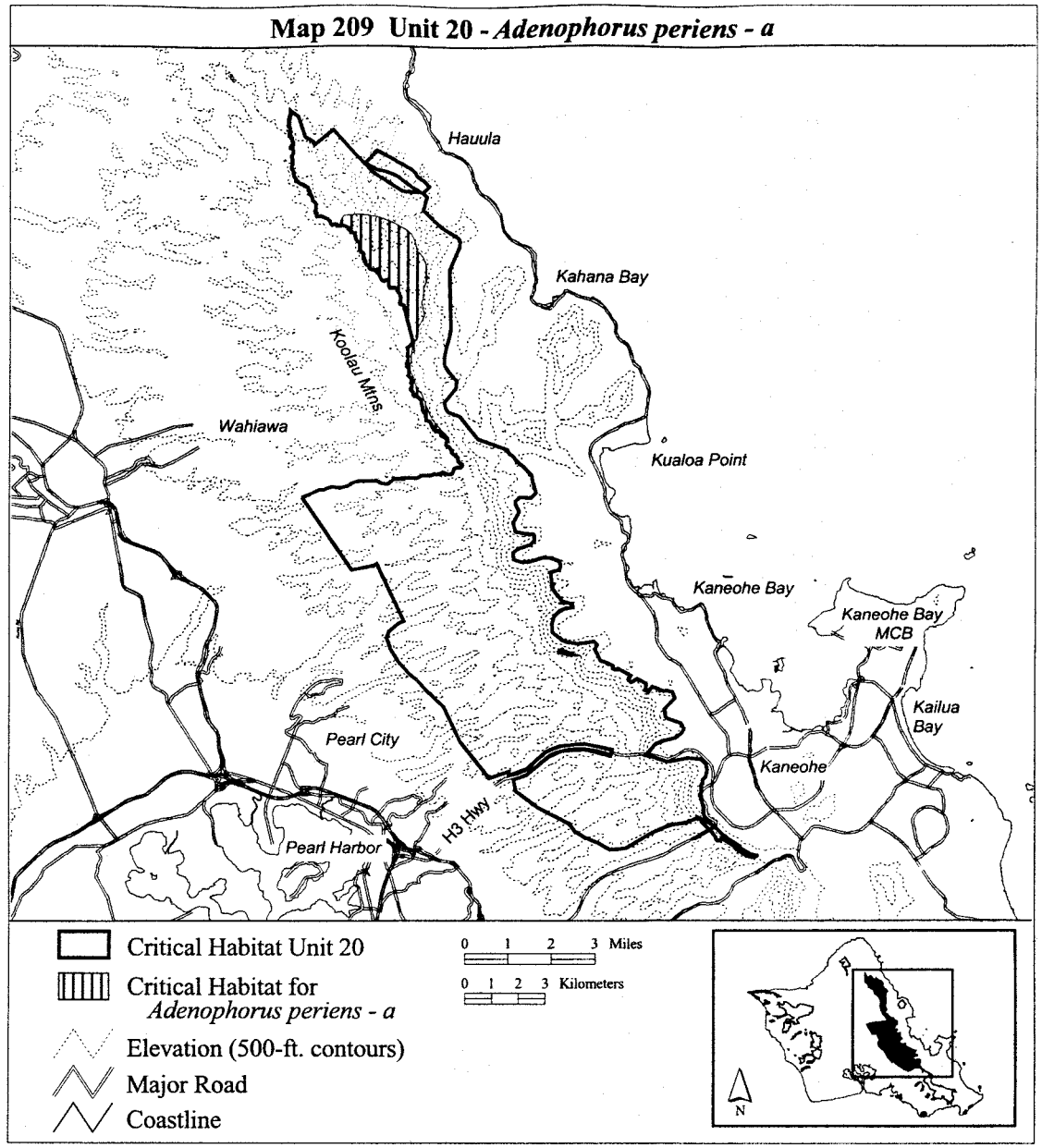


(209) Oahu 20—*Adenophorus periens*—a (712 ha; 1,758 ac)

(i) Unit consists of the following 450 boundary points: Start at 609139, 2387002; 609180, 2387197; 609315, 2387390; 609551, 2387406; 609696, 2387428; 609933, 2387428; 610245, 2387401; 610530, 2387353; 610777, 2387261; 611143, 2387127; 611520, 2386933; 611756, 2386783; 611832, 2386702; 611939, 2386481; 611993, 2386266; 612041, 2386089; 612160, 2385949; 612246, 2385852; 612310, 2385707; 612386, 2385546; 612407, 2385347; 612412, 2385196; 612444, 2385120; 612450, 2385121; 612447, 2385113; 612456, 2385094; 612440, 2385093; 612337, 2384814; 612300, 2384696; 612300, 2384615; 612273, 2384427; 612273, 2384292; 612213, 2384153; 612278, 2383916; 612326, 2383679; 612262, 2383518; 612203, 2383432; 612144, 2383319; 612084, 2383179; 612084, 2383002; 612084, 2382915; 612031, 2382738; 611945, 2382636; 611912, 2382561; 611864, 2382485; 611848, 2382302; 611826, 2382163; 611842, 2381894; 611794, 2381893; 611815, 2381549; 611869, 2381469; 611961, 2381184; 612095, 2380925; 612257, 2380710; 612262, 2380630; 612316, 2380527; 612369, 2380371; 612407, 2380280; 612558, 2379947; 612638, 2379785; 612719, 2379656; 612961, 2379409; 613139, 2379210; 613241, 2379108; 613257, 2379016; 613219, 2378925; 613148, 2378858; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613145, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 613142, 2379072; 613115, 2379100; 613099, 2379113; 613098, 2379113; 613063, 2379127; 612997, 2379166; 612978, 2379188; 612969, 2379215; 612963, 2379226; 612959, 2379247; 612959, 2379248; 612945, 2379276; 612945, 2379277; 612929, 2379297; 612928, 2379298; 612905, 2379314; 612876, 2379327; 612840, 2379337; 612770, 2379350; 612764, 2379355; 612758, 2379364; 612748, 2379389; 612748, 2379390; 612725, 2379410; 612700, 2379424; 612683, 2379441; 612663, 2379470; 612619, 2379529; 612600, 2379563; 612586, 2379618; 612573, 2379650; 612555, 2379679; 612517, 2379716; 612495, 2379729; 612412, 2379753; 612397, 2379761; 612387, 2379798; 612388, 2379851; 612388, 2379852; 612386, 2379928; 612379, 2379961; 612379, 2379962; 612375, 2379970; 612367, 2379981; 612366, 2379981; 612366, 2379982; 612353, 2379991; 612328, 2380018; 612262, 2380145; 612255, 2380163; 612249, 2380199; 612248, 2380233; 612234, 2380304; 612226, 2380334; 612225, 2380334; 612224, 2380337; 612211, 2380367; 612213, 2380397; 612218, 2380419; 612218, 2380420; 612215, 2380452; 612212, 2380464; 612202, 2380506; 612202, 2380507; 612197, 2380516; 612177, 2380539; 612112, 2380593; 612086, 2380625; 612073, 2380644; 612046, 2380669; 612046, 2380670; 612016, 2380686; 611992, 2380690; 611965, 2380687; 611955, 2380689; 611941, 2380693; 611927, 2380702; 611919, 2380710; 611905, 2380743; 611889, 2380825; 611889, 2380826; 611880, 2380839; 611856, 2380862; 611812, 2380892; 611799, 2380905; 611798, 2380918; 611800, 2380925; 611815, 2380943; 611838, 2380960; 611838, 2380961; 611848, 2380980; 611851, 2381022; 611848, 2381067; 611853, 2381081; 611879,

2381118; 611879, 2381119; 611879, 2381131; 611879, 2381132; 611868, 2381149; 611858, 2381155; 611857, 2381155; 611847, 2381160; 611837, 2381167; 611828, 2381178; 611825, 2381193; 611830, 2381214; 611838, 2381223; 611854, 2381250; 611854, 2381251; 611856, 2381258; 611855, 2381265; 611855, 2381266; 611849, 2381285; 611848, 2381285; 611848, 2381286; 611828, 2381312; 611784, 2381363; 611765, 2381383; 611734, 2381424; 611733, 2381424; 611730, 2381426; 611737, 2381446; 611745, 2381514; 611746, 2381550; 611748, 2381618; 611748, 2381619; 611739, 2381669; 611736, 2381680; 611736, 2381681; 611727, 2381699; 611727, 2381700; 611726, 2381700; 611673, 2381758; 611666, 2381774; 611666, 2381794; 611670, 2381810; 611702, 2381865; 611712, 2381882; 611712, 2381883; 611712, 2381915; 611712, 2381916; 611710, 2381923; 611687, 2381955; 611687, 2381978; 611695, 2381990; 611702, 2382013; 611702, 2382014; 611700, 2382058; 611694, 2382120; 611695, 2382225; 611701, 2382278; 611701, 2382279; 611699, 2382320; 611695, 2382360; 611693, 2382433; 611692, 2382455; 611698, 2382473; 611744, 2382512; 611805, 2382557; 611831, 2382588; 611844, 2382604; 611844, 2382605; 611850, 2382621; 611874, 2382653; 611896, 2382683; 611896, 2382684; 611903, 2382704; 611903, 2382705; 611903, 2382706; 611902, 2382707; 611901, 2382707; 611900, 2382707; 611900, 2382706; 611899, 2382706; 611892, 2382686; 611891, 2382684; 611795, 2383056; 611597, 2383822; 611567, 2383939; 611567, 2383940; 611561, 2383949; 611537, 2384020; 611536, 2384020; 611525, 2384040; 611515, 2384051; 611495, 2384064; 611460, 2384078; 611430, 2384082; 611404, 2384097; 611396, 2384120; 611393, 2384150; 611397, 2384172; 611413, 2384204; 611422, 2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611429, 2384357; 611417, 2384382; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611374, 2384489; 611358, 2384501; 611334, 2384524; 611326, 2384536; 611302, 2384584; 611257, 2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 611192, 2384704; 611191, 2384703; 611165, 2384698; 611119, 2384696; 611118, 2384696; 611082, 2384690; 611081, 2384690; 611065, 2384682; 611064, 2384681; 611058, 2384675; 611046, 2384674; 611039, 2384675; 611028, 2384688; 611014, 2384713; 610994, 2384778; 610981, 2384838; 610976, 2384927; 610973, 2384941; 610973, 2384942; 610965, 2384959; 610965, 2384960; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610809, 2384945; 610780, 2384942; 610766, 2384942; 610749, 2384953; 610709, 2384995; 610692, 2385014; 610679, 2385041; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610558, 2385236; 610543, 2385248; 610533, 2385266; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610508, 2385342; 610497, 2385351; 610496, 2385351; 610454, 2385362; 610440, 2385362; 610440, 2385363; 610394, 2385362; 610370, 2385370; 610333, 2385392; 610292, 2385406; 610280, 2385413; 610261, 2385429; 610248, 2385449; 610237, 2385473; 610222, 2385512; 610222, 2385513; 610214, 2385522; 610206, 2385531; 610206, 2385532; 610187, 2385540; 610166, 2385544; 610134, 2385558; 610129, 2385561; 610122, 2385580; 610119, 2385604; 610119, 2385605; 610112, 2385620; 610111, 2385621; 610093, 2385637; 610078, 2385652; 610077, 2385659; 610090, 2385687; 610097, 2385698; 610098, 2385699; 610098, 2385700; 610097, 2385705; 610097, 2385706; 610081, 2385734; 610054, 2385762; 610039, 2385790; 610028, 2385816; 610024, 2385839; 610027, 2385873; 610035, 2385901; 610035, 2385902; 610035, 2385943; 610035, 2385944; 610029, 2385956; 610029, 2385957; 610003, 2385991; 609994, 2386004; 609993, 2386004; 609993, 2386005; 609971, 2386017; 609955, 2386025; 609948, 2386031; 609929, 2386085; 609909, 2386112; 609908, 2386113; 609898, 2386121; 609887, 2386134; 609883, 2386146; 609884, 2386168; 609879, 2386204; 609884, 2386223; 609905, 2386254; 609905, 2386255; 609909, 2386278; 609909, 2386279; 609907, 2386291; 609881, 2386354; 609880, 2386355; 609858, 2386384; 609834, 2386404; 609797, 2386443; 609797, 2386444; 609790, 2386450; 609769, 2386468; 609748, 2386495; 609737, 2386524; 609719, 2386644; 609711, 2386719; 609711, 2386720; 609705, 2386737; 609704, 2386737; 609704, 2386738; 609693, 2386745; 609692, 2386745; 609595, 2386759; 609570, 2386766; 609560, 2386772; 609536, 2386797; 609481, 2386863; 609461, 2386894; 609449, 2386918; 609449, 2386919; 609439, 2386933; 609438, 2386934; 609425, 2386943; 609379, 2386966; 609323, 2387005; 609308, 2387012; 609269, 2387020; 609248, 2387021; 609184, 2387014; return to starting point.

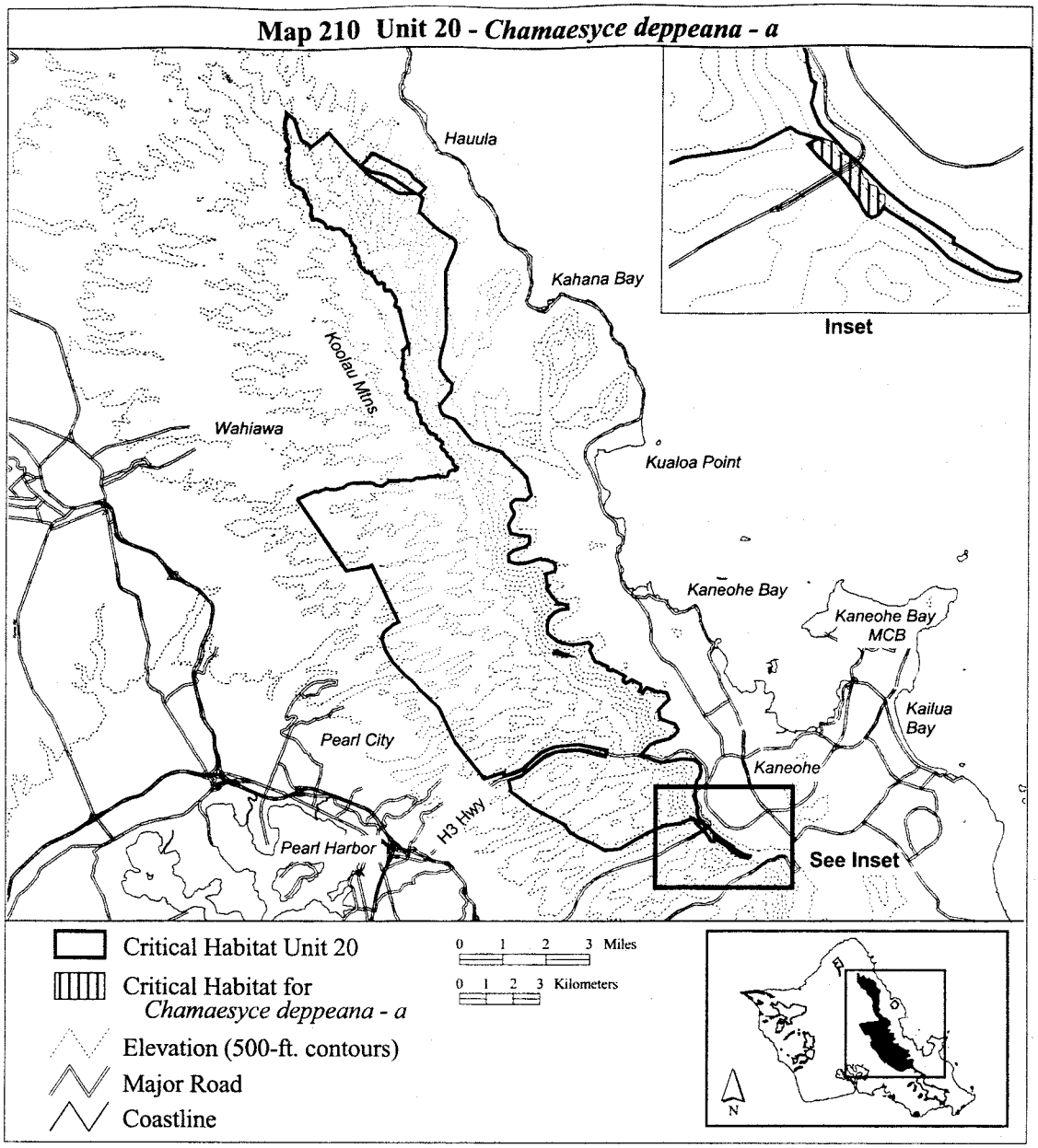
(ii) **Note:** Map 209 follows:



(210) Oahu 20—*Chamaesyce deppeana*—a (18 ha; 44 ac)

(i) Unit consists of the following 48 boundary points: Start at 622671, 2364767; 622720, 2364796; 622771, 2364821; 622817, 2364830; 622857, 2364807; 622899, 2364799; 622920, 2364796; 622942, 2364771; 622976, 2364700; 623023, 2364673; 623074, 2364653; 623094, 2364624; 623117, 2364592; 623151, 2364556; 623191, 2364531; 623196, 2364502; 623209, 2364466; 623214, 2364453; 623249, 2364431; 623254, 2364408; 623279, 2364384; 623312, 2364381; 623335, 2364375; 623352, 2364359; 623368, 2364310; 623381, 2364298; 623413, 2364298; 623420, 2364281; 623420, 2364240; 623420, 2364209; 623400, 2364155; 623364, 2364105; 623319, 2364081; 623279, 2364081; 623249, 2364097; 623241, 2364108; 623241, 2364109; 623241, 2364110; 623241, 2364111; 623228, 2364125; 623207, 2364153; 623173, 2364222; 623101, 2364323; 623047, 2364388; 622978, 2364471; 622920, 2364518; 622804, 2364622; 622791, 2364629; return to starting point.

(ii) **Note:** Map 210 follows:

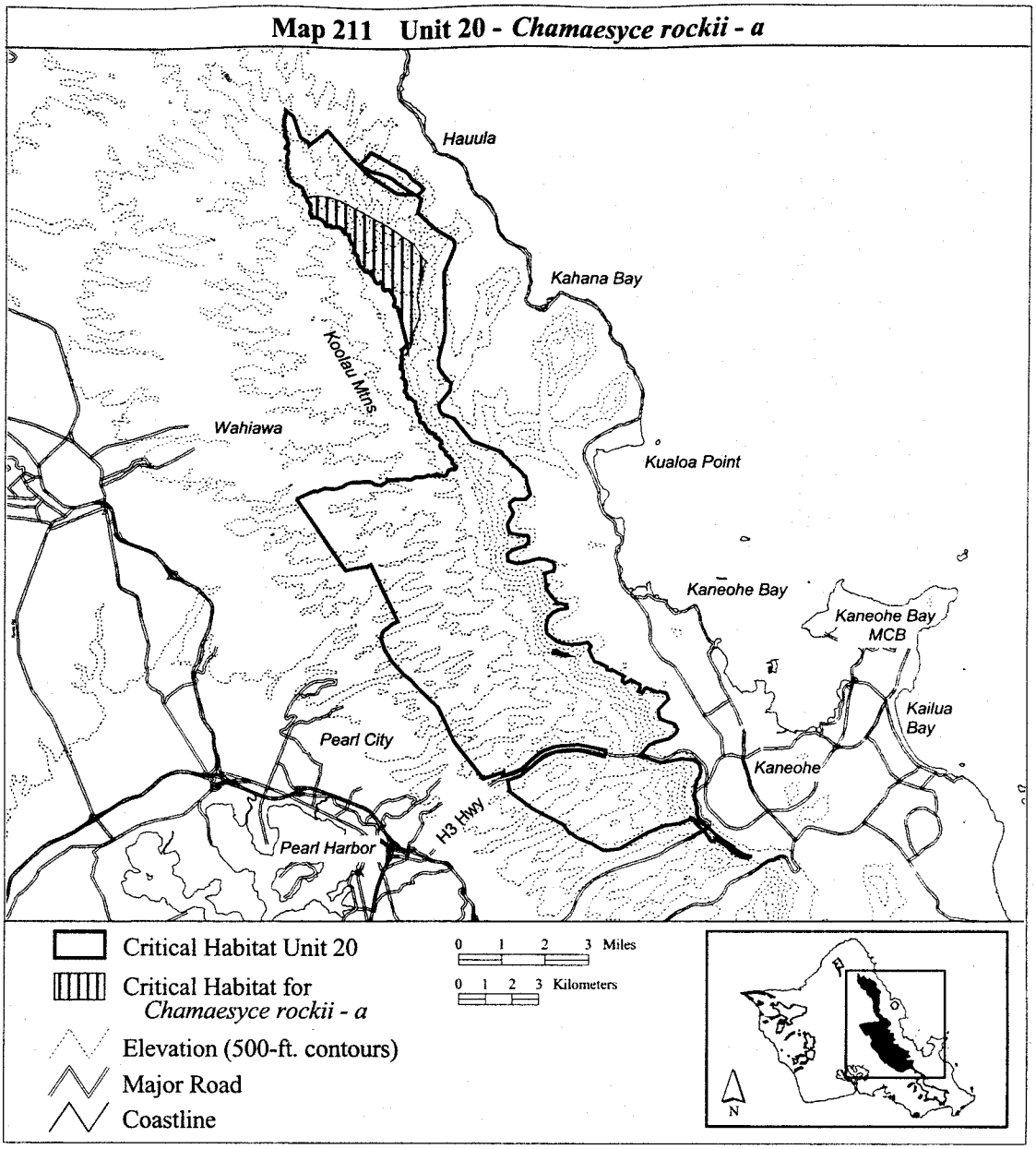


(211) Oahu 20—*Chamaesyce rockii*—a (825 ha; 2,039 ac)

(i) Unit consists of the following 363 boundary points: Start at 608102, 2388099; 608104, 2388099; 608430, 2388155; 608627, 2388161; 608627, 2388154; 608941, 2388106; 609416, 2387958; 610001, 2387662; 611153, 2387052; 612132, 2386418; 612559, 2385801; 612588, 2385802; 612563, 2385697; 612496, 2385537; 612490, 2385426; 612496, 2385346; 612471, 2385235; 612366, 2384841; 612262, 2384483; 612280, 2384317; 612348, 2384058; 612385, 2383775; 612274, 2383461; 612163, 2383215; 612108, 2383005; 612120, 2382814; 612021, 2382543; 611923, 2382389; 611812, 2382260; 611752, 2382233; 611766, 2381817; 611781, 2381470; 611731, 2381430; 611737, 2381446; 611745, 2381514; 611746, 2381550; 611748, 2381618; 611748, 2381619; 611739, 2381669; 611736, 2381680; 611736, 2381681; 611727, 2381699; 611727, 2381700; 611726, 2381700; 611673, 2381758; 611666, 2381774; 611666, 2381794; 611670, 2381810; 611702, 2381865; 611702, 2381866; 611712, 2381882; 611712, 2381883; 611712, 2381915; 611712, 2381916; 611710, 2381923; 611687, 2381955; 611687, 2381978; 611695, 2381990; 611702, 2382013; 611702, 2382014; 611700, 2382058; 611694, 2382120; 611695, 2382225; 611701, 2382278; 611701, 2382279; 611699, 2382320; 611695, 2382360; 611693, 2382433; 611692, 2382455; 611698, 2382473; 611744, 2382512; 611805, 2382557; 611831, 2382588; 611844, 2382604; 611844, 2382605; 611850, 2382621; 611874, 2382653; 611896, 2382683; 611896, 2382684; 611903, 2382704; 611903, 2382705; 611903, 2382706; 611902, 2382707; 611901, 2382707; 611900, 2382707; 611900, 2382706; 611899, 2382706; 611892, 2382686; 611891, 2382684; 611795, 2383056; 611597, 2383822; 611567, 2383939; 611567, 2383940; 611561, 2383949; 611537, 2384020; 611536, 2384020; 611525, 2384040; 611515, 2384051; 611495, 2384064; 611460, 2384078; 611430, 2384082; 611404, 2384097; 611396, 2384120; 611393, 2384150; 611397, 2384172; 611413, 2384204; 611422,

2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611429, 2384357; 611417, 2384382; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611374, 2384489; 611358, 2384501; 611334, 2384524; 611326, 2384536; 611302, 2384584; 611257, 2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 611192, 2384704; 611191, 2384703; 611165, 2384698; 611119, 2384696; 611118, 2384696; 611082, 2384690; 611081, 2384690; 611065, 2384682; 611064, 2384681; 611058, 2384675; 611046, 2384674; 611039, 2384675; 611028, 2384688; 611014, 2384713; 610994, 2384778; 610981, 2384838; 610976, 2384927; 610973, 2384941; 610973, 2384942; 610965, 2384959; 610965, 2384960; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610809, 2384945; 610780, 2384942; 610766, 2384942; 610749, 2384953; 610709, 2384995; 610692, 2385014; 610679, 2385041; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610558, 2385236; 610543, 2385248; 610533, 2385266; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610508, 2385342; 610497, 2385351; 610496, 2385351; 610454, 2385362; 610440, 2385362; 610394, 2385362; 610370, 2385370; 610333, 2385392; 610292, 2385406; 610280, 2385413; 610261, 2385429; 610248, 2385449; 610237, 2385473; 610222, 2385512; 610222, 2385513; 610214, 2385522; 610206, 2385531; 610206, 2385532; 610187, 2385540; 610166, 2385544; 610134, 2385558; 610129, 2385561; 610122, 2385580; 610119, 2385604; 610119, 2385605; 610112, 2385620; 610111, 2385621; 610093, 2385637; 610078, 2385652; 610077, 2385659; 610090, 2385687; 610097, 2385698; 610098, 2385699; 610098, 2385700; 610097, 2385705; 610097, 2385706; 610081, 2385734; 610054, 2385762; 610039, 2385790; 610028, 2385816; 610024, 2385839; 610027, 2385873; 610035, 2385901; 610035, 2385902; 610035, 2385943; 610035, 2385944; 610029, 2385956; 610029, 2385957; 610003, 2385991; 609994, 2386004; 609993, 2386004; 609993, 2386005; 609971, 2386017; 609955, 2386025; 609948, 2386031; 609929, 2386085; 609909, 2386112; 609908, 2386113; 609898, 2386121; 609887, 2386134; 609883, 2386146; 609884, 2386168; 609879, 2386204; 609884, 2386223; 609905, 2386254; 609905, 2386255; 609909, 2386278; 609909, 2386279; 609907, 2386291; 609881, 2386354; 609880, 2386355; 609858, 2386384; 609834, 2386404; 609797, 2386443; 609797, 2386444; 609790, 2386450; 609769, 2386468; 609748, 2386495; 609737, 2386524; 609719, 2386644; 609711, 2386719; 609711, 2386720; 609705, 2386737; 609704, 2386737; 609704, 2386738; 609693, 2386745; 609692, 2386745; 609595, 2386759; 609570, 2386766; 609560, 2386772; 609536, 2386797; 609481, 2386863; 609461, 2386894; 609449, 2386918; 609449, 2386919; 609439, 2386933; 609438, 2386934; 609425, 2386943; 609379, 2386966; 609323, 2387005; 609322, 2387005; 609308, 2387012; 609269, 2387020; 609248, 2387021; 609184, 2387014; 609134, 2387001; 609078, 2386982; 609074, 2386984; 609062, 2387000; 609048, 2387031; 609047, 2387032; 609025, 2387051; 609024, 2387051; 608989, 2387068; 608988, 2387068; 608975, 2387068; 608974, 2387068; 608905, 2387055; 608862, 2387042; 608856, 2387043; 608849, 2387049; 608810, 2387121; 608794, 2387150; 608794, 2387151; 608776, 2387175; 608736, 2387223; 608719, 2387246; 608718, 2387246; 608718, 2387247; 608693, 2387265; 608692, 2387265; 608643, 2387281; 608604, 2387303; 608558, 2387325; 608497, 2387362; 608496, 2387362; 608459, 2387369; 608458, 2387369; 608435, 2387371; 608434, 2387371; 608410, 2387366; 608377, 2387354; 608355, 2387351; 608336, 2387351; 608316, 2387358; 608308, 2387366; 608294, 2387395; 608292, 2387413; 608300, 2387459; 608299, 2387471; 608298, 2387472; 608298, 2387473; 608289, 2387479; 608252, 2387489; 608234, 2387501; 608228, 2387506; 608223, 2387520; 608230, 2387572; 608232, 2387576; 608238, 2387590; 608252, 2387607; 608267, 2387627; 608267, 2387628; 608272, 2387642; 608275, 2387670; 608275, 2387671; 608273, 2387689; 608258, 2387739; 608257, 2387765; 608259, 2387774; 608270, 2387794; 608274, 2387812; 608274, 2387813; 608254, 2387851; 608254, 2387852; 608227, 2387885; 608190, 2387914; 608165, 2387924; 608146, 2387938; 608143, 2387944; 608141, 2387956; 608156, 2388000; 608156, 2388001; 608156, 2388002; 608152, 2388015; 608129, 2388052; 608116, 2388066; return to starting point.

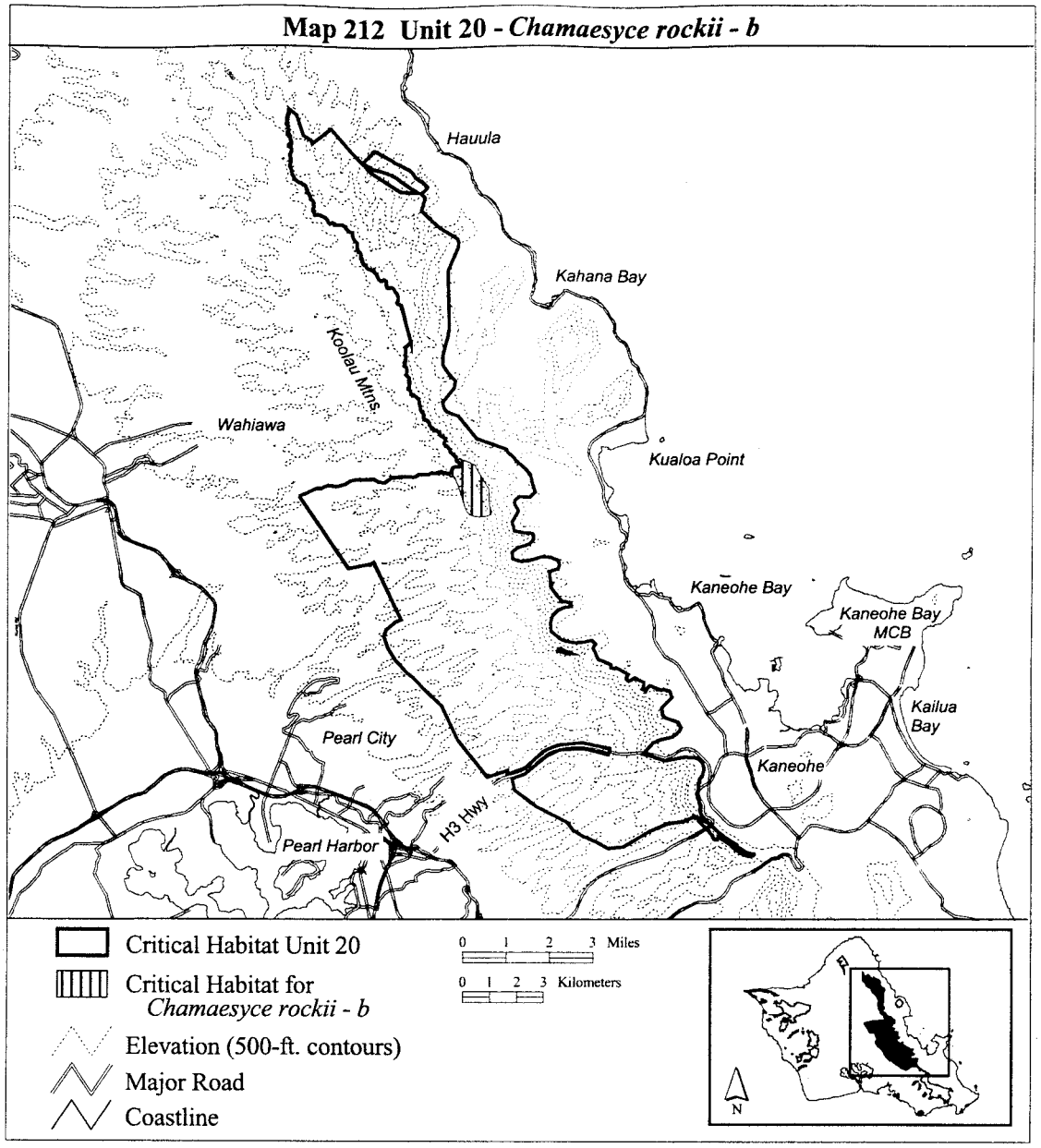
(ii) **Note:** Map 211 follows:



(212) Oahu 20—*Chamaesyce rockii*—b (197 ha; 487 ac)

(i) Unit consists of the following 49 boundary points: Start at 613058, 2377772; 613083, 2377776; 613146, 2377768; 613220, 2377736; 613266, 2377726; 613342, 2377738; 613361, 2377750; 613368, 2377747; 613413, 2377754; 613415, 2377755; 613449, 2377784; 613454, 2377825; 613460, 2377881; 613497, 2377929; 613554, 2377977; 613555, 2377986; 613676, 2377976; 613697, 2377987; 613721, 2377976; 613733, 2377976; 613762, 2378001; 613771, 2378068; 613764, 2378090; 613757, 2378093; 613754, 2378093; 613750, 2378096; 613719, 2378107; 613693, 2378145; 613608, 2378209; 613592, 2378229; 613742, 2378300; 613892, 2378229; 614077, 2378166; 614294, 2378060; 614314, 2377969; 614803, 2377164; 614811, 2376545; 614906, 2376292; 614870, 2376202; 614712, 2376131; 614412, 2376111; 614235, 2376135; 614014, 2376257; 613919, 2376438; 613663, 2377259; 613529, 2377598; 613024, 2377732; 613011, 2377758; 613040, 2377760; return to starting point.

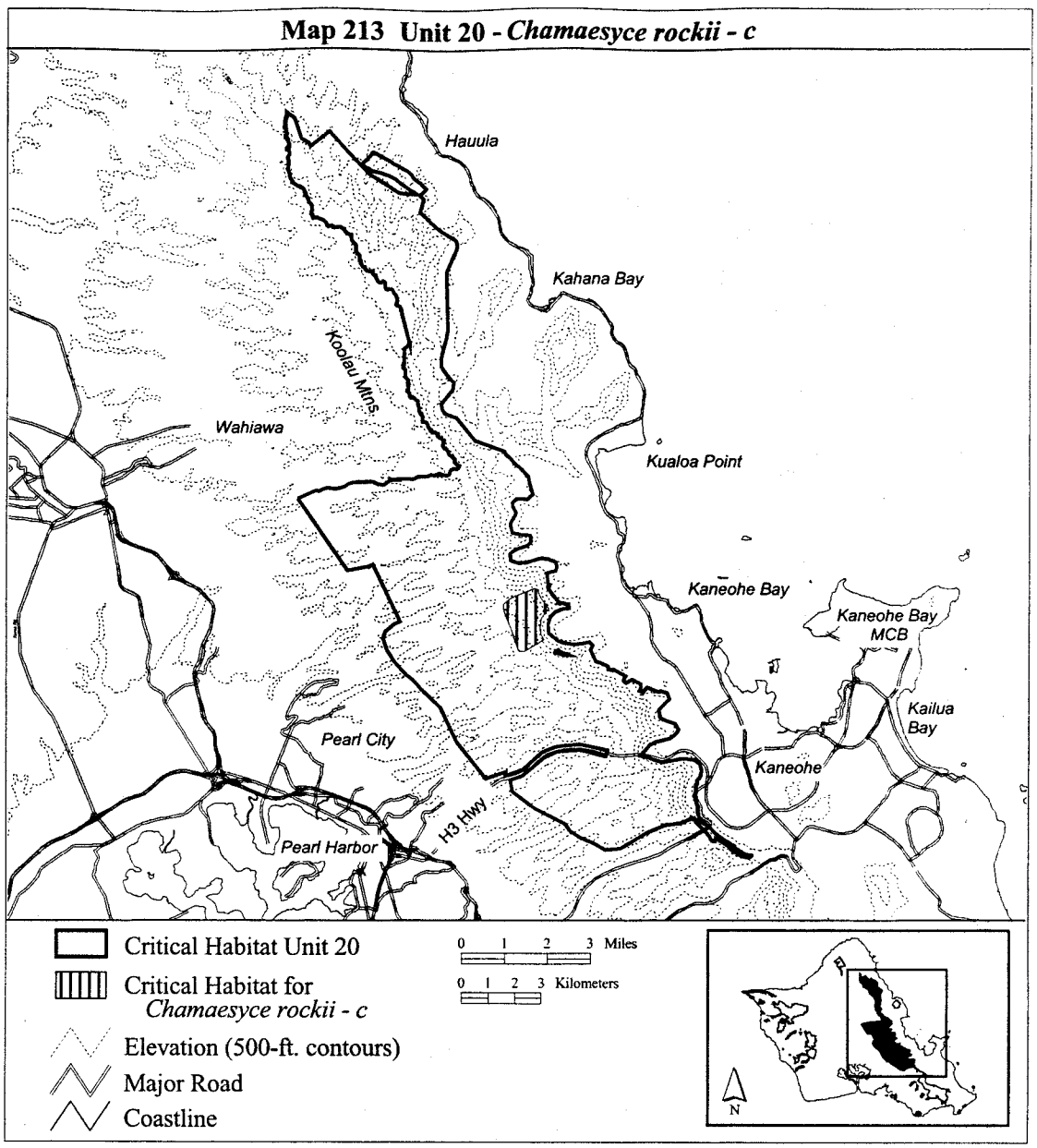
(ii) **Note:** Map 212 follows:



(213) Oahu 20—*Chamaesyce rockii*—c (258 ha; 639 ac)

(i) Unit consists of the following 24 boundary points: Start at 616808, 2373189; 616937, 2372986; 617094, 2372792; 617131, 2372718; 616965, 2372533; 616836, 2372311; 616817, 2372043; 616836, 2371794; 616963, 2371582; 616212, 2371122; 616003, 2371142; 615865, 2371461; 615736, 2371941; 615496, 2372468; 615422, 2372690; 615413, 2372893; 615625, 2373078; 615810, 2373180; 616106, 2373309; 616457, 2373448; 616623, 2373503; 616697, 2373457; 616752, 2373448; 616752, 2373337; return to starting point.

(ii) **Note:** Map 213 follows:



(214) Oahu 20—*Cyanea acuminata*—b (2,522 ha; 6,231 ac)

(i) Unit consists of the following 537 boundary: Start at 612247, 2377695; 612255, 2377697; 612402, 2377690; 612402, 2377689; 612403, 2377685; 612432, 2377673; 612468, 2377676; 612482, 2377684; 612483, 2377688; 612505, 2377688; 612575, 2377698; 612596, 2377708; 612604, 2377703; 612630, 2377702; 612668, 2377720; 612688, 2377749; 612686, 2377751; 612705, 2377757; 612764, 2377738; 612765, 2377738; 612794, 2377742; 612814, 2377728; 612853, 2377742; 612870, 2377747; 613040, 2377760; 613059, 2377772; 613059, 2377774; 613085, 2377777; 613154, 2377768; 613224, 2377738; 613264, 2377728; 613265, 2377728; 613335, 2377738; 613336, 2377738; 613359, 2377752; 613368, 2377747; 613413, 2377754; 613415, 2377755; 613449, 2377784; 613454, 2377825; 613460, 2377881; 613497, 2377929; 613554, 2377977; 613555, 2377987; 613674, 2377978; 613675, 2377978; 613694, 2377988; 613721, 2377976; 613733, 2377976; 613762, 2378001; 613771, 2378068; 613764, 2378090; 613757, 2378093; 613753, 2378093; 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613462, 2378464; 613447, 2378478; 613424, 2378499; 613386, 2378532; 613364, 2378562; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248, 2378749; 613247, 2378750; 613232, 2378759; 613213, 2378764; 613199, 2378769; 613190, 2378778; 613172, 2378818; 613172, 2378819; 613152, 2378848; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 613142, 2379072; 613115, 2379100;

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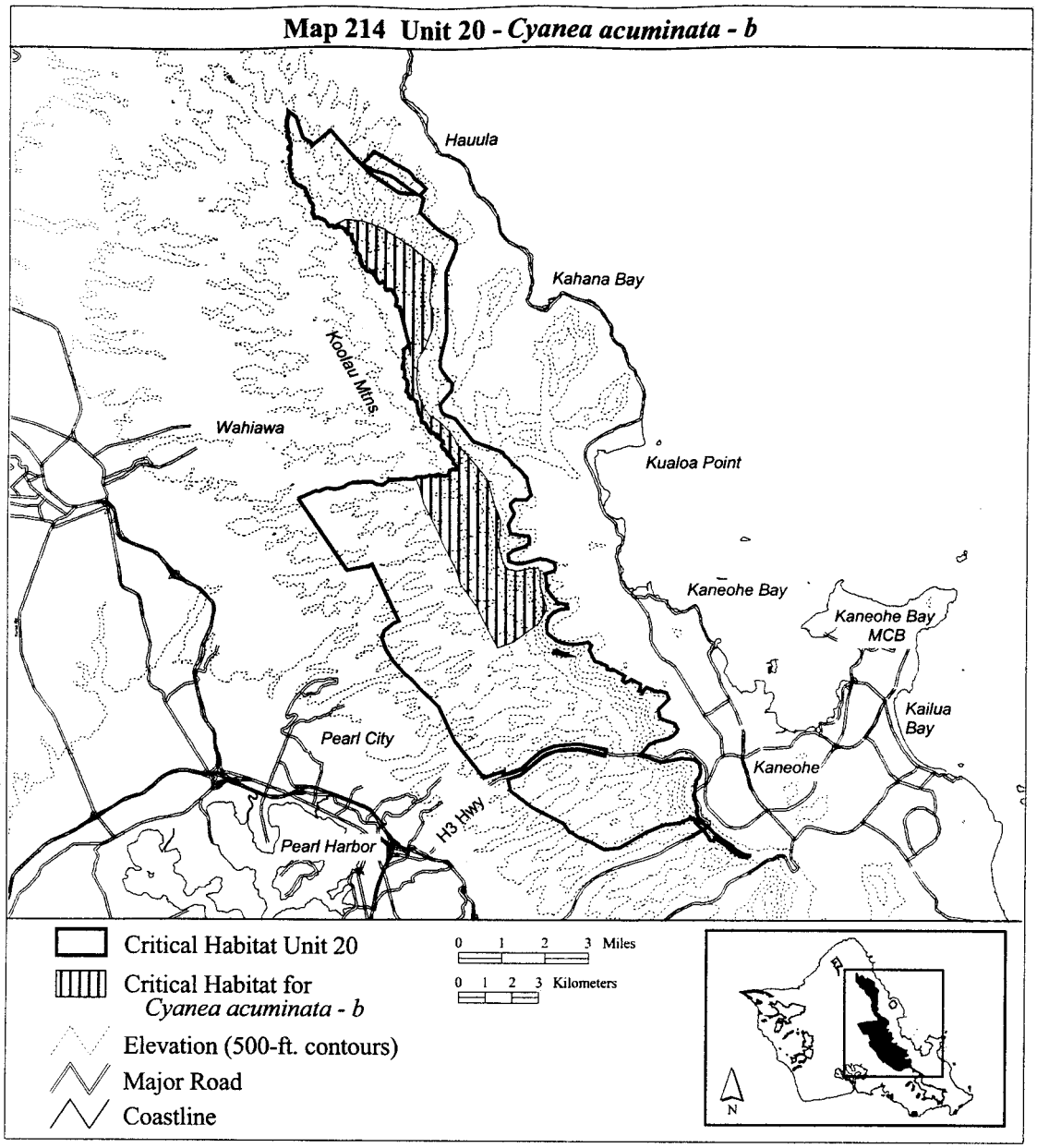
(ii) **Note:** Map 214 follows:



(215) Oahu 20—*Cyanea crispa*—a (1,831 ha; 4,525 ac)

(i) Unit consists of the following 326 boundary points: Start at 607399, 2389315; 608317, 2389401; 608490, 2389389; 608490, 2389387; 608704, 2389418; 608998, 2389418; 609459, 2389349; 609794, 2389211; 610458, 2388905; 610724, 2388690; 610978, 2388578; 611675, 2388051; 611900, 2387826; 612915, 2386959; 612933, 2386966; 613504, 2386561; 613647, 2386386; 613617, 2386176; 613441, 2385755; 613242, 2385368; 613234, 2385195; 613204, 2384658; 613279, 2383989; 613298, 2383575; 613298, 2383305; 613250, 2383066; 613234, 2382844; 613147, 2382562; 613073, 2382491; 612466, 2382243; 611823, 2382158; 612178, 2383560; 612031, 2384175; 611415, 2384914; 610979, 2384884; 610976, 2384927; 610973, 2384941; 610973, 2384942; 610965, 2384959; 610965, 2384960; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610809, 2384945; 610780, 2384942; 610766, 2384942; 610749, 2384953; 610709, 2384995; 610692, 2385014; 610679, 2385041; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610558, 2385236; 610543, 2385248; 610533, 2385266; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610508, 2385342; 610497, 2385351; 610496,

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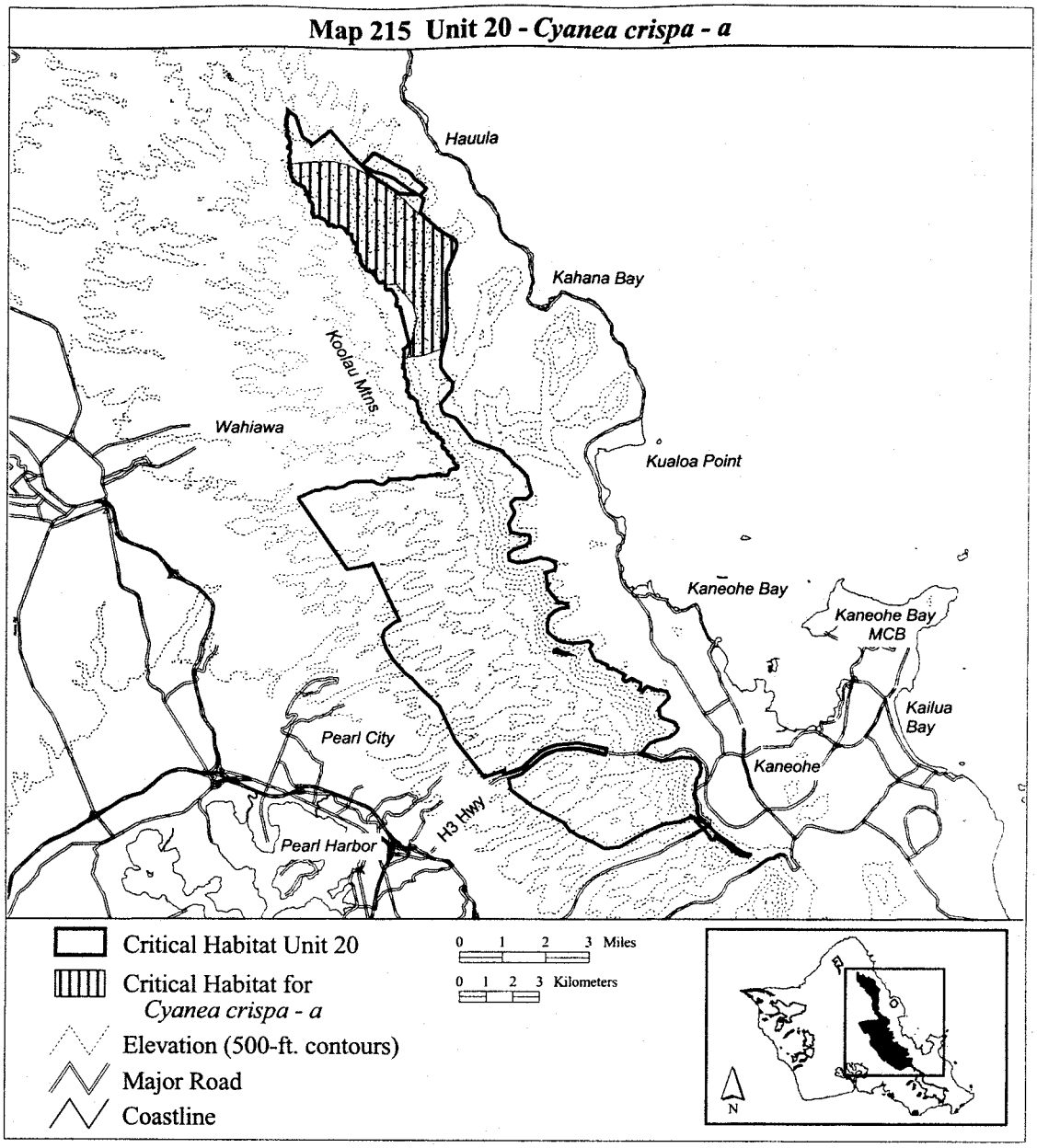
(ii) **Note:** Map 215 follows:

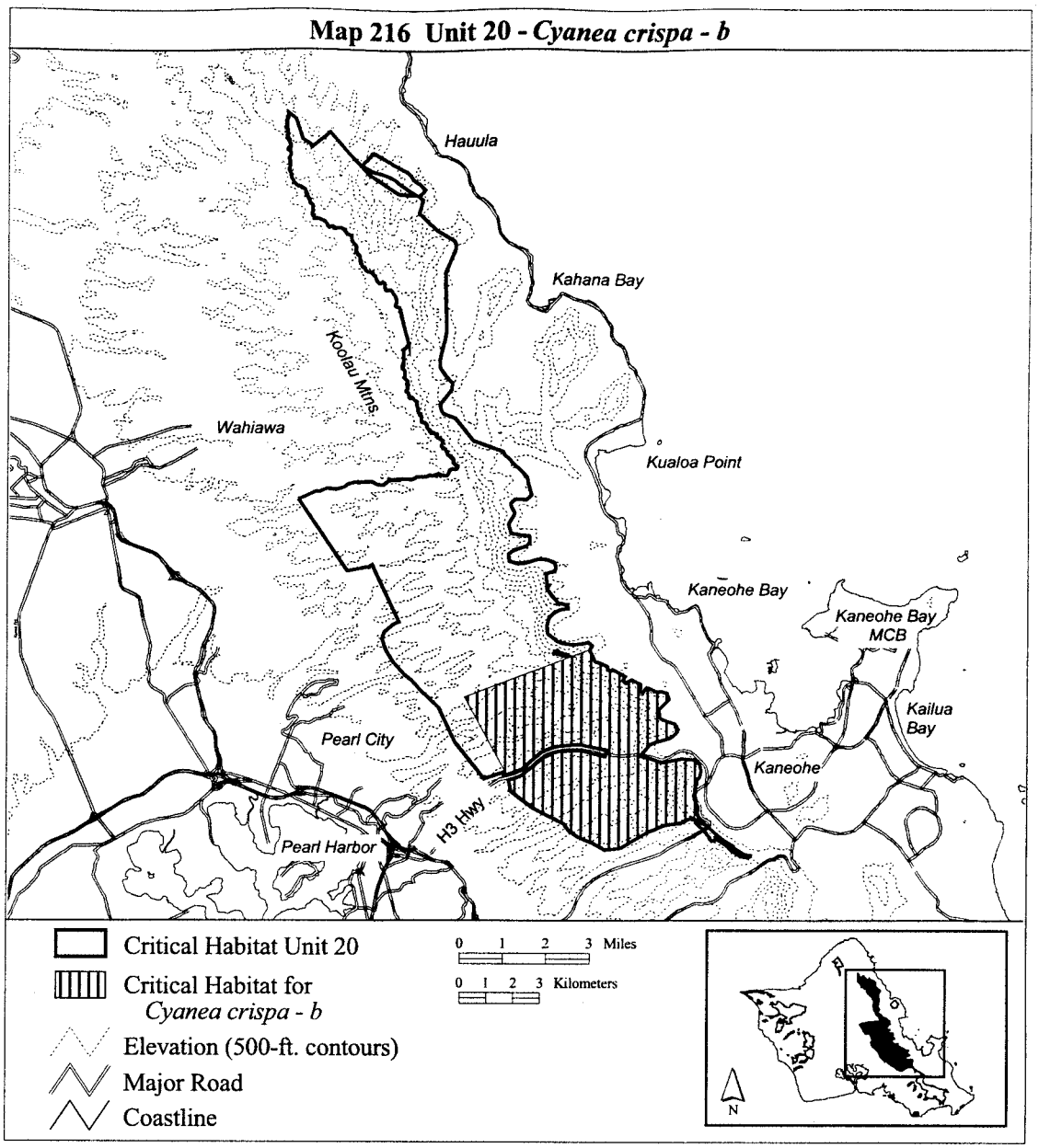


(216) Oahu 20—*Cyanea crispa*—b (3,874 ha; 9,572 ac)

(i) Unit consists of the following 120 boundary points: Start at 618290, 2364233; 618037, 2364397; 617997, 2364397; 617770, 2364713; 617769, 2364714; 616591, 2365312; 616219, 2365594; 615789, 2365919; 615699, 2366341; 616026, 2366454; 616159, 2366492; 616880, 2367092; 616979, 2367172; 617017, 2367191; 617469, 2367394; 618307, 2367463; 618509, 2367419; 619283, 2367245; 619284, 2367245; 619285, 2367245; 619285, 2367246; 619351, 2367450; 619351, 2367451; 619351, 2367452; 619350, 2367452; 619340, 2367454; 619344, 2367466; 618301, 2367677; 617421, 2367598; 616993, 2367420; 616871, 2367371; 616186, 2366751; 615512, 2366486; 615556, 2366713; 614049, 2369433; 618671, 2371225; 618900, 2370776; 619118, 2370706; 619372, 2370572; 619374, 2370484; 619525, 2370441; 619565, 2370469; 620035, 2370220; 619958, 2370126; 619950, 2370045; 620054, 2369969; 620264, 2370098; 620591, 2369924; 620603, 2369796; 620565, 2369678; 620681, 2369614; 620750, 2369721; 620836, 2369794; 620837, 2369794; 620893, 2369780; 621068, 2369721; 621103, 2369654; 621177, 2369662; 621259, 2369628; 621340, 2369662; 621443, 2369636; 621570, 2369603; 621648, 2369368; 621266, 2368963; 621265, 2368962; 621265, 2368961; 621321, 2368668; 621322, 2368667; 621347, 2368657; 621526, 2368567; 621638, 2368535; 621883, 2368432; 621958, 2368318; 621999, 2368255; 621955, 2368124; 621842, 2368014; 621694, 2367904; 621659, 2367893; 621142, 2367756; 620978, 2367684; 620961, 2367679; 620604, 2367260; 620603, 2367260; 620603, 2367259; 620604, 2367258; 621050, 2367138; 621075, 2367114; 621379, 2367024; 621510, 2367014; 621830, 2367079; 622145, 2367158; 622360, 2367124; 622607, 2367101; 622785, 2366983; 622809, 2366966; 622866, 2366712; 622789, 2366441; 622688, 2366317; 622686, 2366200; 622657, 2366174; 622641, 2366065; 622641, 2365926; 622595, 2365765; 622595, 2365764; 622658,

2365627; 622664, 2365546; 622731, 2365278; 622707, 2365156; 622707, 2365155; 622708, 2365153; 622641, 2365005; 622145, 2364750; 621489, 2364647; 620825, 2364374; 619887, 2363809; 619327, 2363736; 619306, 2363734; 619289, 2363742; 618843, 2364003; 618621, 2364070; return to starting point.

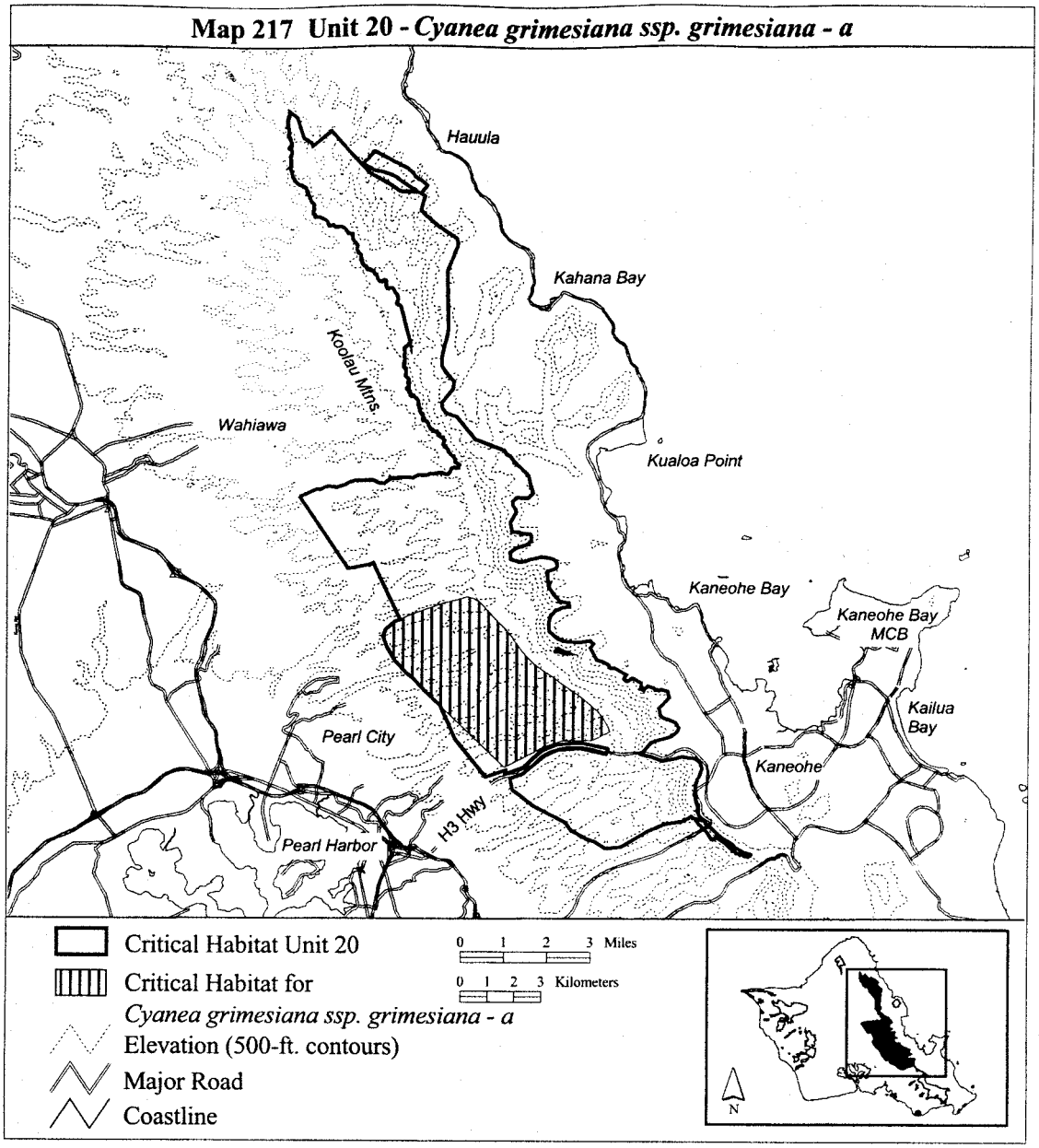
(ii) **Note:** Map 216 follows:



(217) Oahu 20—*Cyanea grimesiana* ssp. *grimesiana*—a (2,634 ha; 6,506 ac)

(i) Unit consists of the following 38 boundary points: Start at 615490, 2366752; 612398, 2369695; 612094, 2370041; 611819, 2370260; 611368, 2370754; 611085, 2371205; 610944, 2371614; 611022, 2371876; 611396, 2372179; 611946, 2372426; 612560, 2372652; 613209, 2372878; 613703, 2373012; 614077, 2373117; 614331, 2373061; 614557, 2372906; 614910, 2372539; 615136, 2372264; 615481, 2371939; 615799, 2371565; 615800, 2371529; 616088, 2371135; 616300, 2370873; 616582, 2370598; 616942, 2370344; 617358, 2370062; 617535, 2369928; 618156, 2369490; 618692, 2369067; 618996, 2368827; 618981, 2368819; 619052, 2368735; 619186, 2368559; 619327, 2368319; 619423, 2368067; 618778, 2367765; 617647, 2367736; 616951, 2367504; return to starting point.

(ii) **Note:** Map 217 follows:

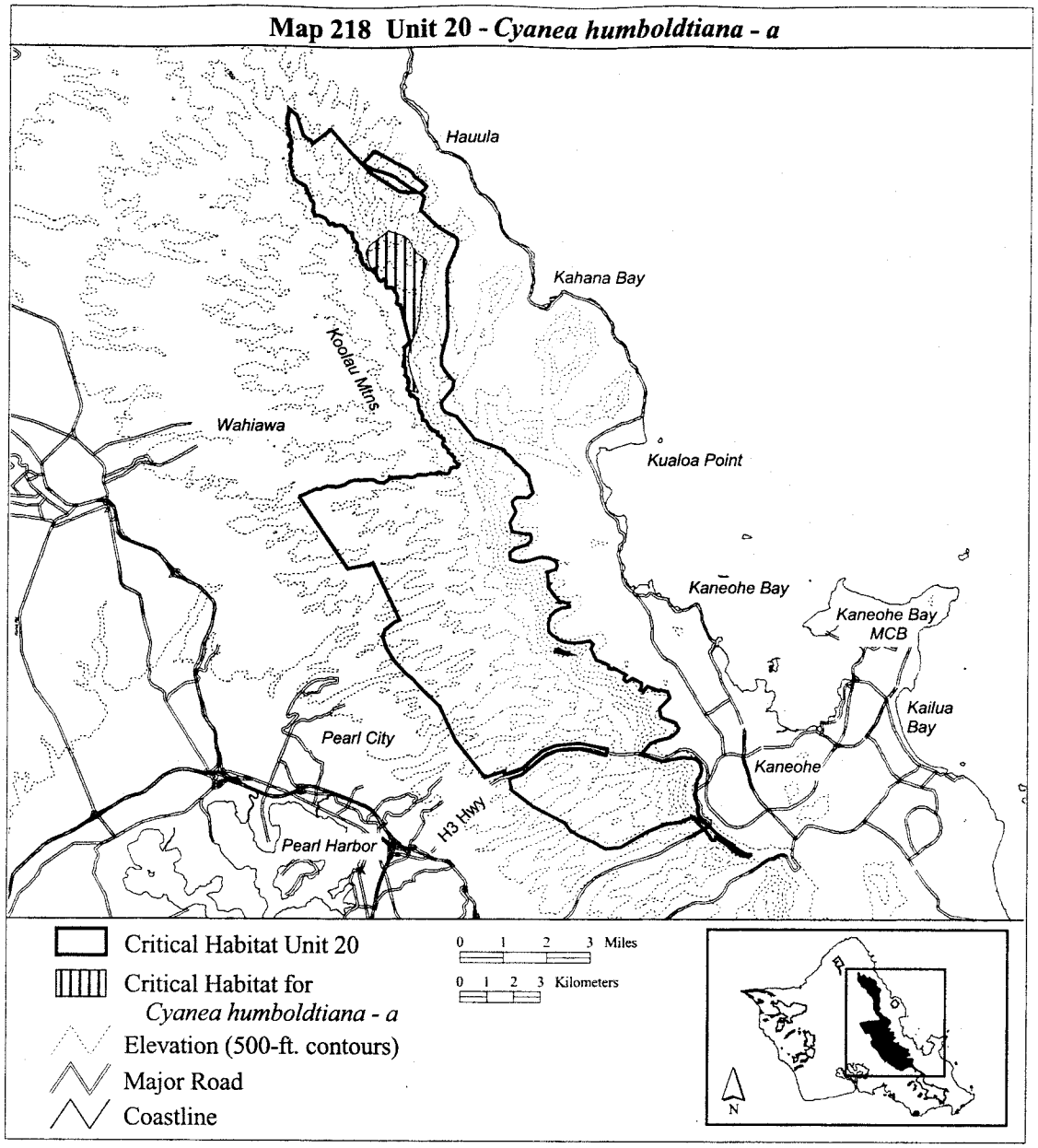


(218) Oahu 20—*Cyanea humboltiana*—a (502 ha; 1,242 ac)

(i) Unit consists of the following 228 boundary points: Start at 610424, 2385362; 610216, 2385979; 610366, 2386247; 611070, 2386825; 611542, 2386672; 611670, 2386629; 611770, 2386563; 611851, 2386477; 611913, 2386372; 611956, 2386253; 612013, 2386148; 612085, 2386096; 612147, 2386005; 612290, 2385881; 612418, 2385800; 612518, 2385719; 612523, 2385648; 612485, 2385529; 612418, 2385324; 612409, 2385100; 612332, 2384972; 612309, 2384867; 612342, 2384781; 612313, 2384571; 612299, 2384309; 612297, 2384309; 612271, 2383706; 612129, 2383015; 611899, 2382437; 611847, 2382271; 611842, 2382013; 611885, 2381742; 611928, 2381561; 611999, 2381404; 612042, 2381266; 612037, 2381266; 612227, 2380774; 611926, 2380827; 611882, 2380835; 611880, 2380839; 611856, 2380862; 611812, 2380892; 611799, 2380905; 611798, 2380918; 611800, 2380925; 611815, 2380943; 611838, 2380960; 611838, 2380961; 611848, 2380980; 611851, 2381022; 611848, 2381067; 611853, 2381081; 611879, 2381118; 611879, 2381119; 611879, 2381131; 611879, 2381132; 611868, 2381149; 611858, 2381155; 611857, 2381155; 611847, 2381160; 611837, 2381167; 611828, 2381178; 611825, 2381193; 611830, 2381214; 611838, 2381223; 611854, 2381250; 611854, 2381251; 611856, 2381258; 611855, 2381265; 611855, 2381266; 611849, 2381285; 611848, 2381285; 611848, 2381286; 611828, 2381312; 611784, 2381363; 611765, 2381383; 611734, 2381424; 611733, 2381424; 611730, 2381426; 611737, 2381446; 611745, 2381514; 611746, 2381550; 611748, 2381618; 611748, 2381619; 611739, 2381669; 611736, 2381680; 611736, 2381681; 611727, 2381699; 611727, 2381700; 611726, 2381700; 611673, 2381758; 611666, 2381774; 611666, 2381794; 611670, 2381810; 611702, 2381865; 611702, 2381866; 611712, 2381882; 611712, 2381883; 611712, 2381915; 611712, 2381916; 611710, 2381923; 611687, 2381955; 611687, 2381978; 611695, 2381990; 611702, 2382013; 611702, 2382014; 611700,

2382058; 611694, 2382120; 611695, 2382225; 611701, 2382278; 611701, 2382279; 611699, 2382320; 611695, 2382360; 611693, 2382433; 611692, 2382455; 611698, 2382473; 611744, 2382512; 611805, 2382557; 611831, 2382588; 611844, 2382604; 611844, 2382605; 611850, 2382621; 611874, 2382653; 611896, 2382683; 611896, 2382684; 611903, 2382704; 611903, 2382705; 611903, 2382706; 611902, 2382707; 611901, 2382707; 611900, 2382707; 611900, 2382706; 611899, 2382706; 611892, 2382686; 611891, 2382684; 611795, 2383056; 611597, 2383822; 611567, 2383939; 611567, 2383940; 611561, 2383949; 611537, 2384020; 611536, 2384020; 611525, 2384040; 611515, 2384051; 611495, 2384064; 611460, 2384078; 611430, 2384082; 611404, 2384097; 611396, 2384120; 611393, 2384150; 611397, 2384172; 611413, 2384204; 611422, 2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611429, 2384357; 611417, 2384382; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611374, 2384489; 611358, 2384501; 611334, 2384524; 611326, 2384536; 611302, 2384584; 611257, 2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 611192, 2384704; 611191, 2384703; 611165, 2384698; 611119, 2384696; 611118, 2384696; 611082, 2384690; 611081, 2384690; 611065, 2384682; 611064, 2384681; 611058, 2384675; 611046, 2384674; 611039, 2384675; 611028, 2384688; 611014, 2384713; 610994, 2384778; 610981, 2384838; 610976, 2384927; 610973, 2384941; 610973, 2384942; 610965, 2384959; 610965, 2384960; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610809, 2384945; 610780, 2384942; 610766, 2384942; 610749, 2384953; 610709, 2384995; 610692, 2385014; 610679, 2385041; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610558, 2385236; 610543, 2385248; 610533, 2385266; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610508, 2385342; 610497, 2385351; 610496, 2385351; 610454, 2385362; 610440, 2385362; 610440, 2385363; return to starting point.

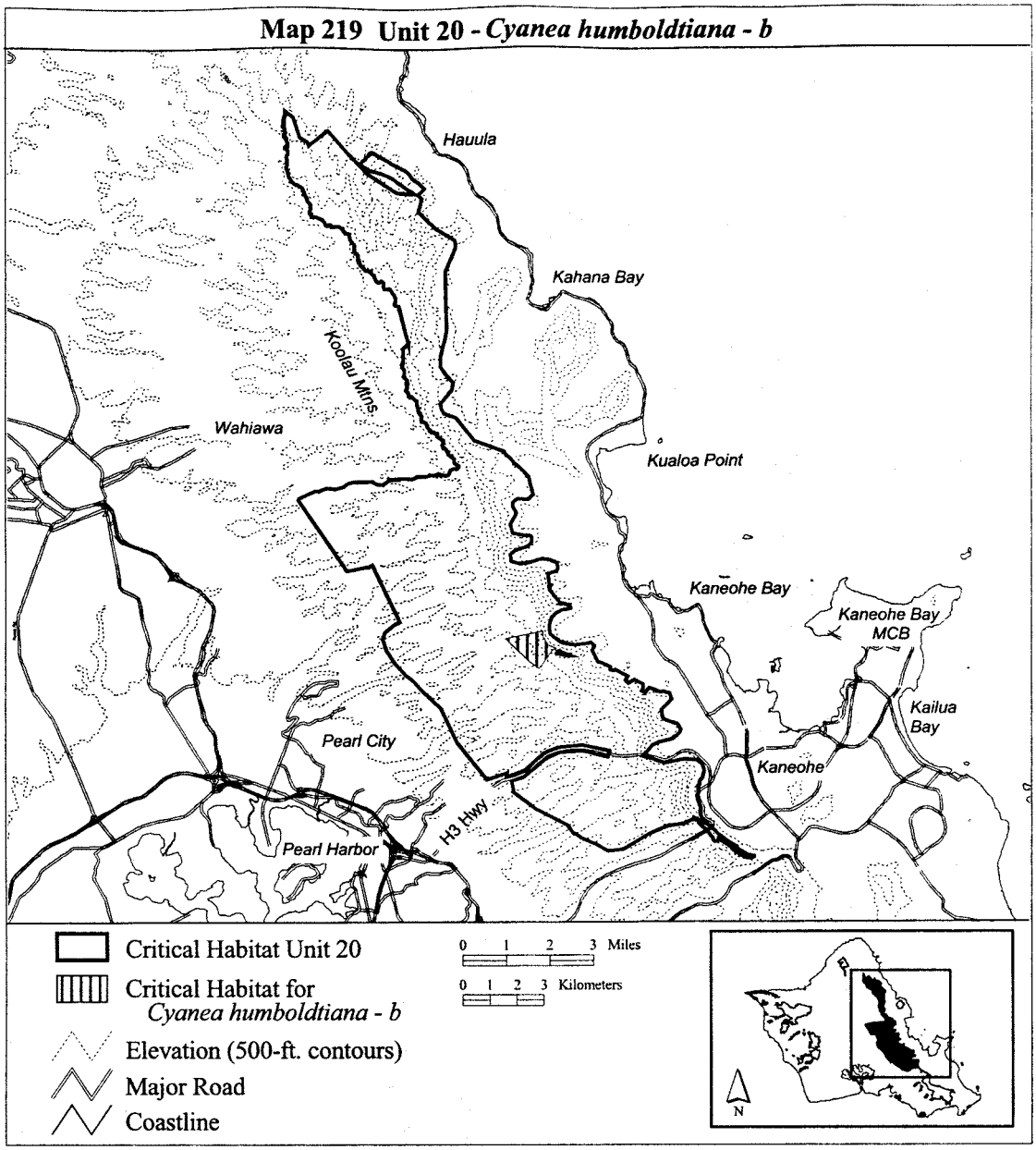
(ii) **Note:** Map 218 follows:



(219) Oahu 20—*Cyanea humboltiana*—b (127 ha; 315 ac)

(i) Unit consists of the following 8 boundary points: Start at 615466, 2371631; 616875, 2371919; 616875, 2371746; 617062, 2371401; 617350, 2371271; 617235, 2371214; 616746, 2370524; 616358, 2370797; return to starting point.

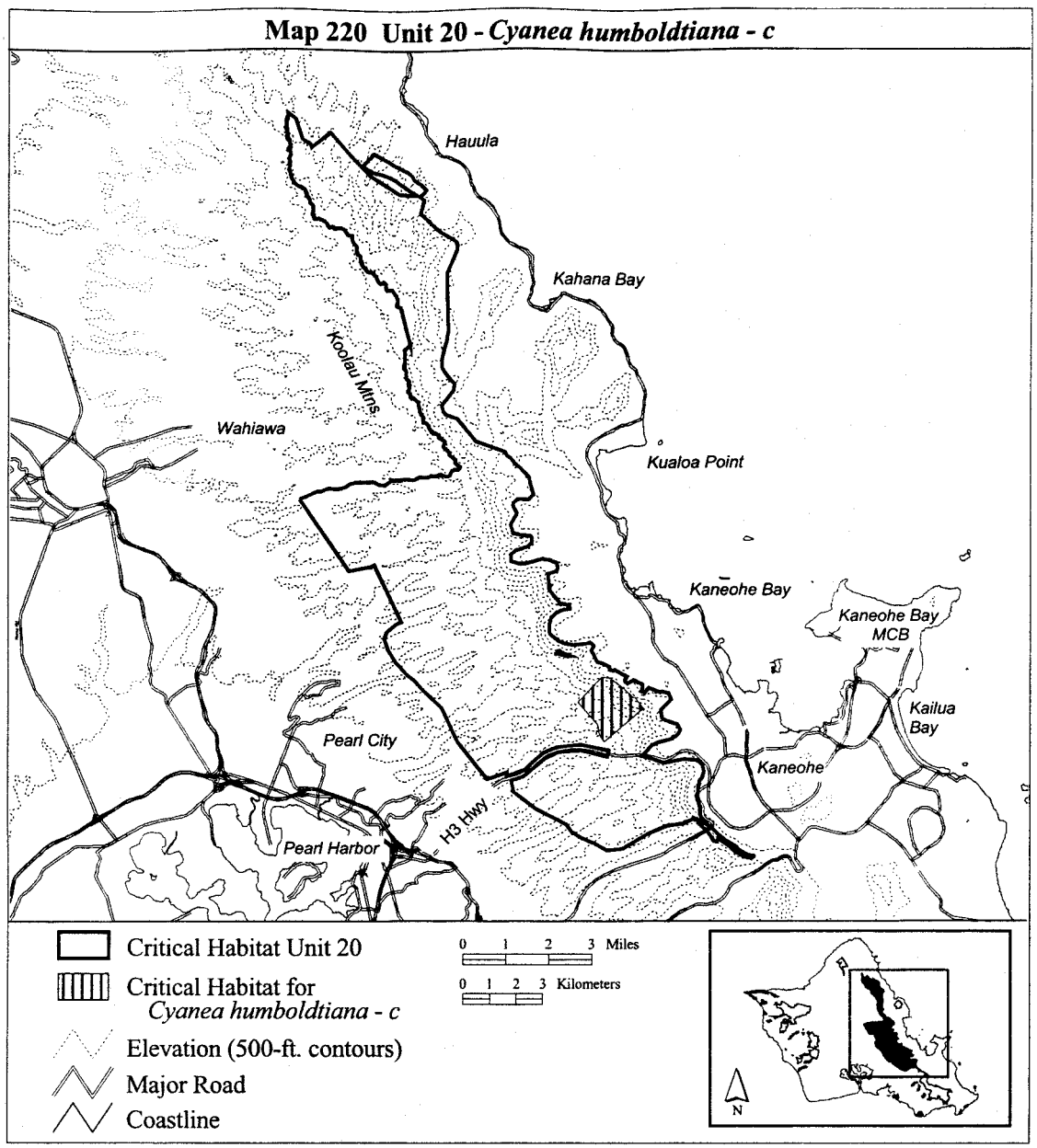
(ii) **Note:** Map 219 follows:



(220) Oahu—*Cyanea humboltiana*—c (299 ha; 740 ac)

(i) Unit consists of the following 10 boundary points: Start at 618213, 2369258; 619090, 2370193; 619421, 2370150; 619895, 2369776; 620269, 2369431; 620312, 2369445; 620629, 2369042; 619176, 2367791; 619018, 2368050; 618932, 2368438; return to starting point.

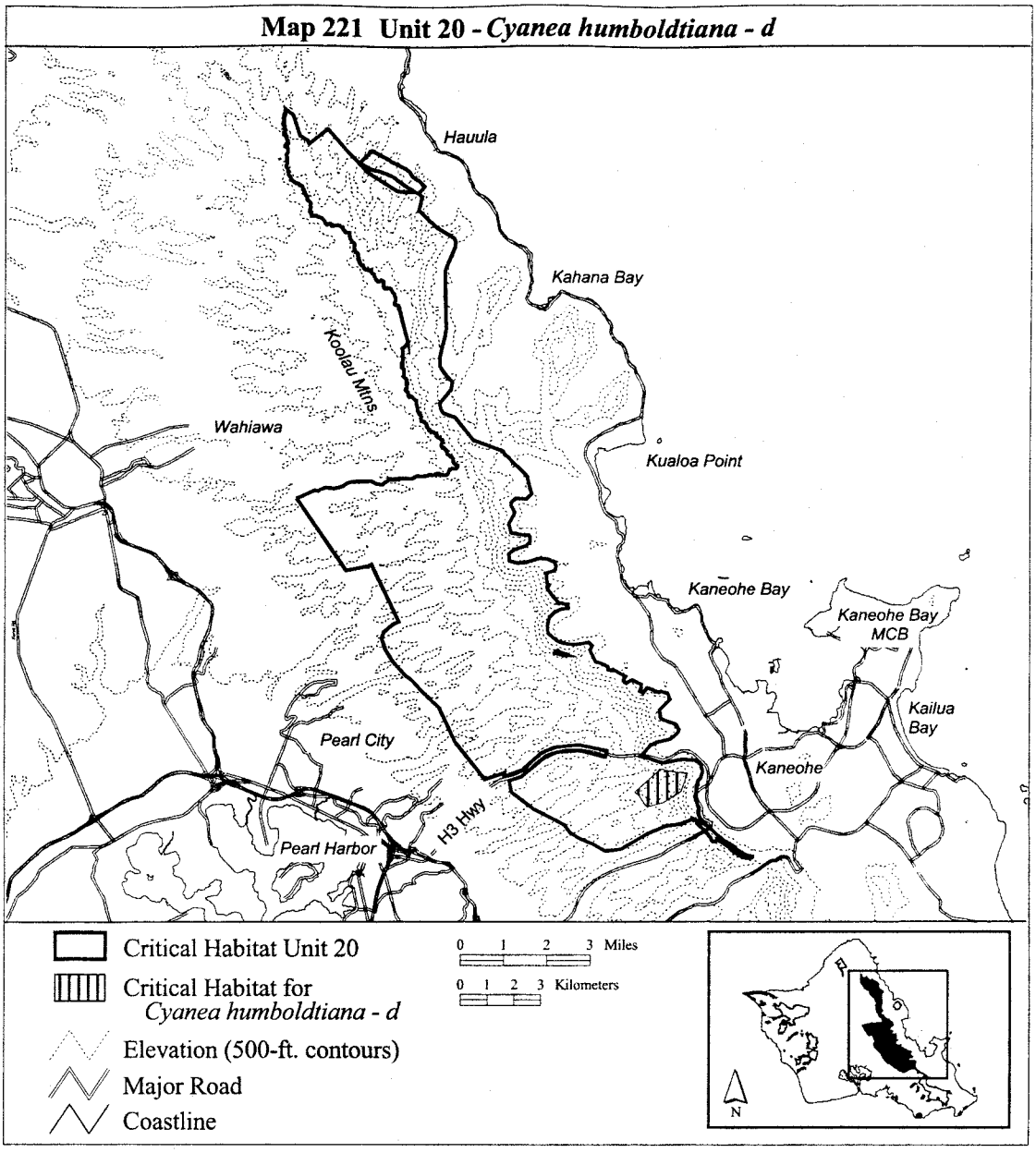
(ii) **Note:** Map 220 follows:



(221) Oahu—*Cyanea humboltiana*—d (159 ha; 393 ac)

(i) Unit consists of the following 12 boundary points: Start at 620384, 2365922; 621334, 2366799; 621549, 2366727; 621923, 2366654; 622081, 2366668; 622168, 2366668; 622311, 2366596; 622081, 2365949; 621434, 2365548; 620830, 2365375; 620701, 2365533; 620543, 2365792; return to starting point.

(ii) **Note:** Map 221 follows:



(222) Oahu—*Cyanea koolauensis*—a (468 ha; 1,158 ac)

(i) Unit consists of the following 417 boundary points: Start at 607259, 2390761; 607620, 2390452; 608141, 2390155; 608439, 2389559; 608513, 2388964; 608959, 2388518; 609183, 2388443; 609227, 2388443; 610028, 2387823; 610076, 2387327; 610083, 2387317; 609877, 2386574; 609867, 2386564; 610409, 2385617; 610403, 2385612; 610841, 2385019; 610826, 2384951; 610809, 2384945; 610780, 2384942; 610766, 2384942; 610749, 2384953; 610709, 2384995; 610692, 2385014; 610679, 2385041; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610558, 2385236; 610543, 2385248; 610533, 2385266; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610508, 2385342; 610497, 2385351; 610496, 2385351; 610454, 2385362; 610440, 2385362; 610394, 2385362; 610370, 2385370; 610333, 2385392; 610292, 2385406; 610280, 2385413; 610261, 2385429; 610248, 2385449; 610237, 2385473; 610222, 2385512; 610222, 2385513; 610214, 2385522; 610206, 2385531; 610206, 2385532; 610187, 2385540; 610166, 2385544; 610134, 2385558; 610129, 2385561; 610122, 2385580; 610119, 2385604; 610119, 2385605; 610112, 2385620; 610111, 2385621; 610093, 2385637; 610078, 2385652; 610077, 2385659; 610090, 2385687; 610097, 2385698; 610098, 2385699; 610098, 2385700; 610097, 2385705; 610097, 2385706; 610081, 2385734; 610054, 2385762; 610039, 2385790; 610028, 2385816; 610024, 2385839; 610027, 2385873; 610035, 2385901; 610035, 2385902; 610035, 2385943; 610035, 2385944; 610029, 2385956; 610029, 2385957; 610003, 2385991; 609994, 2386004; 609993, 2386004; 609993, 2386005; 609971, 2386017; 609955, 2386025; 609948, 2386031; 609929, 2386085; 609909, 2386112; 609908, 2386113; 609898, 2386121; 609887, 2386134; 609883, 2386146; 609884, 2386168; 609879, 2386204; 609884, 2386223; 609905, 2386254; 609905, 2386255; 609909, 2386278; 609909, 2386279; 609907, 2386291; 609881, 2386354; 609880, 2386355; 609858,

2386384; 609834, 2386404; 609797, 2386443; 609797, 2386444; 609790, 2386450; 609769, 2386468; 609748, 2386495; 609737, 2386524; 609719, 2386644; 609711, 2386719; 609711, 2386720; 609705, 2386737; 609704, 2386737; 609704, 2386738; 609693, 2386745; 609692, 2386745; 609595, 2386759; 609570, 2386766; 609560, 2386772; 609536, 2386797; 609481, 2386863; 609461, 2386894; 609449, 2386918; 609449, 2386919; 609439, 2386933; 609438, 2386934; 609425, 2386943; 609379, 2386966; 609323, 2387005; 609308, 2387012; 609269, 2387020; 609248, 2387021; 609184, 2387014; 609134, 2387001; 609078, 2386982; 609074, 2386984; 609062, 2387000; 609048, 2387031; 609047, 2387032; 609025, 2387051; 609024, 2387051; 608989, 2387068; 608988, 2387068; 608975, 2387068; 608974, 2387068; 608905, 2387055; 608862, 2387042; 608856, 2387043; 608849, 2387049; 608810, 2387121; 608794, 2387150; 608794, 2387151; 608776, 2387175; 608736, 2387223; 608719, 2387246; 608718, 2387246; 608718, 2387247; 608693, 2387265; 608692, 2387265; 608643, 2387281; 608604, 2387303; 608558, 2387325; 608497, 2387362; 608496, 2387362; 608459, 2387369; 608458, 2387369; 608435, 2387371; 608434, 2387371; 608410, 2387366; 608377, 2387354; 608355, 2387351; 608336, 2387351; 608316, 2387358; 608308, 2387366; 608294, 2387395; 608292, 2387413; 608300, 2387459; 608299, 2387471; 608298, 2387472; 608298, 2387473; 608289, 2387479; 608252, 2387489; 608234, 2387501; 608228, 2387506; 608223, 2387520; 608230, 2387572; 608232, 2387576; 608238, 2387590; 608252, 2387607; 608267, 2387627; 608267, 2387628; 608272, 2387642; 608275, 2387670; 608275, 2387671; 608273, 2387689; 608258, 2387739; 608257, 2387765; 608259, 2387774; 608270, 2387794; 608274, 2387812; 608274, 2387813; 608254, 2387851; 608254, 2387852; 608227, 2387885; 608190, 2387914; 608165, 2387924; 608146, 2387938; 608143, 2387944; 608141, 2387956; 608156, 2388000; 608156, 2388001; 608156, 2388002; 608152, 2388015; 608129, 2388052; 608116, 2388066; 608100, 2388105; 608092, 2388136; 608092, 2388137; 608082, 2388155; 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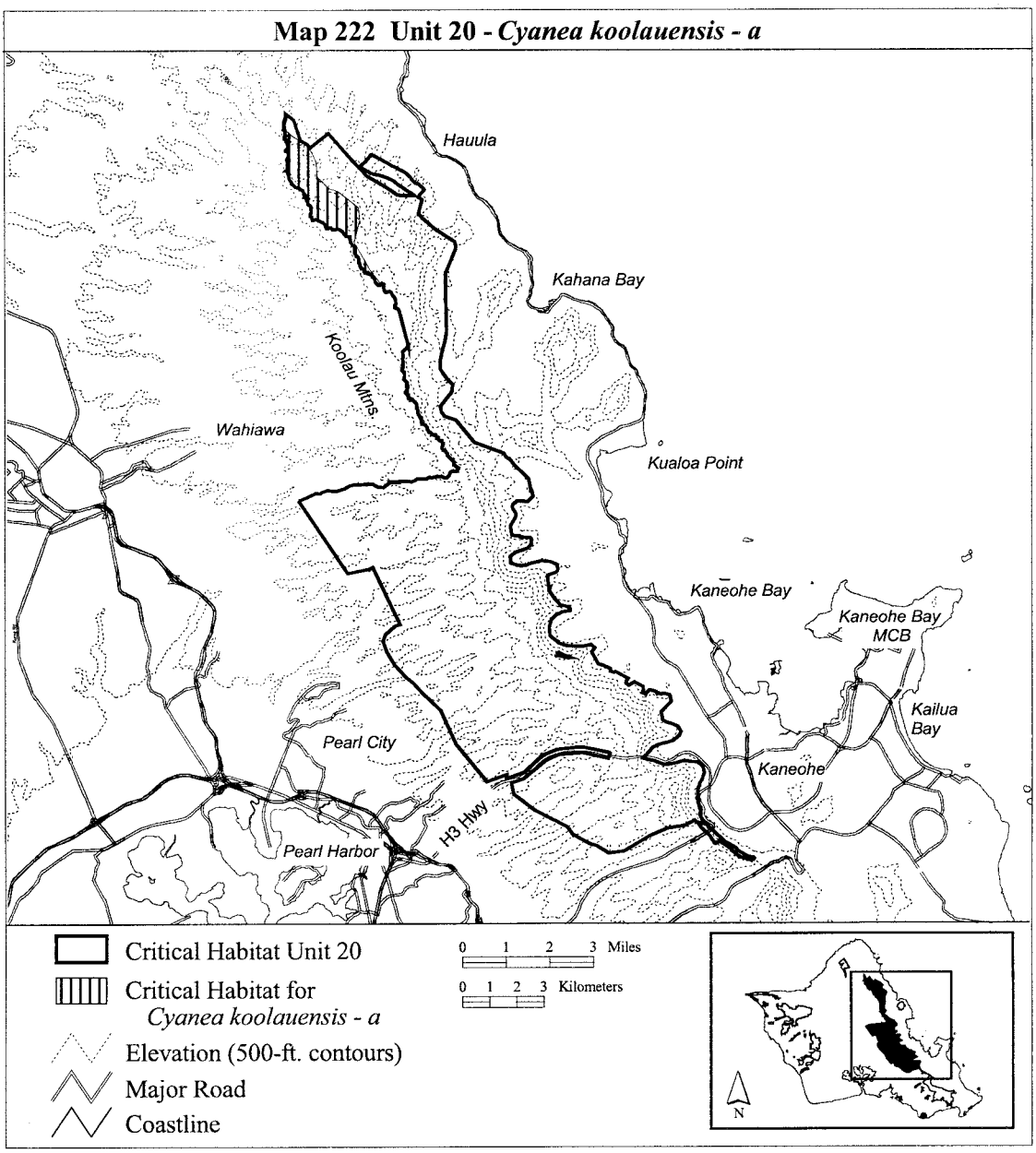
607359, 2389185; 607358, 2389186; 607353, 2389189; 607357, 2389208; 607364, 2389224; 607376, 2389239; 607389, 2389258; 607389, 2389259; 607394, 2389273; 607399, 2389307; 607400, 2389308; 607399, 2389308; 607397, 2389348; 607395, 2389372; 607394, 2389386; 607393, 2389394; 607394, 2389406; 607393, 2389417; 607393, 2389426; 607393, 2389431; 607396, 2389437; 607406, 2389450; 607412, 2389462; 607414, 2389476; 607414, 2389477; 607407, 2389492; 607407, 2389493; 607406, 2389493; 607399, 2389498; 607391, 2389503; 607387, 2389514; 607387, 2389518; 607386, 2389528; 607384, 2389548; 607384, 2389549; 607371, 2389581; 607369, 2389599; 607385, 2389636; 607406, 2389684; 607426, 2389734; 607434, 2389770; 607432, 2389795; 607432, 2389796; 607420, 2389826; 607409, 2389850; 607411, 2389869; 607411, 2389870; 607405, 2389887; 607404, 2389887; 607404, 2389888; 607379, 2389900; 607356, 2389911; 607349, 2389914; 607342, 2389918; 607333, 2389926; 607328, 2389936; 607326, 2389947; 607329, 2389962; 607336, 2389972; 607346, 2389983; 607357, 2389993; 607367, 2389999; 607380, 2390009; 607391, 2390014; 607403, 2390020; 607403, 2390021; 607414, 2390032; 607424, 2390046; 607424, 2390047; 607430, 2390064; 607430, 2390065; 607434, 2390084; 607434, 2390085; 607433, 2390100; 607433, 2390101; 607428, 2390118; 607428, 2390119; 607419, 2390135; 607409, 2390145; 607400, 2390154; 607394, 2390162; 607392, 2390167; 607390, 2390179; 607389, 2390182; 607381, 2390212; 607375, 2390258; 607374, 2390279; 607374, 2390280; 607373, 2390281; 607356, 2390292; 607344, 2390301; 607342, 2390305; 607340, 2390316; 607340, 2390317; 607335, 2390330; 607334, 2390330; 607329, 2390335; 607318, 2390344; 607310, 2390354; 607301, 2390366; 607291, 2390380; 607285, 2390388; 607284, 2390398; 607288, 2390414; 607293, 2390428; 607300, 2390440; 607306, 2390450; 607306, 2390451; 607312, 2390461; 607316, 2390467; 607316, 2390468; 607319, 2390483; 607317, 2390493; 607315, 2390509; 607310, 2390525; 607305, 2390543; 607301, 2390562; 607296, 2390582; 607294, 2390602; 607294, 2390620; 607295, 2390636; 607297, 2390651; 607295, 2390665; 607295, 2390666; 607291, 2390680; 607285, 2390699; 607284, 2390699; 607275, 2390711; 607274, 2390711; 607265, 2390720; 607261, 2390731; 607261, 2390744; 607258, 2390760; return to starting point.

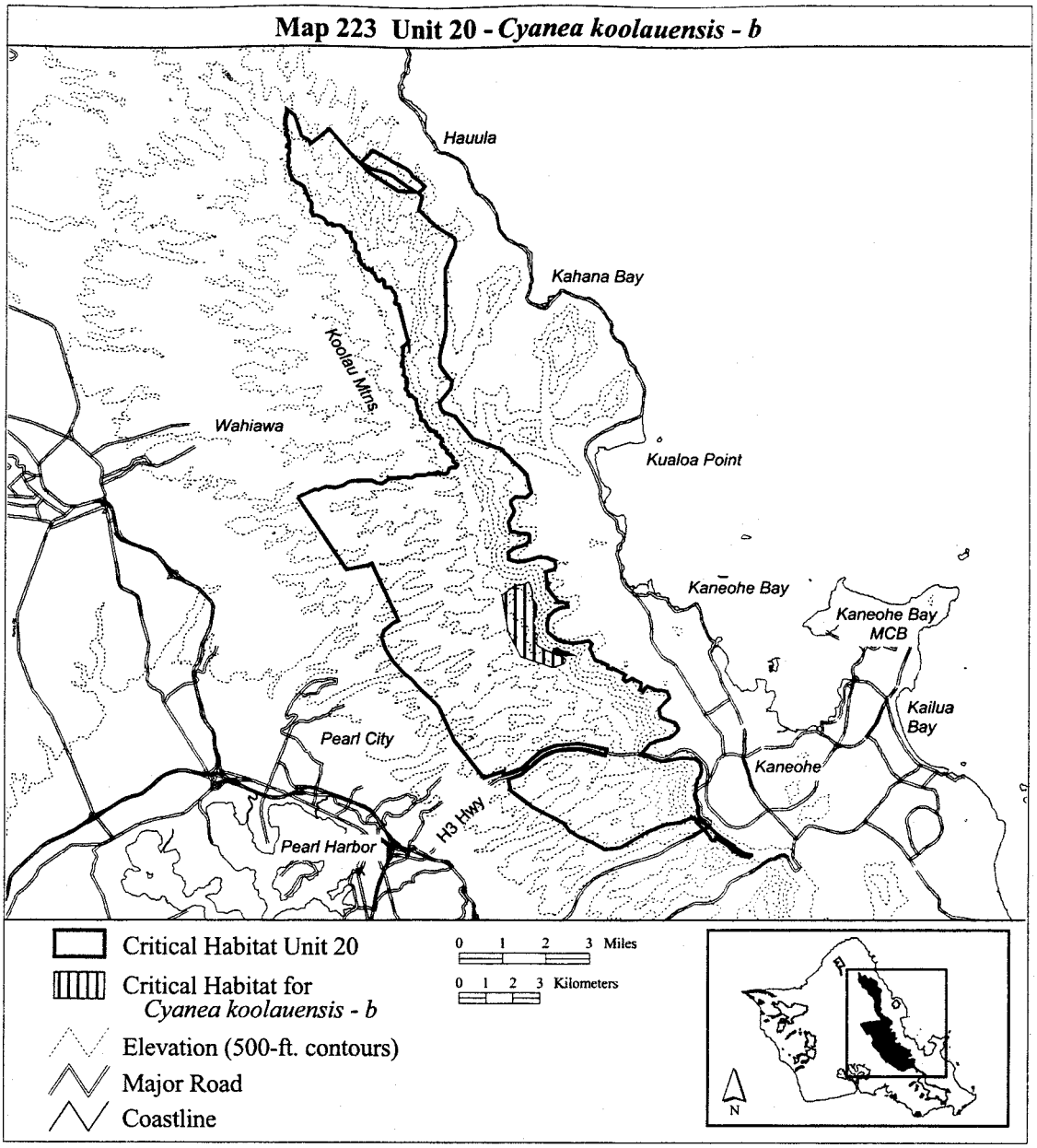
(ii) **Note:** Map 222 follows:



(223) Oahu 20—*Cyanea koolauensis*—b (323 ha; 799 ac)

(i) Unit consists of the following 27 boundary points: Start at 615702, 2371729; 615731, 2371775; 615655, 2371857; 615426, 2373195; 615942, 2373592; 616024, 2373566; 616250, 2373608; 616405, 2373693; 616476, 2373594; 616561, 2373354; 616561, 2373072; 616716, 2372874; 616730, 2372719; 616674, 2372352; 616575, 2372196; 616709, 2371996; 616624, 2371850; 616765, 2371726; 616744, 2371589; 616744, 2371321; 617154, 2371109; 617493, 2370954; 617687, 2370912; 617848, 2370771; 617757, 2370634; 617338, 2370493; 616146, 2370893; return to starting point.

(ii) **Note:** Map 223 follows:



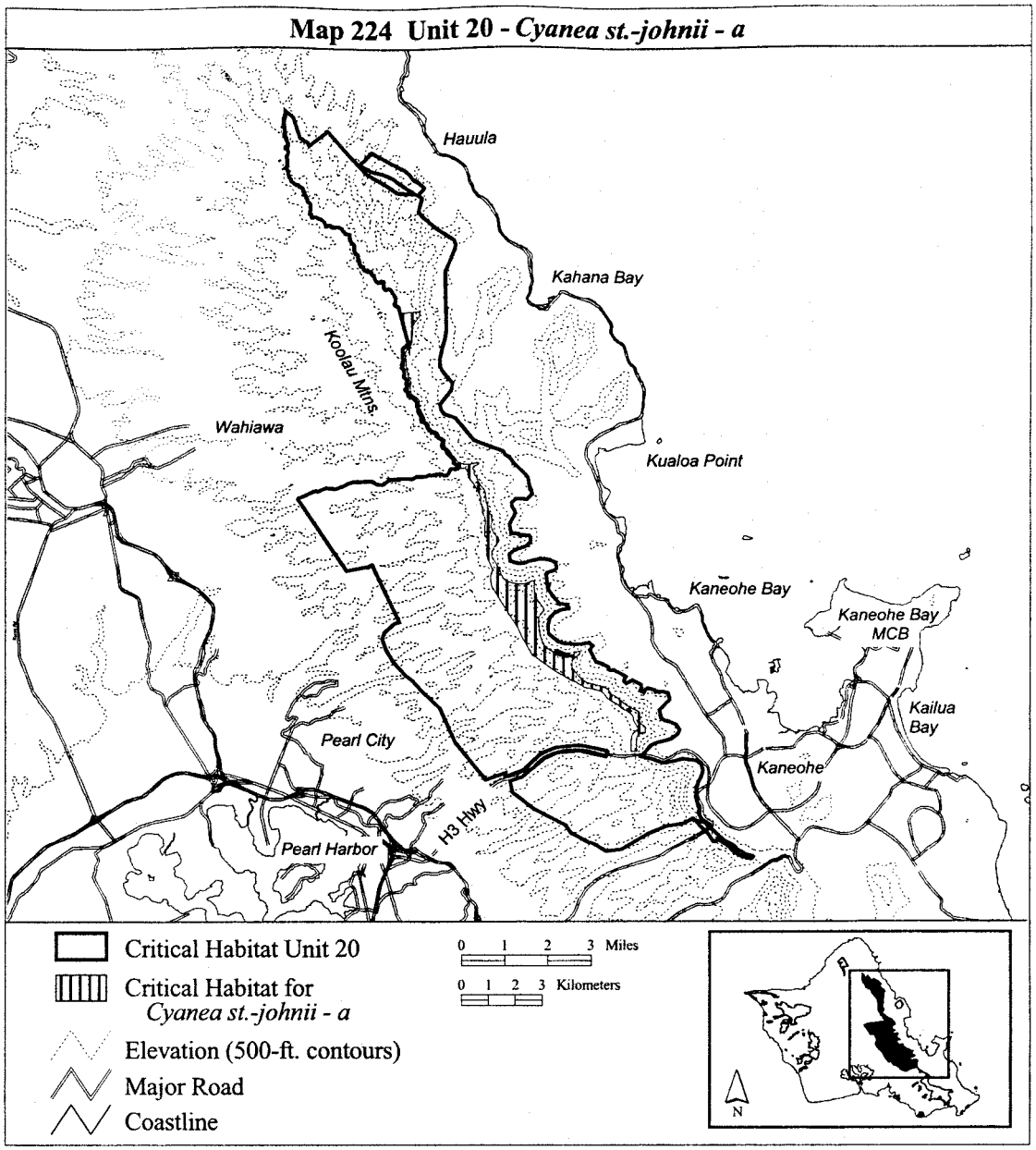
(224) Oahu 20—*Cyanea st.-johnii*—a (697 ha; 1,723 ac)

(i) Unit consists of the following 515 boundary points: Start at 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613462, 2378464; 613447, 2378478; 613424, 2378499; 613386, 2378532; 613364, 2378562; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248, 2378749; 613247, 2378750; 613232, 2378759; 613231, 2378759; 613213, 2378764; 613199, 2378769; 613190, 2378778; 613172, 2378818; 613152, 2378848; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 613142, 2379072; 613115, 2379100; 613099, 2379113; 613098, 2379113; 613063, 2379127; 612997, 2379166; 612978, 2379188; 612969, 2379215; 612963, 2379226; 612959, 2379247; 612959, 2379248; 612945, 2379276; 612929, 2379297; 612928, 2379298; 612905, 2379314; 612876, 2379327; 612840, 2379337; 612770, 2379350; 612764, 2379355; 612758, 2379364; 612748, 2379389; 612748, 2379390; 612725, 2379410; 612700, 2379424; 612683, 2379441; 612663, 2379470; 612619, 2379529; 612600, 2379563; 612586, 2379618; 612573, 2379650; 612555, 2379679; 612517, 2379716; 612495, 2379729; 612412, 2379753; 612397, 2379761; 612387, 2379798; 612388, 2379851; 612386, 2379928; 612379, 2379961; 612379, 2379962; 612375, 2379970; 612367, 2379981; 612366, 2379982; 612353, 2379991; 612328, 2380018; 612262, 2380145; 612255, 2380163; 612249, 2380199; 612248, 2380233; 612234, 2380304; 612226, 2380334; 612224, 2380337; 612211, 2380367; 612213, 2380397; 612218, 2380419; 612218,

2380420; 612215, 2380452; 612212, 2380464; 612202, 2380506; 612202, 2380507; 612197, 2380516; 612177, 2380539; 612112, 2380593; 612086, 2380625; 612073, 2380644; 612046, 2380669; 612046, 2380670; 612016, 2380686; 611992, 2380690; 611965, 2380687; 611955, 2380689; 611941, 2380693; 611927, 2380702; 611919, 2380710; 611905, 2380743; 611889, 2380825; 611889, 2380826; 611880, 2380839; 611856, 2380862; 611812, 2380892; 611799, 2380905; 611798, 2380918; 611800, 2380925; 611815, 2380943; 611838, 2380960; 611838, 2380961; 611848, 2380980; 611851, 2381022; 611848, 2381067; 611853, 2381081; 611879, 2381118; 611879, 2381119; 611879, 2381131; 611868, 2381149; 611858, 2381155; 611857, 2381155; 611847, 2381160; 611837, 2381167; 611828, 2381178; 611825, 2381193; 611830, 2381214; 611838, 2381223; 611854, 2381250; 611854, 2381251; 611856, 2381258; 611855, 2381265; 611855, 2381266; 611849, 2381285; 611848, 2381285; 611848, 2381286; 611828, 2381312; 611784, 2381363; 611765, 2381383; 611734, 2381424; 611733, 2381424; 611730, 2381426; 611737, 2381446; 611745, 2381514; 611746, 2381550; 611748, 2381618; 611748, 2381619; 611739, 2381669; 611736, 2381680; 611736, 2381681; 611727, 2381699; 611727, 2381700; 611726, 2381700; 611673, 2381758; 611666, 2381774; 611666, 2381794; 611670, 2381810; 611702, 2381865; 611712, 2381882; 611712, 2381883; 611712, 2381915; 611712, 2381916; 611710, 2381923; 611687, 2381955; 611687, 2381978; 611695, 2381990; 611702, 2382013; 611702, 2382014; 611700, 2382058; 611694, 2382120; 611695, 2382225; 611701, 2382278; 611701, 2382279; 611699, 2382320; 611695, 2382360; 611693, 2382433; 611692, 2382455; 611698, 2382473; 611744, 2382512; 611805, 2382557; 611831, 2382588; 611844, 2382604; 611844, 2382605; 611850, 2382621; 611874, 2382653; 611896, 2382683; 611896, 2382684; 611903, 2382704; 611903, 2382705; 611903, 2382706; 611902, 2382707; 611901, 2382707; 611900, 2382707; 611900, 2382706; 611899, 2382706; 611892, 2382686; 611891, 2382684; 611795, 2383056; 611606, 2383790; 612319, 2383876; 612319, 2383684; 612177, 2383493; 612048, 2383282; 612072, 2383079; 612041, 2382924; 612054, 2382757; 612011, 2382615; 611881, 2382492; 611794, 2382281; 611831, 2381800; 611844, 2381759; 611883, 2381550; 611920, 2381366; 611974, 2381248; 611974, 2381121; 611957, 2381044; 612013, 2380847; 612043, 2380766; 612167, 2380685; 612227, 2380637; 612305, 2380583; 612311, 2380532; 612293, 2380399; 612329, 2380291; 612362, 2380186; 612449, 2380029; 612497, 2379948; 612522, 2379813; 612555, 2379765; 612651, 2379690; 612675, 2379587; 612744, 2379497; 612876, 2379410; 612991, 2379365; 613051, 2379263; 613096, 2379178; 613192, 2379118; 613237, 2379103; 613285, 2379046; 613258, 2378974; 613264, 2378974; 613252, 2378905; 613279, 2378818; 613330, 2378763; 613403, 2378709; 613460, 2378640; 613532, 2378520; 613679, 2378379; 613721, 2378294; 613733, 2378243; 613860, 2378171; 614070, 2378150; 614157, 2378153; 614244, 2378186; 614314, 2378189; 614359, 2378204; 614443, 2378231; 614512, 2378219; 614542, 2378201; 614527, 2378162; 614467, 2378126; 614374, 2378087; 614314, 2378030; 614320, 2377973; 614344, 2377943; 614356, 2377858; 614356, 2377777; 614389, 2377726; 614452, 2377651; 614509, 2377531; 614596, 2377398; 614686, 2377239; 614762, 2377179; 614786, 2377016; 614777, 2376918; 614789, 2376917; 614795, 2376797; 614801, 2376710; 614855, 2376608; 614861, 2376523; 614891, 2376418; 614957, 2376325; 614993, 2376229; 615011, 2376126; 615026, 2375991; 615014, 2375943; 614984, 2375886; 614993, 2375826; 615026, 2375754; 615053, 2375645; 615129, 2375510; 615225, 2375396; 615306, 2375294; 615201, 2375170; 615122, 2375071; 615047, 2374942; 615023, 2374870; 615011, 2374806; 615017, 2374737; 615053, 2374644; 615104, 2374548; 615180, 2374437; 615288, 2374256; 615303, 2374175; 615339, 2374049; 615432, 2373892; 615537, 2373796; 615700, 2373739; 615931, 2373697; 616082, 2373673; 616220, 2373682; 616319, 2373706; 616400, 2373736; 616473, 2373778; 616563, 2373799; 616581, 2373775; 616593, 2373700; 616593, 2373646; 616578, 2373562; 616593, 2373486; 616617, 2373366; 616656, 2373300; 616680, 2373234; 616680, 2373162; 616713, 2373108; 616722, 2373041; 616764, 2372999; 616767, 2372999; 616839, 2372933; 616891, 2372864; 616939, 2372801; 616963, 2372717; 616936, 2372644; 616833, 2372536; 616773, 2372410; 616749, 2372233; 616758, 2372082; 616773, 2371935; 616812, 2371803; 616830, 2371718; 616860, 2371640; 616903, 2371532; 616924, 2371436; 616996, 2371358; 617113, 2371264; 617187, 2371212; 617366, 2371114; 617465, 2371066; 617570, 2371042; 617735, 2371006; 617832, 2371003; 617958, 2371006; 618045, 2371024; 618090, 2371054; 618126, 2371087; 618217, 2371138; 618301, 2371171; 618304, 2371135; 618283, 2371072; 618174, 2370964; 618093, 2370888; 618024, 2370777; 618015, 2370651; 618018, 2370564; 618063, 2370489; 618123, 2370404; 618183, 2370332; 618229, 2370266; 618376, 2370122; 618550, 2370010; 618809, 2369950; 619068, 2369884; 619152, 2369863; 619153, 2369862; 619155, 2369861; 619190, 2369844; 619233, 2369823; 619232, 2369822; 619305, 2369785; 619362, 2369728; 619407, 2369674; 619504, 2369544; 619537, 2369544; 619678, 2369457; 619849, 2369322; 619964, 2369229; 620222, 2369042; 620409, 2368964; 620514, 2368904; 620528, 2368813; 620524, 2368812; 620529, 2368782; 620529, 2368505; 620759, 2368329; 620759, 2368126; 620651, 2368146; 620563, 2368085; 620495, 2368072; 620427, 2367950; 620421, 2367768; 620421, 2367754; 620434, 2367450; 620218, 2367436; 620218, 2367734; 620231, 2367815; 620238, 2367984; 620285, 2368085; 620488, 2368295; 620427, 2368356; 620387, 2368457; 620312, 2368579; 620306, 2368654; 620299, 2368701; 620256, 2368766; 620162, 2368850; 620063, 2368937; 620003, 2368961; 619858, 2369045; 619708, 2369181; 619504, 2369310; 619335, 2369406; 619293, 2369445; 619278, 2369490; 619203, 2369580; 619154, 2369626; 619084, 2369686; 619074, 2369695; 619063, 2369697; 618991, 2369709; 618992, 2369710; 618770, 2369752; 618505, 2369812; 618361, 2369893; 618211, 2369986; 618200, 2370000; 618057, 2370054; 617376, 2370435; 616571, 2370993; 616536, 2370993; 616468, 2371125; 616182, 2371624; 615965, 2372069; 615583, 2372682; 615302, 2373118; 615020, 2373603; 614961, 2373916; 615044, 2374217; 615011, 2374283; 614948, 2374431; 614870, 2374599; 614819, 2374755; 614819, 2374861; 614816, 2374861; 614810, 2374936; 614828, 2375020; 614861, 2375104; 614852, 2375185; 614861, 2375303; 614825, 2375375; 614765, 2375465; 614762, 2375564; 614762, 2375687; 614756, 2375832; 614777, 2375979; 614762, 2376138; 614723, 2376259; 614641, 2376349; 614641, 2376391; 614641, 2376550; 614617, 2376653; 614590, 2376791; 614602, 2376929; 614602, 2376932; 614530, 2377068; 614482, 2377179; 614434, 2377242; 614365, 2377350; 614323, 2377431; 614211, 2377594; 614115, 2377753; 614115, 2377816; 614088, 2377922; 614031, 2378000; 613935, 2378000; 613833, 2377985; 613763, 2378008; 613771, 2378068; 613764,

2378090; 613757, 2378093; 613753, 2378093; return to starting point.

(ii) **Note:** Map 224 follows:

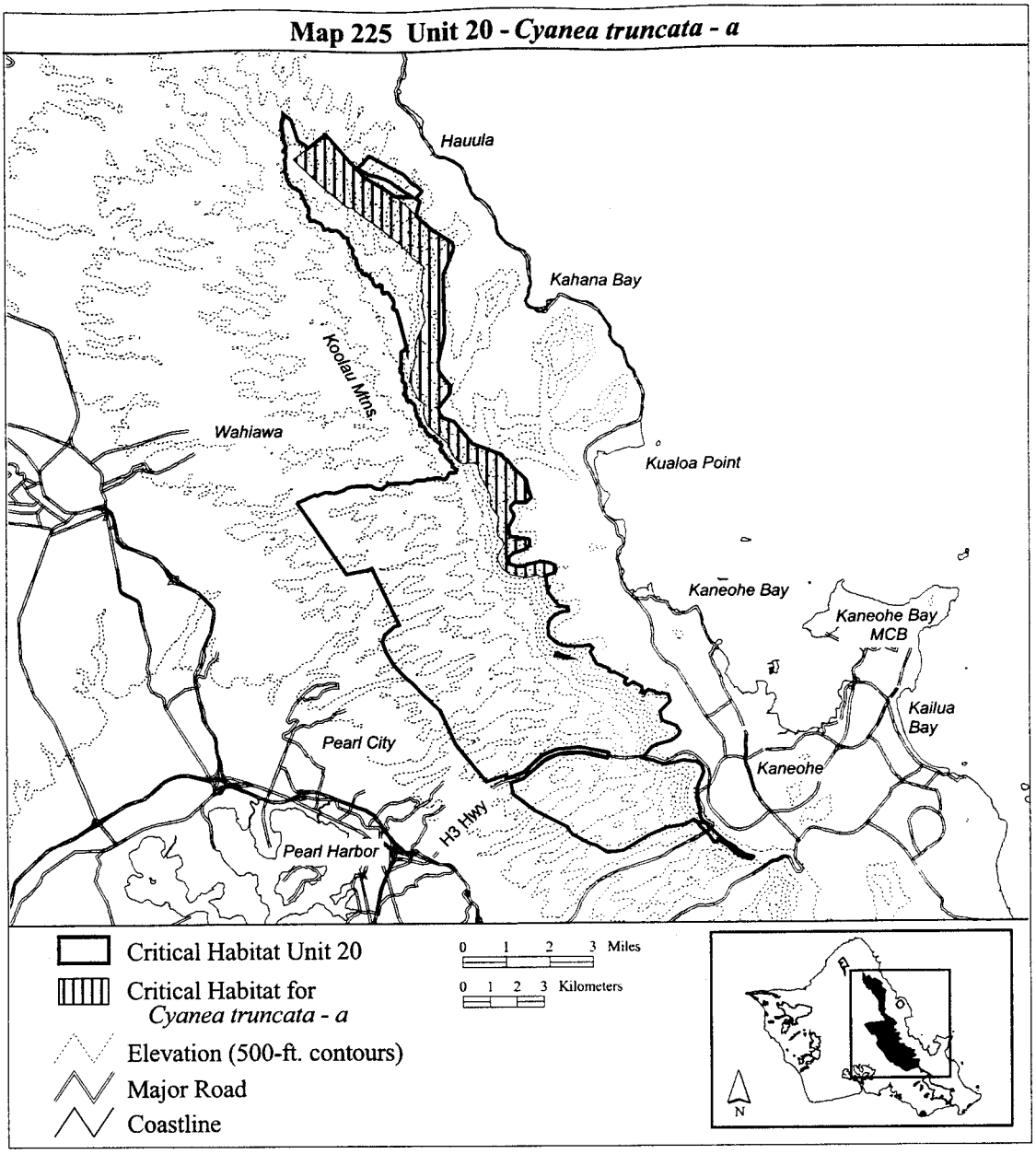


(225) Oahu 20—*Cyanea truncata*—a (2,031 ha; 5,020 ac)

(i) Unit consists of the following 164 boundary points: Start at 613602, 2386551; 613659, 2386389; 613631, 2386210; 613273, 2385353; 613273, 2385352; 613274, 2385331; 613268, 2385140; 613280, 2384981; 613312, 2383180; 613250, 2382818; 613195, 2382609; 613088, 2382144; 613082, 2381829; 613080, 2381820; 613080, 2381819; 613080, 2381818; 613087, 2381810; 613208, 2381606; 613344, 2381440; 613533, 2381229; 613545, 2381214; 613505, 2380936; 613087, 2380405; 613087, 2380404; 613089, 2380400; 613115, 2380198; 613237, 2380056; 613239, 2380052; 613240, 2380051; 613646, 2379898; 614360, 2379039; 614361, 2379039; 615437, 2378644; 615510, 2378505; 615637, 2378424; 615841, 2378182; 616058, 2377995; 616346, 2377691; 616360, 2377561; 616377, 2377455; 616437, 2377260; 616441, 2377261; 616504, 2377029; 616326, 2376847; 615911, 2376866; 615753, 2376724; 615753, 2376601; 615853, 2376412; 615876, 2376331; 615830, 2376217; 615657, 2375913; 615739, 2375583; 616002, 2375545; 616017, 2375521; 616413, 2375487; 616454, 2375432; 616454, 2375239; 616289, 2375088; 615849, 2374937; 615671, 2374785; 615684, 2374538; 615946, 2374455; 616023, 2374455; 616049, 2374426; 616159, 2374455; 616248, 2374455; 616439, 2374528; 616726, 2374601; 616815, 2374624; 617102, 2374594; 617234, 2374550; 617314, 2374524; 617376, 2374469; 617417, 2374318; 617399, 2374230; 617371, 2374191; 617349, 2374168; 616881, 2374029; 616743, 2374112; 616317, 2374015; 615712, 2374125; 615423, 2374373; 615244, 2374758; 615423, 2375102; 615506, 2375280; 615437, 2375432; 615285,

2375569; 615230, 2375789; 615285, 2376119; 615313, 2376298; 615024, 2376669; 614997, 2376876; 615008, 2376903; 615004, 2376902; 615004, 2377060; 615012, 2377060; 614982, 2377187; 614914, 2377340; 614783, 2377557; 614642, 2377825; 614574, 2378084; 614549, 2378258; 614426, 2378318; 614251, 2378322; 614034, 2378297; 613920, 2378322; 613822, 2378390; 613724, 2378496; 613603, 2378652; 613593, 2378644; 613400, 2379102; 613148, 2379328; 612882, 2379547; 612663, 2379793; 612550, 2380098; 612544, 2380510; 612504, 2380603; 612338, 2380690; 612112, 2381181; 612005, 2381507; 612035, 2381508; 612032, 2381533; 612065, 2381752; 612152, 2381899; 612238, 2382324; 612225, 2382682; 612311, 2383041; 612457, 2383320; 612603, 2383626; 612477, 2384230; 612510, 2384449; 612524, 2384602; 612477, 2384755; 612492, 2384755; 612444, 2384881; 612484, 2385393; 612550, 2385652; 612371, 2385824; 612105, 2386004; 611959, 2386210; 611640, 2386522; 610743, 2387233; 610272, 2387538; 609900, 2387837; 609904, 2387847; 609747, 2387864; 608963, 2388475; 608611, 2388774; 607704, 2389609; 608907, 2390579; 609714, 2389657; 610232, 2389126; 610338, 2389006; 611095, 2388548; 611693, 2388143; 611952, 2387903; 612284, 2387567; 612284, 2387566; 612285, 2387565; 612291, 2387560; 612457, 2387392; 612749, 2387140; 612955, 2386960; 613489, 2386638; return to starting point.

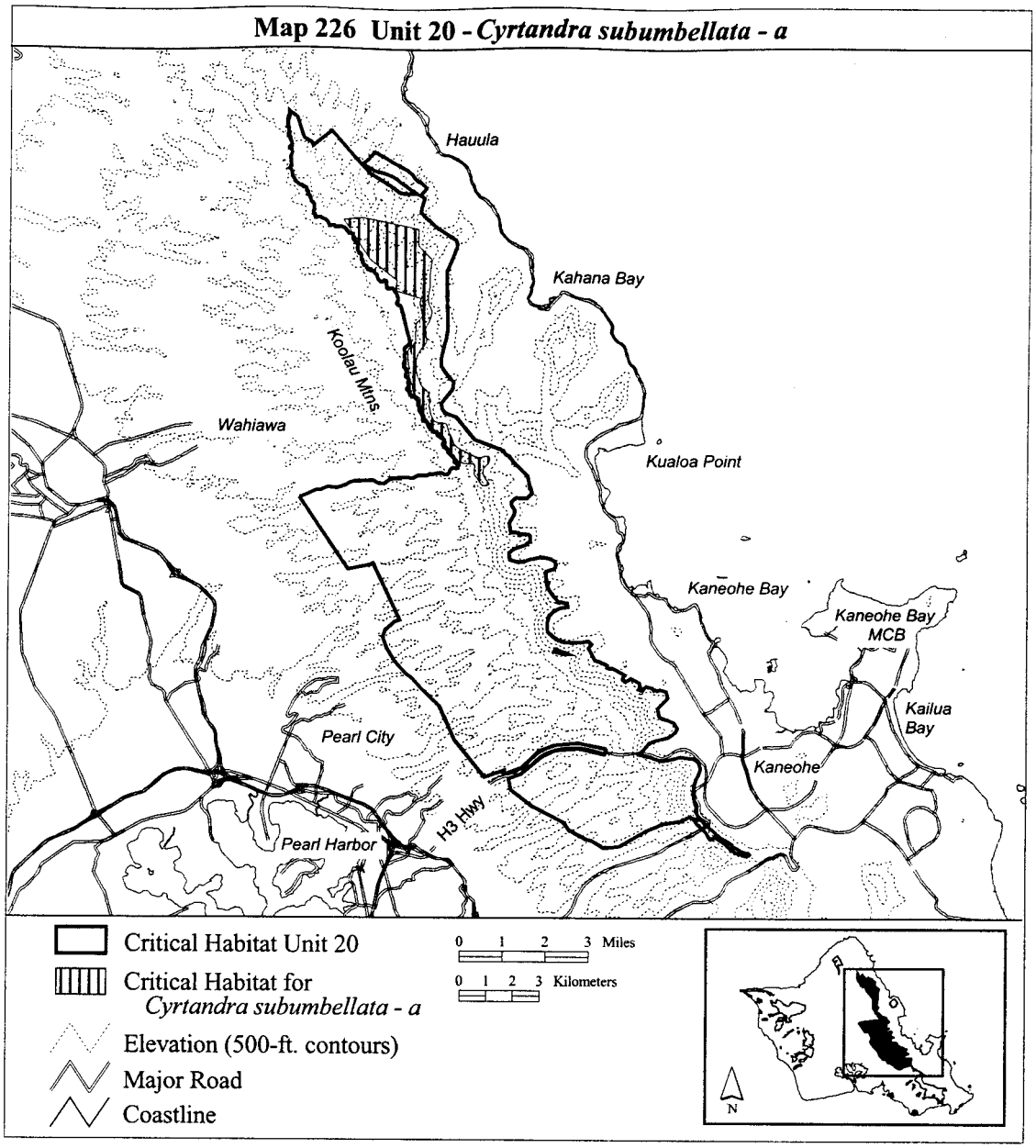
(ii) **Note:** Map 225 follows:



(226) Oahu 20—*Cyrtandra subumbellata*—a (830 ha; 2,050 ac)

(i) Unit consists of the following 166 boundary points: Start at 610061, 2387358; 610074, 2387344; 612191, 2386940; 612201, 2386326; 612707, 2385810; 612654, 2385392; 612653, 2385389; 612646, 2385275; 612642, 2385124; 612646, 2384946; 612642, 2384870; 612638, 2384783; 612612, 2384688; 612600, 2384564; 612585, 2384291; 612604, 2384128; 612634, 2384037; 612702, 2383897; 612706, 2383784; 612691, 2383663; 612627, 2383458; 612490, 2383243; 612479, 2383242; 612483, 2383042; 612498, 2382947; 612517, 2382800; 612502, 2382671; 612426, 2382550; 612335, 2382448; 612267, 2382361; 612188, 2382232; 612150, 2382099; 612127, 2381956; 612123, 2381634; 612165, 2381445; 612226, 2381301; 612328, 2381089; 612438, 2380960; 612547, 2380854; 612623, 2380794; 612627, 2380684; 612634, 2380597; 612661, 2380585; 612691, 2380521; 612691, 2380445; 612638, 2380366; 612623, 2380309; 612653, 2380169; 612684, 2380044; 612718, 2379942; 612767, 2379851; 612805, 2379794; 612858, 2379726; 612907, 2379696; 613005, 2379685; 613092, 2379669; 613187, 2379662; 613263, 2379632; 613319, 2379545; 613346, 2379442; 613384, 2379336; 613448, 2379223; 613501, 2379109; 613505, 2379044; 613577, 2378882; 613713, 2378742; 613993, 2378602; 614266, 2378454; 614425, 2378386; 614534, 2378371; 614674, 2378405; 614765, 2378435; 614815, 2378435; 614868, 2378428; 614902, 2378401; 614902, 2378356; 614902, 2378269; 614879, 2378182; 614799, 2378095; 614720, 2378008; 614671, 2377917; 614674, 2377845; 614682, 2377754; 614720, 2377667; 614780, 2377569; 614856, 2377463; 614898, 2377395; 614875, 2377364; 614849, 2377349; 614777, 2377311; 614678, 2377304; 614640, 2377342; 614572, 2377417; 614478, 2377554; 614413, 2377641; 614338, 2377766; 614341, 2377883; 614349, 2378019; 614349, 2378114; 614311, 2378136; 614186, 2378148; 614046, 2378159; 613861, 2378178; 613755, 2378216; 613641, 2378371; 613554, 2378492; 613509, 2378507; 613441, 2378636; 613255, 2378854; 613244, 2378848; 613248, 2378863; 613248, 2378864; 613278, 2378965; 613248, 2379064; 613149, 2379177; 613047, 2379242; 613001, 2379325; 612865, 2379393; 612759, 2379465; 612695, 2379594; 612596, 2379753; 612562, 2379783; 612517, 2379828; 612468, 2379881; 612468, 2379968; 612362, 2380116; 612294, 2380309; 612309, 2380434; 612309, 2380555; 612256, 2380608; 612123, 2380710; 612051, 2380790; 612044, 2380790; 611998, 2380900; 612006, 2381002; 611968, 2381142; 611874, 2381346; 611851, 2381566; 611858, 2381774; 611832, 2381910; 611802, 2382096; 611805, 2382277; 611813, 2382330; 611855, 2382440; 611998, 2382573; 612112, 2382705; 612101, 2382891; 612089, 2383008; 612112, 2383140; 612130, 2383239; 612127, 2383239; 612116, 2383299; 612138, 2383405; 612244, 2383492; 612335, 2383651; 612335, 2383765; 612305, 2383954; 612252, 2384136; 612286, 2384272; 612313, 2384344; 611321, 2384616; 611381, 2384995; 610379, 2385786; 610036, 2386268; 610037, 2386293; 609373, 2387267; return to starting point.

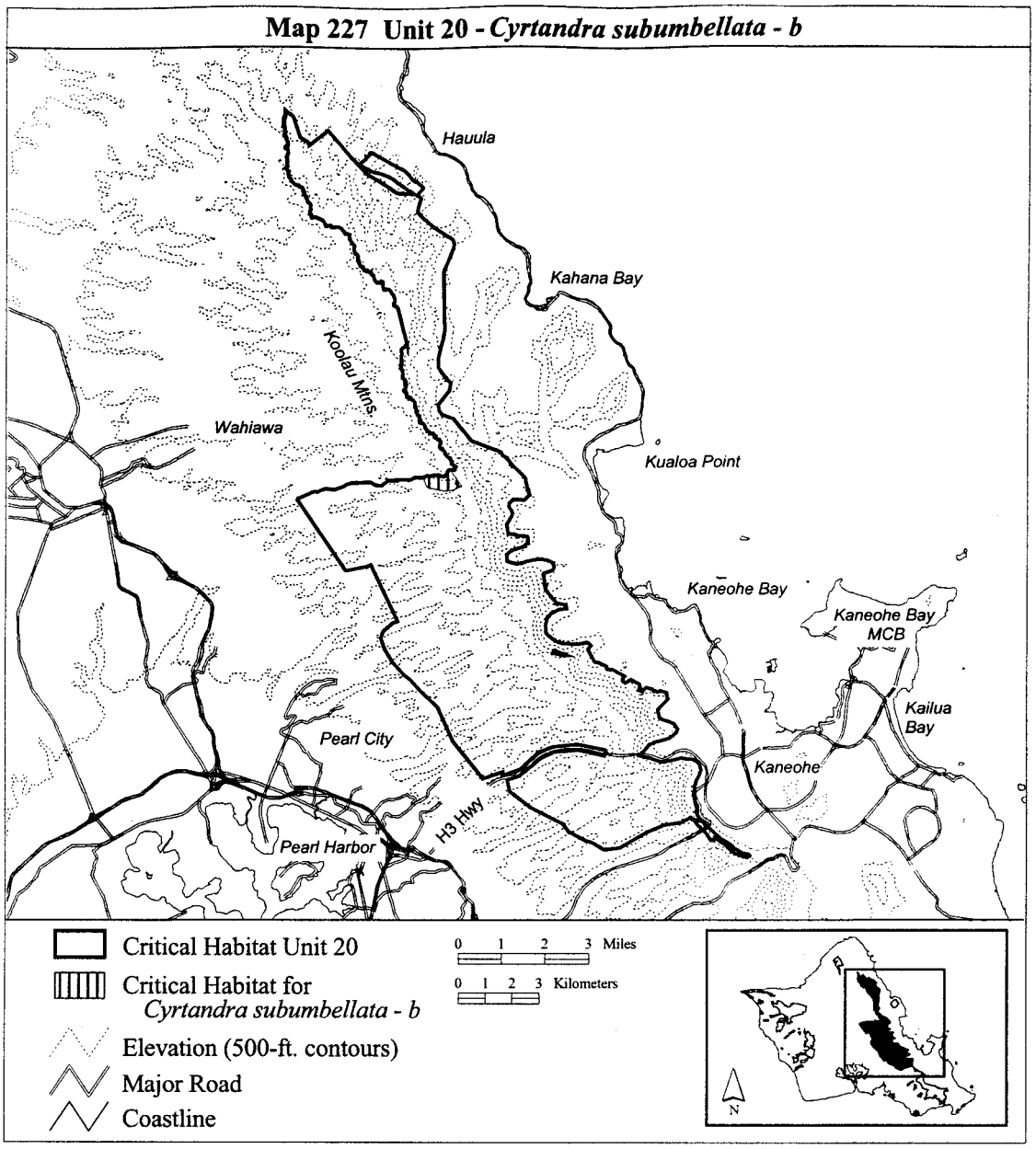
(ii) **Note:** Map 226 follows:



(227) Oahu 20—*Cyrtandra subumbellata*—b (67 ha; 167 ac)

(i) Unit consists of the following 40 boundary points: Start at 612671, 2377303; 612526, 2377691; 612575, 2377698; 612576, 2377698; 612596, 2377708; 612604, 2377703; 612630, 2377702; 612668, 2377720; 612688, 2377749; 612686, 2377751; 612705, 2377757; 612764, 2377738; 612765, 2377738; 612794, 2377742; 612814, 2377728; 612853, 2377742; 612870, 2377747; 613040, 2377760; 613059, 2377772; 613059, 2377774; 613085, 2377777; 613154, 2377768; 613224, 2377738; 613264, 2377728; 613265, 2377728; 613335, 2377738; 613336, 2377738; 613359, 2377752; 613368, 2377747; 613413, 2377754; 613415, 2377755; 613449, 2377784; 613454, 2377825; 613460, 2377881; 613497, 2377929; 613544, 2377969; 613986, 2377373; 613635, 2377208; 613308, 2377183; 612870, 2377274; return to starting point.

(ii) **Note:** Map 227 follows:



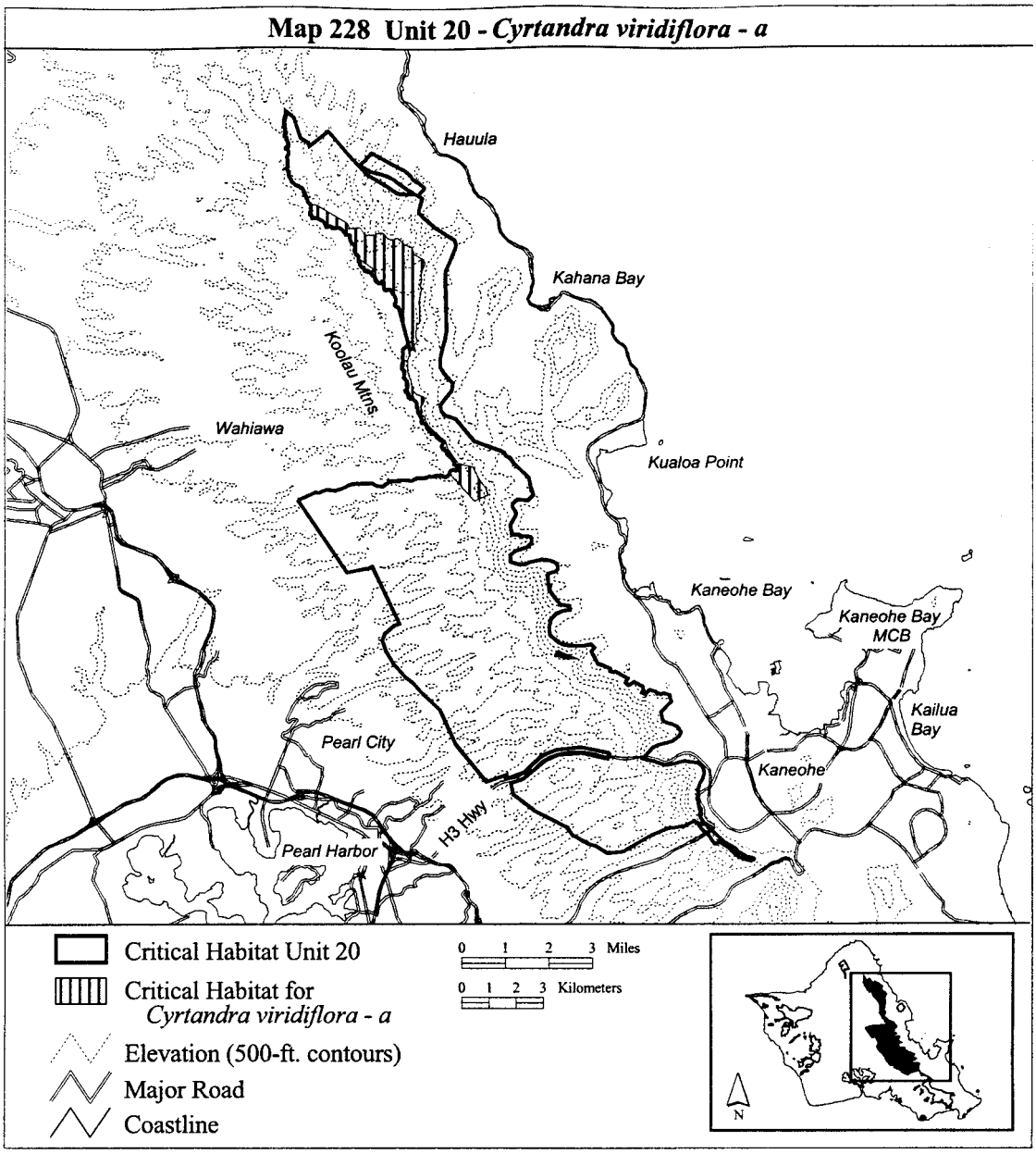
(228) Oahu 20—*Cyrtandra viridiflora*—a (782 ha; 1,932 ac)

(i) Unit consists of the following 517 boundary points: Start at 613555, 2377987; 613674, 2377978; 613675, 2377978; 613694, 2377988; 613721, 2377976; 613733, 2377976; 613762, 2378001; 613771, 2378068; 613764, 2378090; 613757, 2378093; 613753, 2378093; 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613711, 2378118; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613568, 2378357; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613462, 2378464; 613447, 2378478; 613424, 2378499; 613386, 2378532; 613364, 2378562; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248, 2378749; 613247, 2378750; 613232, 2378759; 613231, 2378759; 613213, 2378764; 613199, 2378769; 613190, 2378778; 613172, 2378818; 613172, 2378819; 613152, 2378848; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613145, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 613142, 2379072; 613115, 2379100; 613099, 2379113; 613098, 2379113; 613063, 2379127; 612997, 2379166; 612978, 2379188; 612969, 2379215; 612963, 2379226; 612959, 2379247; 612959, 2379248; 612945, 2379276; 612945, 2379277; 612929, 2379297; 612928, 2379298; 612905, 2379314; 612876, 2379327; 612840, 2379337; 612770, 2379350; 612764, 2379355; 612758, 2379364; 612748, 2379389; 612748, 2379390; 612725, 2379410; 612700, 2379424; 612683, 2379441; 612663, 2379470; 612619, 2379529; 612600, 2379563; 612586, 2379618; 612573, 2379650; 612555, 2379679; 612517, 2379716; 612495, 2379729; 612412, 2379753; 612397, 2379761; 612387, 2379798; 612388, 2379851; 612386,

2379928; 612379, 2379961; 612379, 2379962; 612375, 2379970; 612367, 2379981; 612366, 2379981; 612366, 2379982; 612353, 2379991; 612328, 2380018; 612262, 2380145; 612255, 2380163; 612249, 2380199; 612248, 2380233; 612234, 2380304; 612226, 2380334; 612225, 2380334; 612224, 2380337; 612211, 2380367; 612213, 2380397; 612218, 2380419; 612218, 2380420; 612215, 2380452; 612212, 2380464; 612202, 2380506; 612202, 2380507; 612197, 2380516; 612177, 2380539; 612112, 2380593; 612086, 2380625; 612073, 2380644; 612046, 2380669; 612046, 2380670; 612016, 2380686; 611992, 2380690; 611965, 2380687; 611955, 2380689; 611941, 2380693; 611927, 2380702; 611919, 2380710; 611905, 2380743; 611889, 2380825; 611889, 2380826; 611880, 2380839; 611856, 2380862; 611812, 2380892; 611799, 2380905; 611798, 2380918; 611800, 2380925; 611815, 2380943; 611838, 2380960; 611838, 2380961; 611848, 2380980; 611851, 2381022; 611848, 2381067; 611853, 2381081; 611879, 2381118; 611879, 2381119; 611879, 2381131; 611879, 2381132; 611868, 2381149; 611858, 2381155; 611857, 2381155; 611847, 2381160; 611837, 2381167; 611828, 2381178; 611825, 2381193; 611830, 2381214; 611838, 2381223; 611854, 2381250; 611854, 2381251; 611856, 2381258; 611855, 2381265; 611855, 2381266; 611849, 2381285; 611848, 2381286; 611828, 2381312; 611784, 2381363; 611765, 2381383; 611734, 2381424; 611733, 2381424; 611730, 2381426; 611737, 2381446; 611745, 2381514; 611746, 2381550; 611748, 2381618; 611748, 2381619; 611739, 2381669; 611736, 2381680; 611736, 2381681; 611727, 2381699; 611727, 2381700; 611726, 2381700; 611673, 2381758; 611666, 2381774; 611666, 2381794; 611670, 2381810; 611702, 2381865; 611712, 2381882; 611712, 2381883; 611712, 2381915; 611712, 2381916; 611710, 2381923; 611687, 2381955; 611687, 2381978; 611695, 2381990; 611702, 2382013; 611702, 2382014; 611700, 2382058; 611694, 2382120; 611695, 2382225; 611701, 2382278; 611701, 2382279; 611699, 2382320; 611695, 2382360; 611693, 2382433; 611692, 2382455; 611698, 2382473; 611744, 2382512; 611805, 2382557; 611831, 2382588; 611844, 2382604; 611844, 2382605; 611850, 2382621; 611874, 2382653; 611896, 2382683; 611896, 2382684; 611903, 2382704; 611903, 2382705; 611903, 2382706; 611902, 2382707; 611901, 2382707; 611900, 2382707; 611900, 2382706; 611899, 2382706; 611892, 2382686; 611891, 2382684; 611795, 2383056; 611597, 2383822; 611567, 2383939; 611567, 2383940; 611561, 2383949; 611537, 2384020; 611536, 2384020; 611525, 2384040; 611515, 2384051; 611495, 2384064; 611460, 2384078; 611430, 2384082; 611404, 2384097; 611396, 2384120; 611393, 2384150; 611397, 2384172; 611413, 2384204; 611422, 2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611429, 2384357; 611417, 2384382; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611374, 2384489; 611358, 2384501; 611334, 2384524; 611326, 2384536; 611302, 2384584; 611257, 2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 611192, 2384704; 611191, 2384703; 611165, 2384698; 611119, 2384696; 611082, 2384690; 611081, 2384690; 611065, 2384682; 611064, 2384681; 611058, 2384675; 611046, 2384674; 611039, 2384675; 611028, 2384688; 611014, 2384713; 610994, 2384778; 610981, 2384838; 610976, 2384927; 610973, 2384941; 610973, 2384942; 610965, 2384959; 610965, 2384960; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610825, 2384951; 610590, 2385486; 610034, 2385898; 610035, 2385901; 610035, 2385902; 610035, 2385943; 610035, 2385944; 610029, 2385956; 610029, 2385957; 610003, 2385991; 609994, 2386004; 609993, 2386004; 609993, 2386005; 609971, 2386017; 609955, 2386025; 609948, 2386031; 609929, 2386085; 609909, 2386112; 609908, 2386113; 609898, 2386121; 609887, 2386134; 609883, 2386146; 609884, 2386168; 609879, 2386204; 609884, 2386223; 609905, 2386254; 609905, 2386255; 609909, 2386278; 609909, 2386279; 609907, 2386291; 609881, 2386354; 609880, 2386355; 609858, 2386384; 609834, 2386404; 609797, 2386443; 609790, 2386450; 609769, 2386468; 609748, 2386495; 609737, 2386524; 609719, 2386644; 609711, 2386719; 609711, 2386720; 609705, 2386737; 609704, 2386737; 609704, 2386738; 609693, 2386745; 609692, 2386745; 609595, 2386759; 609570, 2386766; 609560, 2386772; 609536, 2386797; 609481, 2386863; 609461, 2386894; 609449, 2386918; 609449, 2386919; 609439, 2386933; 609438, 2386934; 609425, 2386943; 609379, 2386966; 609323, 2387005; 609308, 2387012; 609269, 2387020; 609248, 2387021; 609184, 2387014; 609134, 2387001; 609078, 2386982; 609074, 2386984; 609062, 2387000; 609048, 2387031; 609047, 2387032; 609025, 2387051; 609024, 2387051; 608989, 2387068; 608988, 2387068; 608975, 2387068; 608974, 2387068; 608905, 2387055; 608862, 2387042; 608856, 2387043; 608849, 2387049; 608810, 2387121; 608794, 2387150; 608776, 2387175; 608736, 2387223; 608719, 2387246; 608718, 2387246; 608718, 2387247; 608693, 2387265; 608692, 2387265; 608643, 2387281; 608604, 2387303; 608558, 2387325; 608497, 2387362; 608496, 2387362; 608459, 2387369; 608435, 2387371; 608434, 2387371; 608410, 2387366; 608377, 2387354; 608355, 2387351; 608336, 2387351; 608316, 2387358; 608308, 2387366; 608294, 2387395; 608292, 2387413; 608300, 2387459; 608299, 2387471; 608298, 2387472; 608298, 2387473; 608289, 2387479; 608252, 2387489; 608234, 2387501; 608228, 2387506; 608223, 2387520; 608230, 2387572; 608232, 2387576; 608238, 2387590; 608252, 2387607; 608267, 2387627; 608267, 2387628; 608272, 2387642; 608275, 2387670; 608275, 2387671; 608273, 2387689; 608258, 2387739; 608257, 2387765; 608259, 2387774; 608270, 2387794; 608274, 2387812; 608274, 2387813; 608254, 2387851; 608254, 2387852; 608236, 2387874; 608519, 2387842; 608527, 2387829; 608529, 2387826; 608531, 2387827; 609623, 2387185; 609716, 2386981; 610090, 2387020; 610286, 2386745; 610680, 2386745; 610684, 2386799; 610857, 2386830; 610857, 2386824; 610975, 2386824; 611132, 2386607; 611289, 2386568; 611486, 2386627; 611489, 2386638; 611798, 2386378; 611798, 2386379; 611800, 2386372; 611801, 2386371; 611801, 2386372; 612019, 2386288; 612115, 2386037; 612351, 2385899; 612454, 2385841; 612532, 2385647; 612489, 2385585; 612391, 2385349; 612391, 2385034; 612332, 2384857; 612390, 2384704; 612301, 2384256; 612322, 2383968; 612322, 2383520; 612322, 2383461; 612194, 2383461; 612194, 2383225; 612174, 2382969; 612214, 2382851; 612214, 2382753; 612115, 2382635; 612174, 2382399; 612037, 2382477; 611958, 2382399; 611958, 2382300; 611879, 2382104; 611873, 2381627; 611997, 2381297; 612076, 2381002; 612165, 2380842; 612166, 2380830; 612173, 2380827; 612174, 2380825; 612177, 2380826; 612489, 2380708; 612489, 2380530; 612391, 2380314; 612430, 2380157; 612391, 2380019; 612489, 2380019; 612548, 2379862; 612664, 2379648; 613047, 2379270; 613270, 2379091; 613355, 2378810; 613751, 2378218; 614289, 2378090; 614502, 2377694; 614779, 2377295; 614837, 2377041; 614349,

2376831; 613456, 2377841; 613460, 2377881; 613497, 2377929; 613554, 2377977; return to starting point.

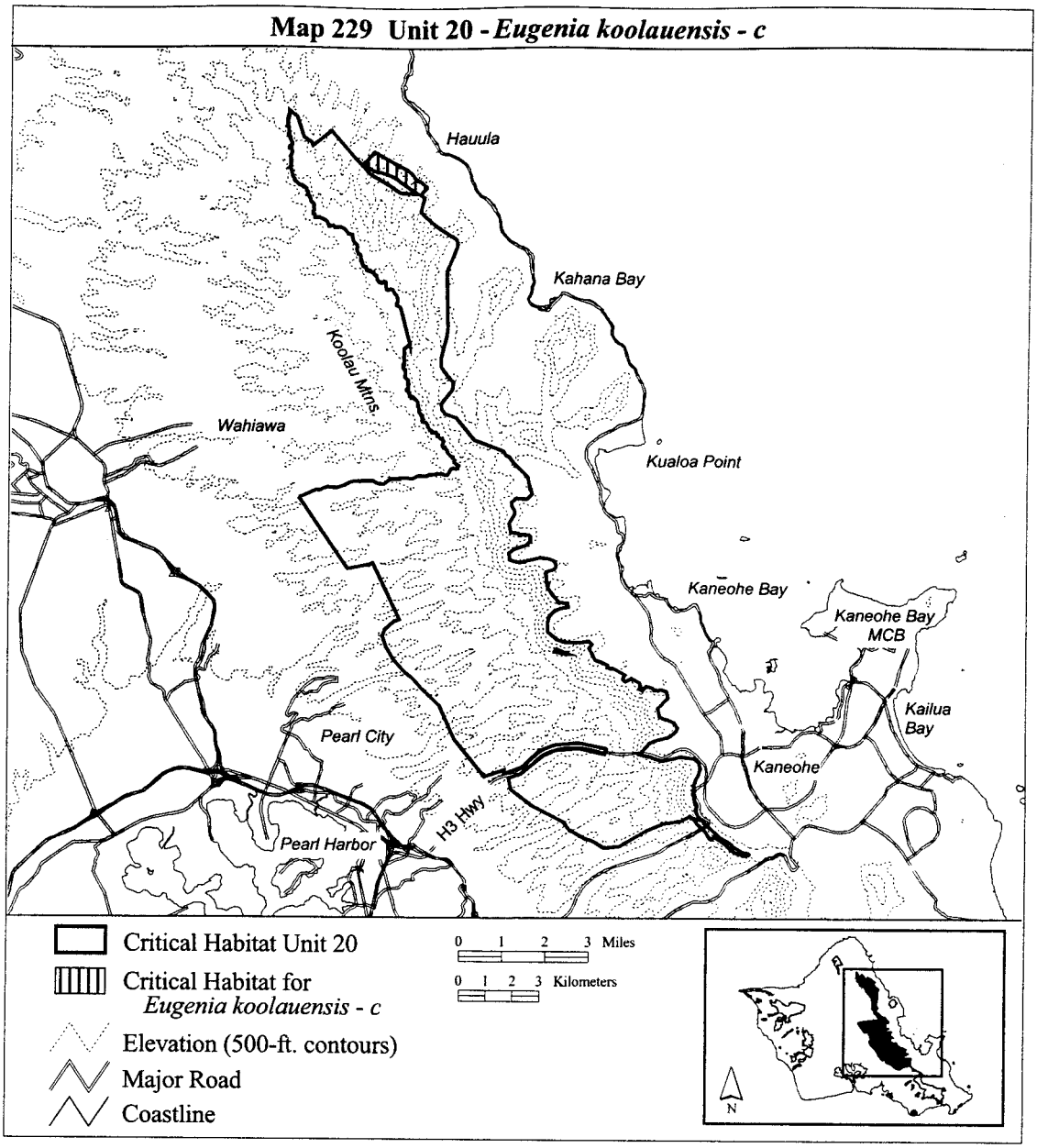
(ii) **Note:** Map 228 follows:



(229) Oahu 20—*Eugenia koolauensis*—c (122 ha; 302 ac)

(i) Unit consists of the following 36 boundary points: Start at 611208, 2389430; 611266, 2389383; 611444, 2389300; 611596, 2389220; 611731, 2389154; 611780, 2389128; 611947, 2388975; 611980, 2388930; 612046, 2388843; 612180, 2388738; 612269, 2388680; 612483, 2388484; 612482, 2388480; 612415, 2388361; 612328, 2388285; 612260, 2388187; 612169, 2388237; 612024, 2388350; 611904, 2388419; 611745, 2388520; 611498, 2388687; 611339, 2388803; 611125, 2388923; 610817, 2389017; 610610, 2389071; 610476, 2389111; 610189, 2389274; 610106, 2389336; 610200, 2389448; 610287, 2389514; 610320, 2389543; 610334, 2389594; 610403, 2389630; 610447, 2389724; 610483, 2389760; 610536, 2389785; return to starting point.

(ii) **Note:** Map 229 follows:

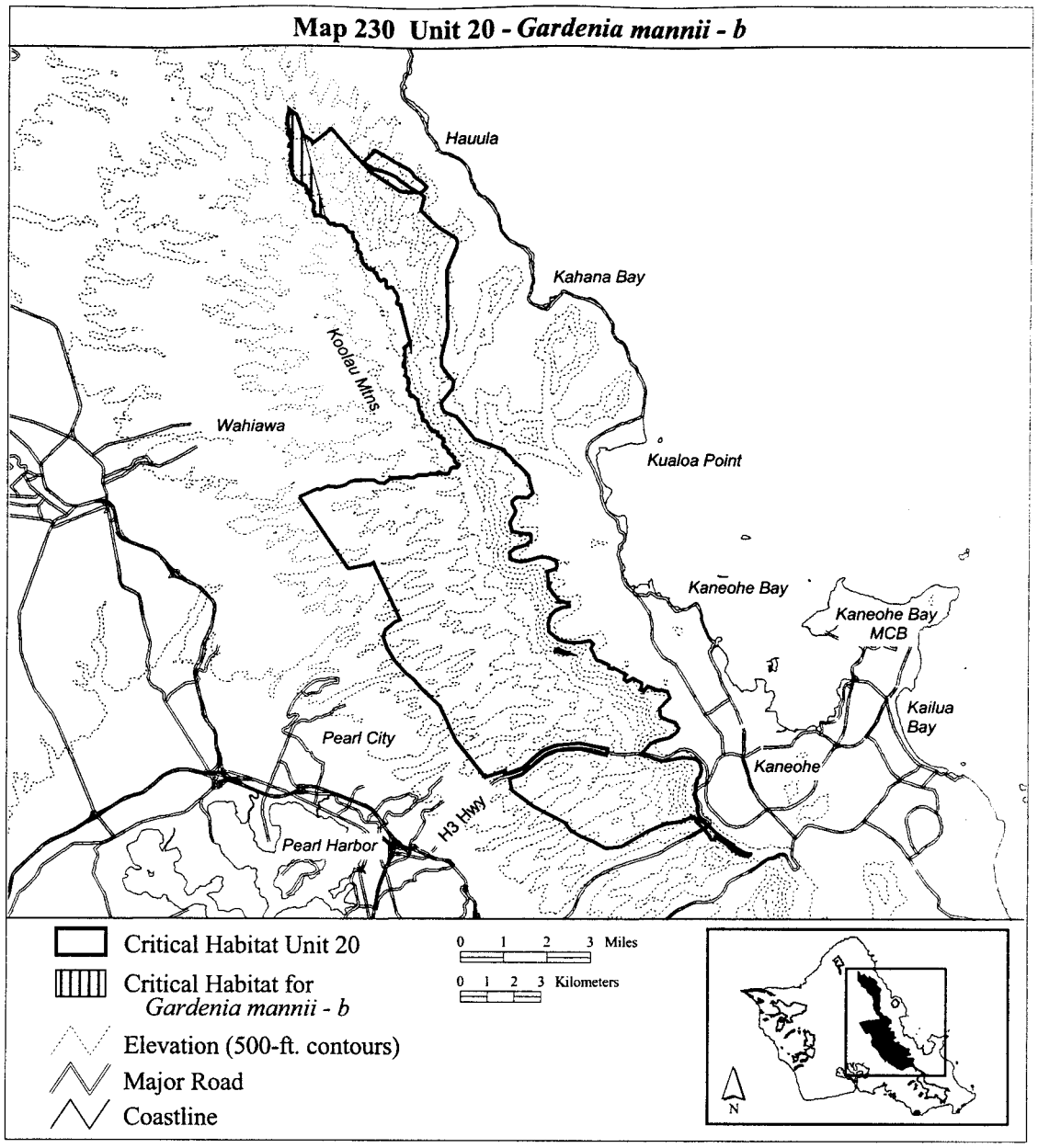


(230) Oahu 20—*Gardenia mannii*—b (206 ha; 510 ac)

(i) Unit consists of the following 302 boundary points: Start at 607315, 2391304; 607614, 2391084; 607875, 2390295; 608495, 2388072; 608540, 2387990; 608535, 2387978; 608688, 2387309; 608637, 2387285; 608604, 2387303; 608558, 2387325; 608497, 2387362; 608496, 2387362; 608459, 2387369; 608458, 2387369; 608435, 2387371; 608434, 2387371; 608410, 2387366; 608377, 2387354; 608355, 2387351; 608336, 2387351; 608316, 2387358; 608308, 2387366; 608294, 2387395; 608292, 2387413; 608300, 2387459; 608299, 2387471; 608298, 2387472; 608298, 2387473; 608289, 2387479; 608252, 2387489; 608234, 2387501; 608228, 2387506; 608223, 2387520; 608230, 2387572; 608232, 2387576; 608238, 2387590; 608252, 2387607; 608267, 2387627; 608267, 2387628; 608272, 2387642; 608275, 2387670; 608275, 2387671; 608273, 2387689; 608258, 2387739; 608257, 2387765; 608259, 2387774; 608270, 2387794; 608274, 2387812; 608274, 2387813; 608254, 2387851; 608254, 2387852; 608227, 2387885; 608190, 2387914; 608165, 2387924; 608146, 2387938; 608143, 2387944; 608141, 2387956; 608156, 2388000; 608156, 2388001; 608156, 2388002; 608152, 2388015; 608129, 2388052; 608116, 2388066; 608100, 2388105; 608092, 2388136; 608092, 2388137; 608082, 2388155; 608034, 2388210; 608029, 2388227; 608037, 2388262; 608037, 2388263; 608034, 2388274; 608017, 2388312; 608011, 2388328; 608011, 2388329; 607997, 2388340; 607987, 2388344; 607980, 2388349; 607975, 2388357; 607973, 2388367; 607974, 2388406; 607974, 2388407; 607972, 2388420; 607965, 2388446; 607964, 2388447; 607956, 2388457; 607956, 2388458; 607898, 2388494; 607897, 2388494; 607887, 2388497; 607865, 2388499; 607855, 2388502; 607821, 2388528; 607809, 2388537; 607808, 2388537; 607783, 2388550; 607782, 2388550; 607736, 2388557; 607735, 2388557; 607719, 2388559; 607692,

2388571; 607666, 2388594; 607654, 2388609; 607653, 2388609; 607613, 2388646; 607567, 2388681; 607550, 2388690; 607540, 2388696; 607534, 2388706; 607532, 2388717; 607534, 2388752; 607534, 2388761; 607534, 2388762; 607514, 2388795; 607461, 2388853; 607451, 2388878; 607448, 2388911; 607450, 2388923; 607446, 2388944; 607426, 2388990; 607425, 2389020; 607427, 2389043; 607427, 2389044; 607417, 2389071; 607411, 2389083; 607404, 2389108; 607378, 2389157; 607359, 2389185; 607358, 2389186; 607353, 2389189; 607357, 2389208; 607364, 2389224; 607376, 2389239; 607389, 2389258; 607389, 2389259; 607394, 2389273; 607399, 2389307; 607400, 2389308; 607399, 2389308; 607397, 2389348; 607395, 2389372; 607394, 2389386; 607393, 2389394; 607394, 2389406; 607393, 2389417; 607393, 2389426; 607393, 2389431; 607396, 2389437; 607406, 2389450; 607412, 2389462; 607414, 2389476; 607414, 2389477; 607407, 2389492; 607407, 2389493; 607406, 2389493; 607399, 2389498; 607391, 2389503; 607387, 2389514; 607387, 2389518; 607386, 2389528; 607384, 2389548; 607384, 2389549; 607371, 2389581; 607369, 2389599; 607385, 2389636; 607406, 2389684; 607426, 2389734; 607434, 2389770; 607432, 2389795; 607432, 2389796; 607420, 2389826; 607409, 2389850; 607411, 2389869; 607411, 2389870; 607405, 2389887; 607404, 2389887; 607404, 2389888; 607379, 2389900; 607356, 2389911; 607349, 2389914; 607342, 2389918; 607333, 2389926; 607328, 2389936; 607326, 2389947; 607329, 2389962; 607336, 2389972; 607346, 2389983; 607357, 2389993; 607367, 2389999; 607380, 2390009; 607391, 2390014; 607403, 2390020; 607403, 2390021; 607414, 2390032; 607424, 2390046; 607424, 2390047; 607430, 2390064; 607430, 2390065; 607434, 2390084; 607434, 2390085; 607433, 2390100; 607433, 2390101; 607428, 2390118; 607428, 2390119; 607419, 2390135; 607409, 2390145; 607400, 2390154; 607394, 2390162; 607392, 2390167; 607390, 2390179; 607389, 2390182; 607381, 2390212; 607375, 2390258; 607374, 2390279; 607374, 2390280; 607373, 2390281; 607356, 2390292; 607344, 2390301; 607342, 2390305; 607340, 2390316; 607340, 2390317; 607335, 2390330; 607334, 2390330; 607329, 2390335; 607318, 2390344; 607310, 2390354; 607301, 2390366; 607291, 2390380; 607285, 2390388; 607284, 2390398; 607288, 2390414; 607293, 2390428; 607300, 2390440; 607306, 2390450; 607306, 2390451; 607312, 2390461; 607316, 2390467; 607316, 2390468; 607319, 2390483; 607317, 2390493; 607315, 2390509; 607310, 2390525; 607305, 2390543; 607301, 2390562; 607296, 2390582; 607294, 2390602; 607294, 2390620; 607295, 2390636; 607297, 2390651; 607295, 2390665; 607295, 2390666; 607291, 2390680; 607285, 2390699; 607284, 2390699; 607275, 2390711; 607274, 2390711; 607265, 2390720; 607261, 2390731; 607261, 2390744; 607258, 2390760; 607266, 2390773; 607273, 2390789; 607280, 2390802; 607283, 2390814; 607283, 2390815; 607279, 2390828; 607275, 2390842; 607270, 2390855; 607265, 2390869; 607263, 2390883; 607260, 2390899; 607259, 2390914; 607260, 2390927; 607261, 2390939; 607265, 2390951; 607268, 2390959; 607268, 2390960; 607269, 2390971; 607271, 2390983; 607271, 2390997; 607270, 2391013; 607270, 2391025; 607278, 2391038; 607286, 2391053; 607292, 2391065; 607297, 2391078; 607302, 2391095; 607307, 2391111; 607312, 2391127; 607312, 2391128; 607315, 2391144; 607319, 2391156; 607322, 2391172; 607325, 2391188; 607325, 2391203; 607324, 2391216; 607324, 2391229; 607324, 2391243; 607323, 2391259; 607322, 2391271; 607321, 2391284; 607317, 2391297; return to starting point.

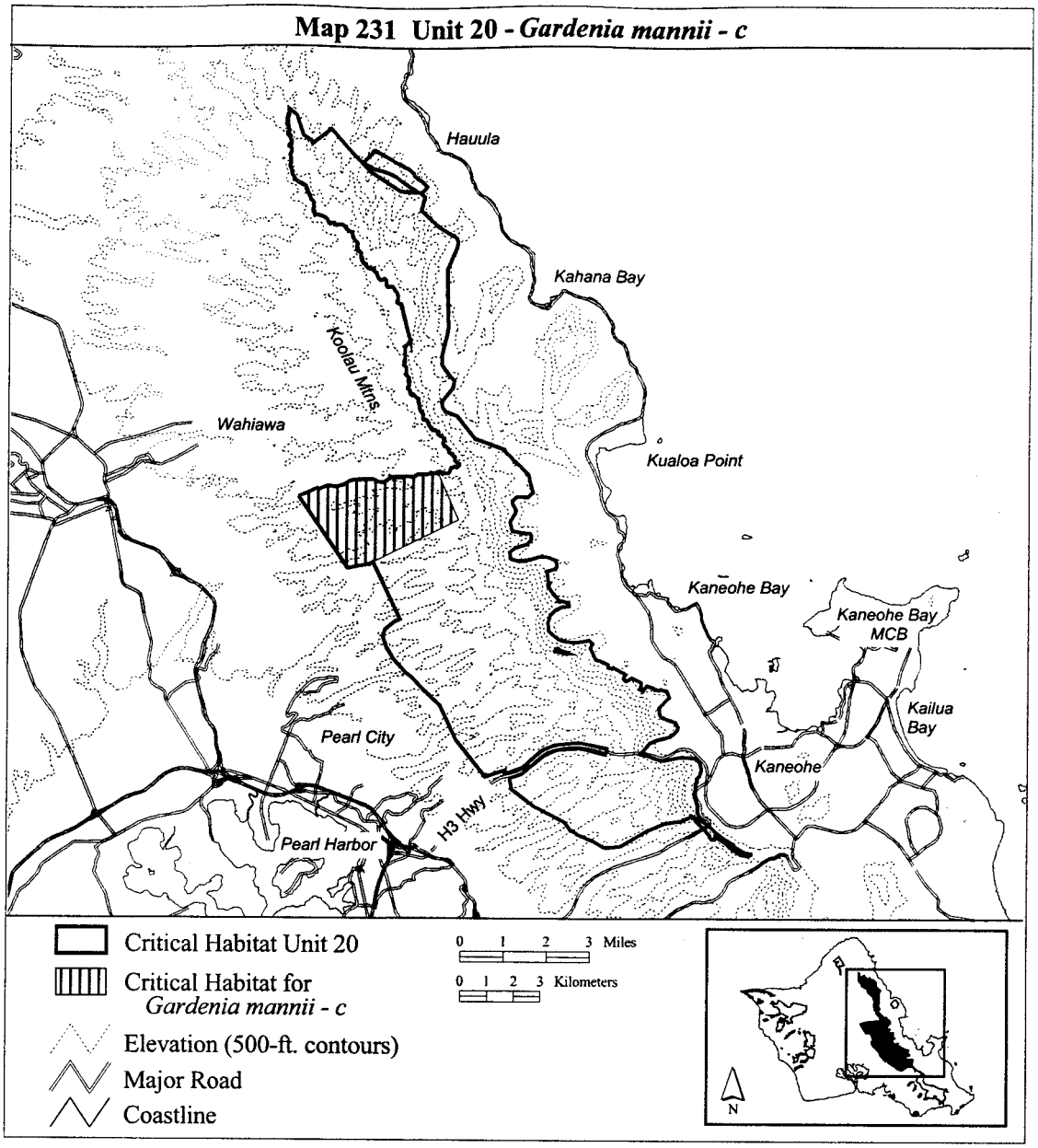
(ii) **Note:** Map 230 follows:



(231) Oahu 20—*Gardenia mannii*—c (1,311 ha; 3,239 ac)

(i) Unit consists of the following 70 boundary points: Start at 610084, 2377493; 610560, 2377510; 610747, 2377396; 610965, 2377385; 611183, 2377541; 611328, 2377562; 611806, 2377593; 612055, 2377562; 612081, 2377577; 612103, 2377583; 612103, 2377584; 612166, 2377617; 612168, 2377619; 612169, 2377619; 612210, 2377654; 612263, 2377686; 612414, 2377680; 612432, 2377673; 612468, 2377676; 612472, 2377678; 612533, 2377676; 612613, 2377702; 612630, 2377702; 612668, 2377720; 612669, 2377721; 612720, 2377738; 612793, 2377718; 612845, 2377739; 612853, 2377742; 612870, 2377747; 612960, 2377754; 613728, 2375972; 610456, 2374325; 609627, 2374155; 607793, 2376879; 607838, 2376897; 607901, 2376922; 607901, 2376921; 607907, 2376916; 607913, 2376915; 607935, 2376919; 607956, 2376931; 607962, 2376938; 607962, 2376945; 608077, 2376990; 608090, 2376996; 608098, 2376990; 608118, 2376996; 608134, 2377006; 608141, 2377013; 608141, 2377021; 608440, 2377167; 608565, 2377136; 608700, 2377209; 608866, 2377271; 609188, 2377229; 609224, 2377240; 609224, 2377239; 609234, 2377232; 609243, 2377236; 609245, 2377246; 609500, 2377323; 609656, 2377416; 609843, 2377489; 609967, 2377489; 610035, 2377491; 610041, 2377483; 610051, 2377480; 610079, 2377484; 610084, 2377489; return to starting point.

(ii) **Note:** Map 231 follows:

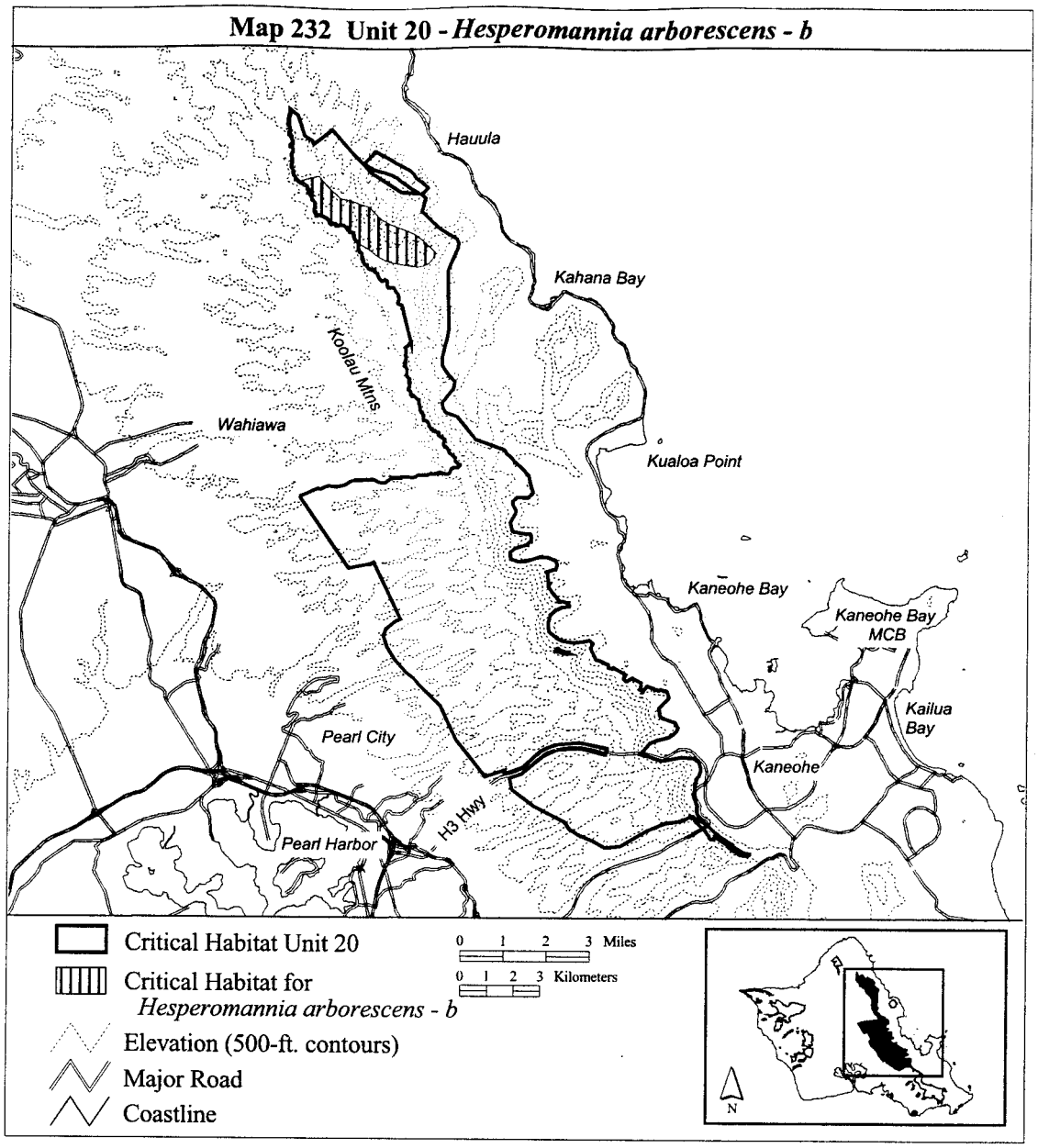


(232) Oahu 20—*Hesperomannia arborescens*—b (590 ha; 1,457 ac)

(i) Unit consists of the following 187 boundary points: Start at 609226, 2388010; 609538, 2387950; 609766, 2387880; 610114, 2387759; 610304, 2387704; 610480, 2387518; 610619, 2387365; 610800, 2387217; 611092, 2387073; 611417, 2386957; 611798, 2386818; 612081, 2386678; 612401, 2386414; 612749, 2386112; 612800, 2386052; 612744, 2385862; 612544, 2385616; 612349, 2385540; 612125, 2385498; 611748, 2385522; 611214, 2385619; 610899, 2385710; 610601, 2385862; 610340, 2386080; 610097, 2386238; 609924, 2386325; 609905, 2386410; 609865, 2386375; 609858, 2386384; 609834, 2386404; 609797, 2386443; 609797, 2386444; 609790, 2386450; 609769, 2386468; 609748, 2386495; 609737, 2386524; 609719, 2386644; 609711, 2386719; 609711, 2386720; 609705, 2386737; 609704, 2386737; 609704, 2386738; 609693, 2386745; 609692, 2386745; 609595, 2386759; 609570, 2386766; 609560, 2386772; 609536, 2386797; 609481, 2386863; 609461, 2386894; 609449, 2386918; 609449, 2386919; 609439, 2386933; 609438, 2386934; 609425, 2386943; 609379, 2386966; 609323, 2387005; 609322, 2387005; 609308, 2387012; 609269, 2387020; 609248, 2387021; 609184, 2387014; 609134, 2387001; 609078, 2386982; 609074, 2386984; 609062, 2387000; 609048, 2387031; 609047, 2387032; 609025, 2387051; 609024, 2387051; 608989, 2387068; 608988, 2387068; 608975, 2387068; 608974, 2387068; 608905, 2387055; 608862, 2387042; 608856, 2387043; 608849, 2387049; 608810, 2387121; 608794, 2387150; 608794, 2387151; 608776, 2387175; 608736, 2387223; 608719, 2387246; 608718, 2387246; 608718, 2387247; 608693, 2387265; 608692, 2387265; 608643, 2387281; 608604, 2387303; 608558, 2387325; 608497, 2387362; 608496, 2387362; 608459, 2387369; 608458, 2387369; 608435, 2387371; 608434, 2387371; 608410, 2387366; 608377, 2387354; 608355, 2387351; 608336, 2387351; 608316, 2387358; 608308, 2387366; 608294, 2387395; 608292, 2387413; 608300, 2387459; 608299,

2387471; 608298, 2387472; 608298, 2387473; 608289, 2387479; 608252, 2387489; 608234, 2387501; 608228, 2387506; 608223, 2387520; 608230, 2387572; 608232, 2387576; 608238, 2387590; 608252, 2387607; 608267, 2387627; 608267, 2387628; 608272, 2387642; 608275, 2387670; 608275, 2387671; 608273, 2387689; 608258, 2387739; 608257, 2387765; 608259, 2387774; 608270, 2387794; 608274, 2387812; 608274, 2387813; 608254, 2387851; 608254, 2387852; 608227, 2387885; 608190, 2387914; 608165, 2387924; 608146, 2387938; 608143, 2387944; 608141, 2387956; 608156, 2388000; 608156, 2388001; 608156, 2388002; 608152, 2388015; 608129, 2388052; 608116, 2388066; 608100, 2388105; 608092, 2388136; 608092, 2388137; 608082, 2388155; 608034, 2388210; 608029, 2388227; 608037, 2388262; 608037, 2388263; 608034, 2388274; 608017, 2388312; 608011, 2388328; 608011, 2388329; 607997, 2388340; 607987, 2388344; 607980, 2388349; 607975, 2388357; 607973, 2388367; 607974, 2388406; 607974, 2388407; 607972, 2388420; 607965, 2388446; 607964, 2388447; 607956, 2388457; 607956, 2388458; 607898, 2388494; 607897, 2388494; 607887, 2388497; 607865, 2388499; 607855, 2388502; 607821, 2388528; 607809, 2388537; 607808, 2388537; 607783, 2388550; 607782, 2388550; 607736, 2388557; 607719, 2388559; 607692, 2388571; 607666, 2388594; 607654, 2388609; 607653, 2388609; 607650, 2388612; 608396, 2388827; 608778, 2388404; return to starting point.

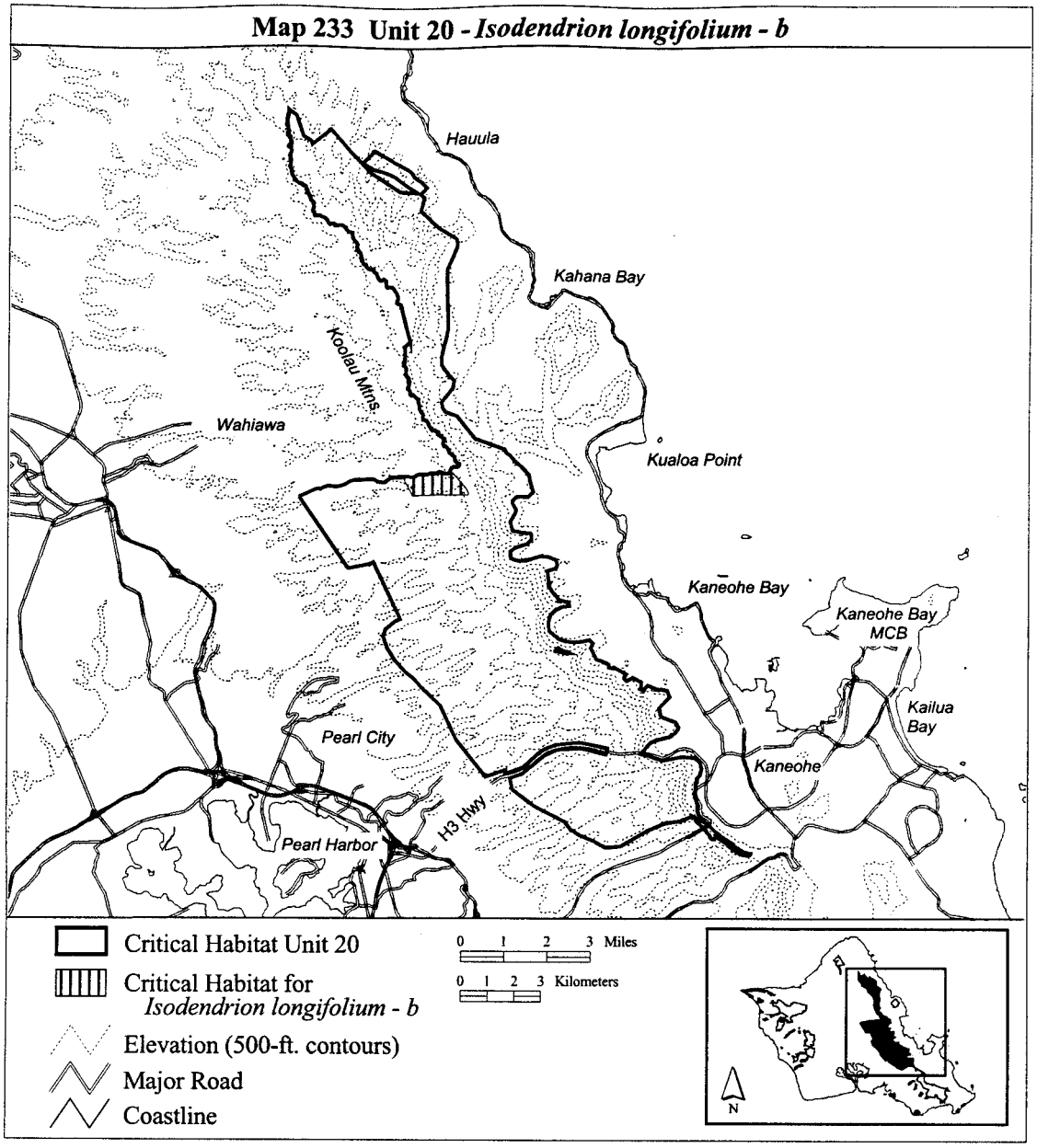
(ii) **Note:** Map 232 follows:



(233) Oahu 20—*Isodendrion longifolium*—b (162 ha; 399 ac)

(i) Unit consists of the following 73 boundary points: Start at 613455, 2377836; 613487, 2377807; 613820, 2377415; 614019, 2377187; 614101, 2377012; 614098, 2376925; 612988, 2376944; 612008, 2376886; 611978, 2376959; 611656, 2377538; 611616, 2377608; 611620, 2377608; 611632, 2377597; 611636, 2377596; 611663, 2377589; 611666, 2377588; 611685, 2377589; 611731, 2377598; 611739, 2377608; 611845, 2377608; 612012, 2377589; 612011, 2377588; 612012, 2377584; 612038, 2377574; 612066, 2377574; 612069, 2377574; 612103, 2377583; 612103, 2377584; 612166, 2377617; 612168, 2377619; 612169, 2377619; 612247, 2377687; 612247, 2377695; 612255, 2377697; 612402, 2377690; 612402, 2377689; 612403, 2377685; 612432, 2377673; 612468, 2377676; 612482, 2377684; 612483, 2377688; 612505, 2377688; 612575, 2377698; 612576, 2377698; 612596, 2377708; 612604, 2377703; 612630, 2377702; 612668, 2377720; 612688, 2377749; 612686, 2377751; 612705, 2377757; 612764, 2377738; 612765, 2377738; 612794, 2377742; 612814, 2377728; 612853, 2377742; 612870, 2377747; 613040, 2377760; 613059, 2377772; 613059, 2377774; 613085, 2377777; 613154, 2377768; 613224, 2377738; 613264, 2377728; 613265, 2377728; 613335, 2377738; 613336, 2377738; 613359, 2377752; 613368, 2377747; 613413, 2377754; 613415, 2377755; 613449, 2377784; 613454, 2377825; return to starting point.

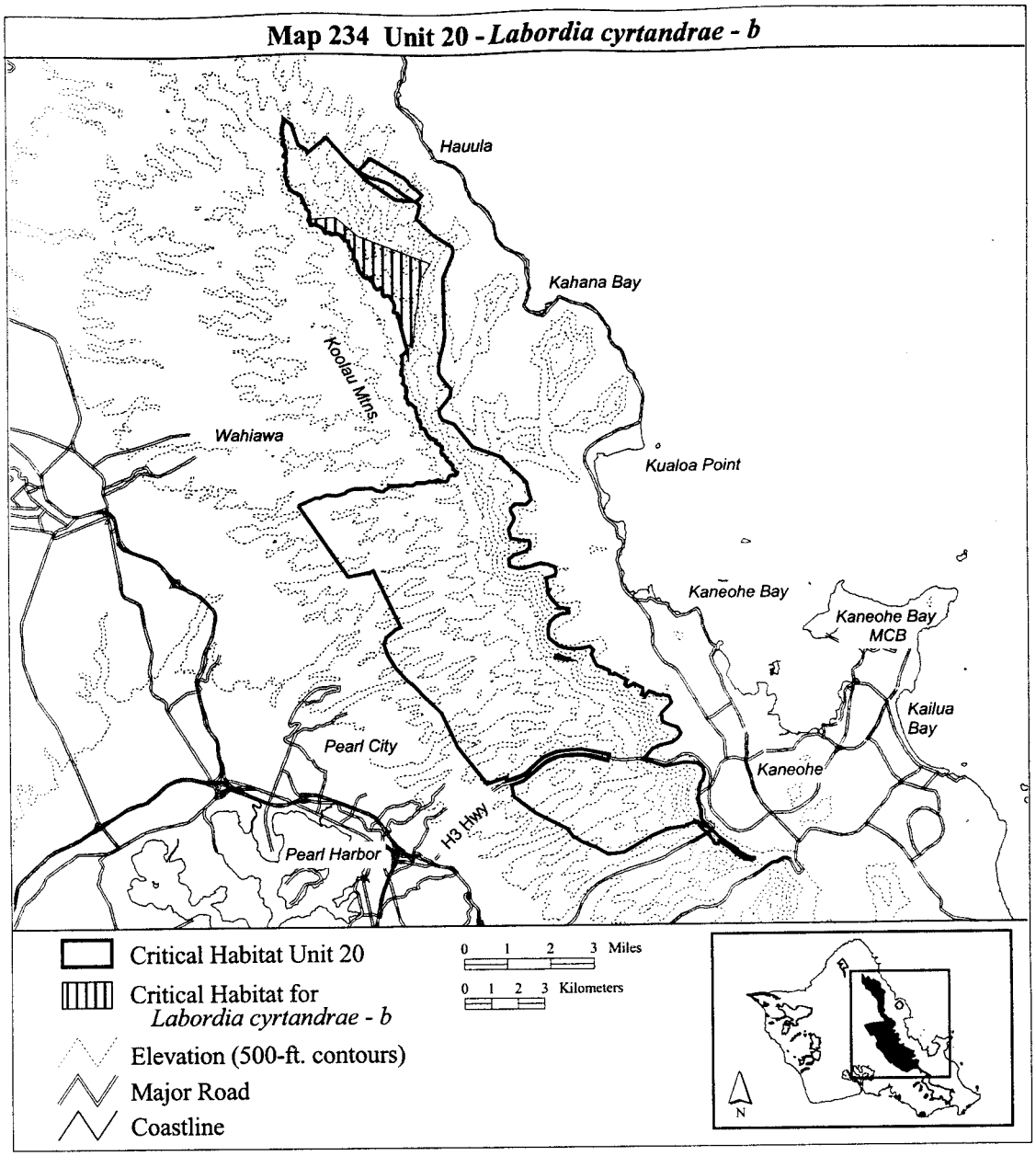
(ii) **Note:** Map 233 follows:



(234) Oahu 20—*Labordia cyrtandrae*—b (595 ha; 1,471 ac)

(i) Unit consists of the following 254 boundary points: Start at 608229, 2387567; 609230, 2387634; 610071, 2386913; 612807, 2385912; 612446, 2385365; 612366, 2384991; 612326, 2384471; 612219, 2383924; 612113, 2382763; 611821, 2382957; 611795, 2383056; 611597, 2383822; 611567, 2383939; 611567, 2383940; 611561, 2383949; 611537, 2384020; 611536, 2384020; 611525, 2384040; 611515, 2384051; 611495, 2384064; 611460, 2384078; 611430, 2384082; 611404, 2384097; 611396, 2384120; 611393, 2384150; 611397, 2384172; 611413, 2384204; 611422, 2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611429, 2384357; 611417, 2384382; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611374, 2384489; 611358, 2384501; 611334, 2384524; 611326, 2384536; 611302, 2384584; 611257, 2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 611192, 2384704; 611191, 2384703; 611165, 2384698; 611119, 2384696; 611118, 2384696; 611082, 2384690; 611081, 2384690; 611065, 2384682; 611064, 2384681; 611058, 2384675; 611046, 2384674; 611039, 2384675; 611028, 2384688; 611014, 2384713; 610994, 2384778; 610981, 2384838; 610976, 2384927; 610973, 2384941; 610973, 2384942; 610965, 2384959; 610965, 2384960; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610809, 2384945; 610780, 2384942; 610766, 2384942; 610749, 2384953; 610709, 2384995; 610692, 2385014; 610679, 2385041; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610558, 2385236; 610543, 2385248; 610533, 2385266; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610508, 2385342; 610497, 2385351; 610496, 2385351; 610454, 2385362; 610440, 2385362; 610394, 2385362; 610370, 2385370; 610333, 2385392; 610292, 2385406; 610280, 2385413; 610261, 2385429; 610248, 2385449; 610237, 2385473; 610222, 2385512; 610222, 2385513; 610214, 2385522; 610206, 2385531; 610206, 2385532; 610187, 2385540; 610166, 2385544; 610134, 2385558; 610129, 2385561; 610122, 2385580; 610119, 2385604; 610119, 2385605; 610112, 2385620; 610111, 2385621; 610093, 2385637; 610078, 2385652; 610077, 2385659; 610090, 2385687; 610097, 2385698; 610098, 2385699; 610098, 2385700; 610097, 2385705; 610097, 2385706; 610081, 2385734; 610054, 2385762; 610039, 2385790; 610028, 2385816; 610024, 2385839; 610027, 2385873; 610035, 2385901; 610035, 2385902; 610035, 2385943; 610035, 2385944; 610029, 2385956; 610029, 2385957; 610003, 2385991; 609994, 2386004; 609993, 2386004; 609993, 2386005; 609971, 2386017; 609955, 2386025; 609948, 2386031; 609929, 2386085; 609909, 2386112; 609908, 2386113; 609898, 2386121; 609887, 2386134; 609883, 2386146; 609884, 2386168; 609879, 2386204; 609884, 2386223; 609905, 2386254; 609905, 2386255; 609909, 2386278; 609909, 2386279; 609907, 2386291; 609881, 2386354; 609880, 2386355; 609858, 2386384; 609834, 2386404; 609797, 2386443; 609797, 2386444; 609790, 2386450; 609769, 2386468; 609748, 2386495; 609737, 2386524; 609719, 2386644; 609711, 2386719; 609711, 2386720; 609705, 2386737; 609704, 2386737; 609704, 2386738; 609693, 2386745; 609692, 2386745; 609595, 2386759; 609570, 2386766; 609560, 2386772; 609536, 2386797; 609481, 2386863; 609461, 2386894; 609449, 2386918; 609449, 2386919; 609439, 2386933; 609438, 2386934; 609425, 2386943; 609379, 2386966; 609323, 2387005; 609308, 2387012; 609269, 2387020; 609248, 2387021; 609184, 2387014; 609134, 2387001; 609078, 2386982; 609074, 2386984; 609062, 2387000; 609048, 2387031; 609047, 2387032; 609025, 2387051; 609024, 2387051; 608989, 2387068; 608988, 2387068; 608975, 2387068; 608975, 2387069; 608974, 2387068; 608905, 2387055; 608862, 2387042; 608856, 2387043; 608849, 2387049; 608810, 2387121; 608794, 2387150; 608794, 2387151; 608776, 2387175; 608736, 2387223; 608719, 2387246; 608718, 2387246; 608718, 2387247; 608693, 2387265; 608692, 2387265; 608643, 2387281; 608604, 2387303; 608558, 2387325; 608497, 2387362; 608496, 2387362; 608459, 2387369; 608458, 2387369; 608435, 2387371; 608434, 2387371; 608410, 2387366; 608377, 2387354; 608355, 2387351; 608336, 2387351; 608316, 2387358; 608308, 2387366; 608294, 2387395; 608292, 2387413; 608300, 2387459; 608299, 2387471; 608298, 2387472; 608298, 2387473; 608289, 2387479; 608252, 2387489; 608234, 2387501; 608228, 2387506; 608223, 2387520; return to starting point.

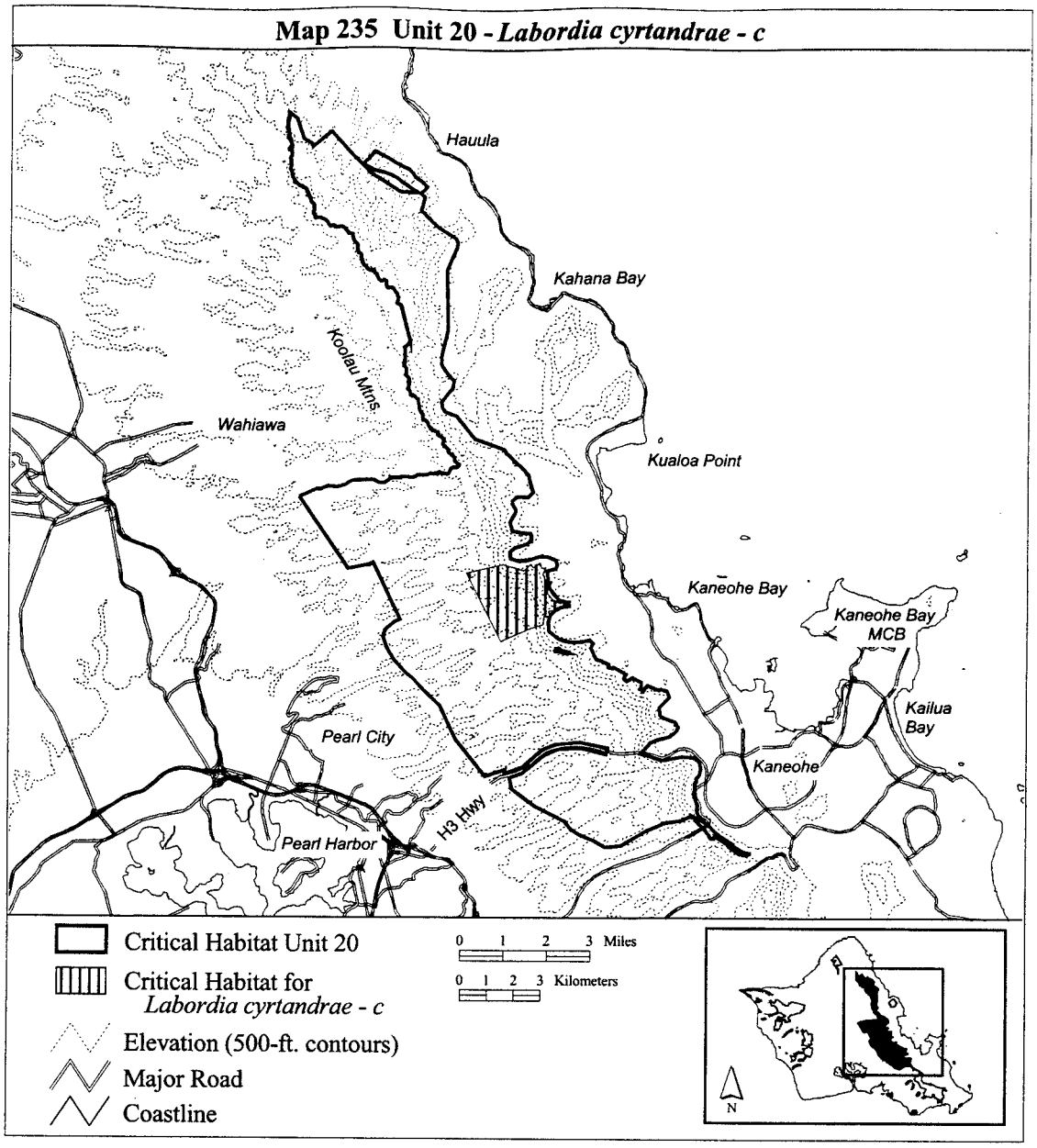
(ii) **Note:** Map 234 follows:



(235) Oahu 20—*Labordia cyrtandrae*—c (618 ha; 1,526 ac)

(i) Unit consists of the following 27 boundary points: Start at 614062, 2373984; 615409, 2374312; 615975, 2374135; 616187, 2374082; 616434, 2374312; 616522, 2374206; 616787, 2374365; 616840, 2374188; 616999, 2374206; 616893, 2373940; 616999, 2373728; 616999, 2373622; 617159, 2373640; 617088, 2373446; 617070, 2373251; 617282, 2372986; 617583, 2372898; 617883, 2372810; 617883, 2372757; 617477, 2372704; 617353, 2372615; 617106, 2372562; 617176, 2372386; 616929, 2372350; 616911, 2372067; 616452, 2371908; 615356, 2371420; return to starting point.

(ii) **Note:** Map 235 follows:



(236) Oahu 20—*Lobelia gaudichaudii* ssp. *koolauensis*—a (926 ha; 2,287 ac)

(i) Unit consists of the following 591 boundary points: Start at 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613568, 2378357; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613447, 2378478; 613424, 2378499; 613386, 2378532; 613364, 2378562; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248, 2378749; 613247, 2378750; 613232, 2378759; 613213, 2378764; 613199, 2378769; 613190, 2378778; 613172, 2378818; 613172, 2378819; 613152, 2378848; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 613142, 2379072; 613115, 2379100; 613099, 2379113; 613098, 2379113; 613063, 2379127; 612997, 2379166; 612978, 2379188; 612969, 2379215; 612963, 2379226; 612959, 2379247; 612959, 2379248; 612945, 2379276; 612945, 2379277; 612929, 2379297; 612928, 2379298; 612905, 2379314; 612876, 2379327; 612840, 2379337; 612770, 2379350; 612764, 2379355; 612758, 2379364; 612748, 2379389; 612748, 2379390; 612725, 2379410; 612700, 2379424; 612683, 2379441; 612663, 2379470; 612619, 2379529; 612600, 2379563; 612586, 2379618; 612573, 2379650; 612555, 2379679; 612517, 2379716; 612495, 2379729; 612412, 2379753; 612397, 2379761; 612387, 2379798; 612388, 2379851; 612386, 2379928; 612379, 2379961; 612379, 2379962; 612375, 2379970; 612367, 2379981; 612366, 2379981; 612366, 2379982; 612353, 2379991; 612328, 2380018; 612262, 2380145; 612255, 2380163; 612249, 2380199; 612248, 2380233; 612234, 2380304; 612226, 2380334; 612225, 2380334; 612224, 2380337; 612211,

2380367; 612213, 2380397; 612218, 2380419; 612218, 2380420; 612215, 2380452; 612212, 2380464; 612202, 2380506; 612202, 2380507; 612197, 2380516; 612177, 2380539; 612112, 2380593; 612086, 2380625; 612073, 2380644; 612046, 2380669; 612046, 2380670; 612016, 2380686; 611992, 2380690; 611965, 2380687; 611955, 2380689; 611941, 2380693; 611927, 2380702; 611919, 2380710; 611905, 2380743; 611889, 2380825; 611889, 2380826; 611880, 2380839; 611856, 2380862; 611812, 2380892; 611799, 2380905; 611798, 2380918; 611800, 2380925; 611815, 2380943; 611838, 2380960; 611838, 2380961; 611848, 2380980; 611851, 2381022; 611848, 2381067; 611853, 2381081; 611879, 2381118; 611879, 2381119; 611879, 2381131; 611879, 2381132; 611868, 2381149; 611858, 2381155; 611857, 2381155; 611847, 2381160; 611837, 2381167; 611828, 2381178; 611825, 2381193; 611830, 2381214; 611838, 2381223; 611854, 2381250; 611856, 2381258; 611855, 2381265; 611849, 2381285; 611848, 2381286; 611828, 2381312; 611784, 2381363; 611765, 2381383; 611734, 2381424; 611733, 2381424; 611730, 2381426; 611737, 2381446; 611745, 2381514; 611746, 2381550; 611748, 2381618; 611748, 2381619; 611739, 2381669; 611736, 2381680; 611736, 2381681; 611727, 2381699; 611726, 2381700; 611673, 2381758; 611666, 2381774; 611666, 2381794; 611670, 2381810; 611702, 2381865; 611703, 2381866; 611712, 2381882; 611712, 2381883; 611712, 2381915; 611712, 2381916; 611710, 2381923; 611687, 2381955; 611687, 2381978; 611695, 2381990; 611702, 2382013; 611702, 2382014; 611700, 2382058; 611694, 2382120; 611695, 2382225; 611701, 2382278; 611699, 2382320; 611695, 2382360; 611693, 2382433; 611692, 2382455; 611698, 2382473; 611744, 2382512; 611805, 2382557; 611831, 2382588; 611844, 2382604; 611844, 2382605; 611850, 2382621; 611874, 2382653; 611896, 2382683; 611896, 2382684; 611903, 2382704; 611903, 2382705; 611903, 2382706; 611902, 2382707; 611901, 2382707; 611900, 2382707; 611900, 2382706; 611899, 2382706; 611892, 2382686; 611891, 2382684; 611795, 2383056; 611597, 2383822; 611567, 2383939; 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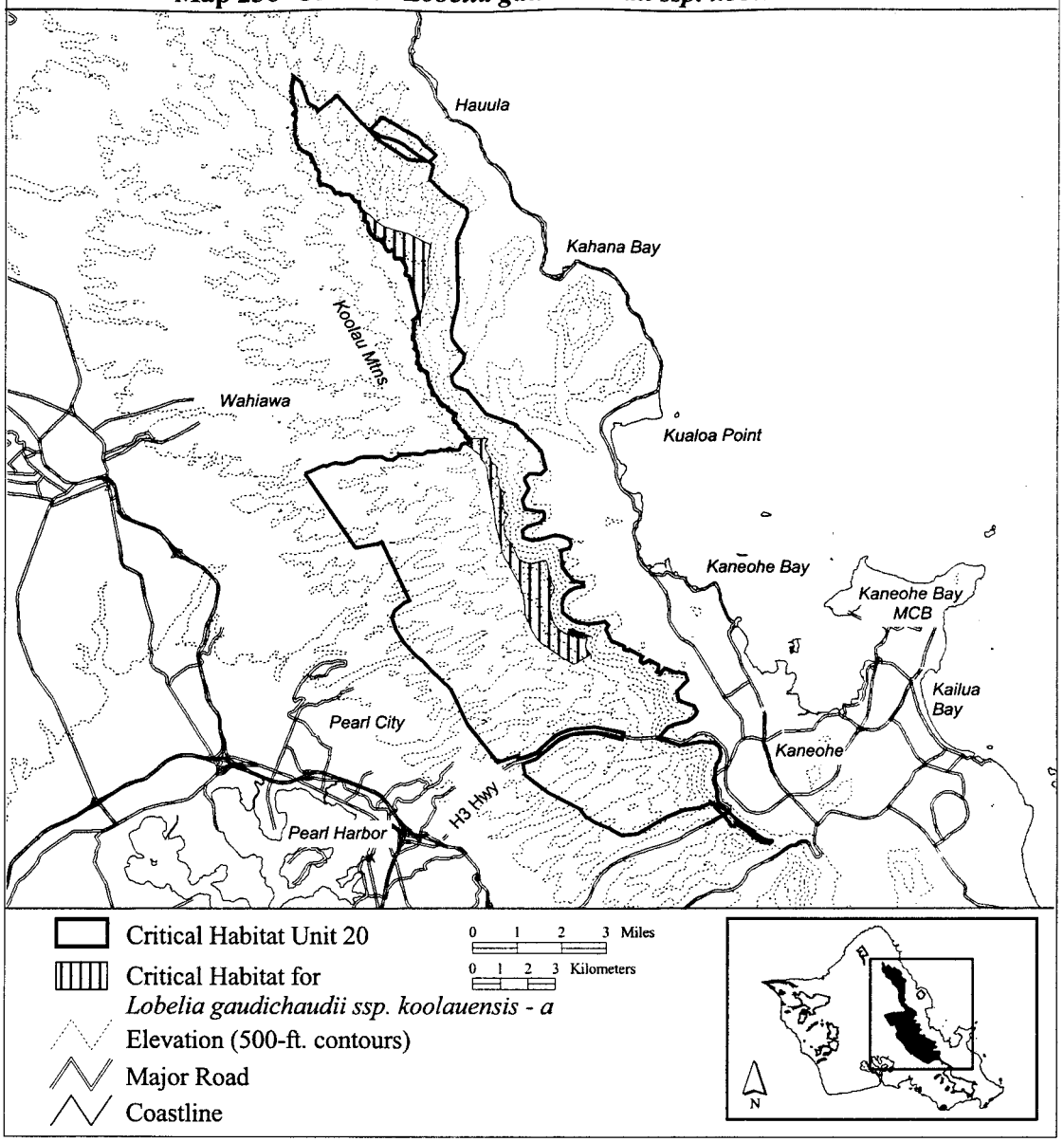
(ii) **Note:** Map 236 follows:

Map 236 Unit 20 - *Lobelia gaudichaudii ssp. koolauensis - a*



(237) Oahu 20—*Lobelia oahuensis*—a (493 ha; 1,218 ac)

(i) Unit consists of the following 649 boundary points: Start at 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613711, 2378118; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613568, 2378357; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613462, 2378464; 613447, 2378478; 613424, 2378499; 613386, 2378532; 613364, 2378562; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248, 2378749; 613247, 2378750; 613232, 2378759; 613231, 2378759; 613213, 2378764; 613199, 2378769; 613190, 2378778; 613172, 2378818; 613172, 2378819; 613152, 2378848; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613145, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 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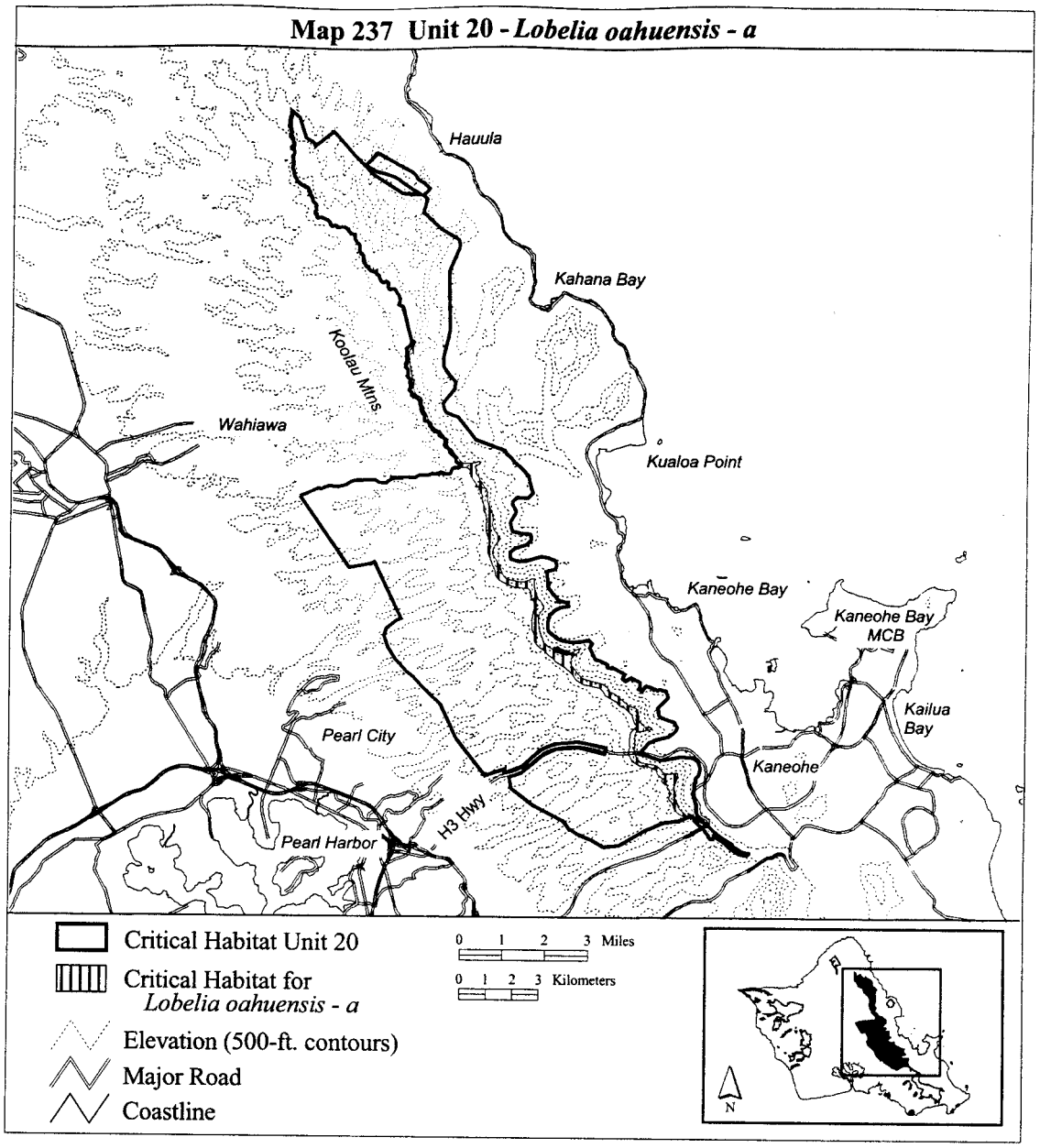
(ii) **Note:** Map 237 follows:

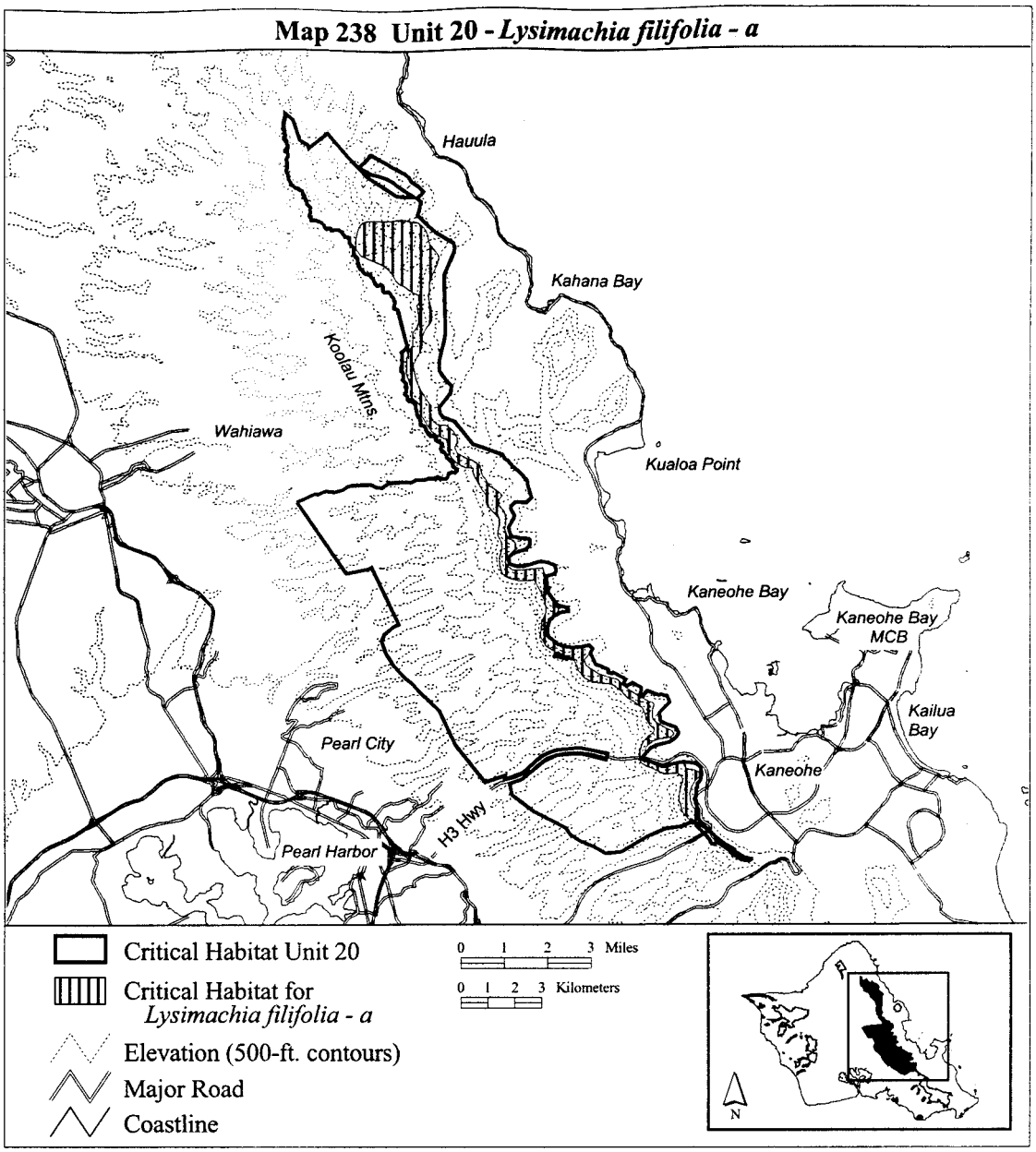


(238) Oahu 20—*Lysimachia filifolia*—a (1,514 ha; 3,741 ac)

(i) Unit consists of the following 333 boundary points: Start at 622547, 2364906; 622392, 2365018; 622231, 2365150; 622133, 2365305; 622037, 2365661; 622013, 2365661; 622019, 2365874; 622064, 2366138; 622093, 2366310; 622156, 2366460; 622128, 2366563; 622082, 2366649; 621950, 2366718; 621645, 2366708; 621496, 2366708; 621369, 2366748; 621214, 2366817; 621053, 2366892; 620818, 2366989; 620582, 2367122; 620553, 2367236; 620553, 2367363; 620542, 2367512; 620571, 2367673; 620663, 2367845; 620743, 2367966; 620898, 2368127; 621042, 2368236; 621082, 2368305; 621053, 2368409; 620910, 2368518; 620818, 2368690; 620720, 2369000; 620617, 2369178; 620462, 2369276; 620345, 2369363; 620061, 2369535; 619852, 2369805; 619545, 2370014; 619336, 2370051; 618992, 2370088; 618685, 2370149; 618414, 2370321; 618242, 2370567; 618193, 2370752; 618107, 2370924; 617996, 2370960; 617578, 2371133; 617050, 2371477; 616829, 2371821; 616902, 2372362; 617038, 2372718; 617025, 2373050; 616853, 2373505; 616607, 2373923; 616030, 2373911; 615648, 2374021; 615403, 2374181; 615317, 2374501; 615329, 2374771; 615403, 2375078; 615415, 2375324; 615267, 2375619; 615292, 2375841; 615317, 2376025; 615317, 2376234; 615009, 2376603; 615009, 2376620; 615004, 2376613; 614843, 2376808; 614825, 2377015; 614825, 2377136; 614670, 2377337; 614492, 2377664; 614372, 2377888; 614331, 2378038; 614349, 2378147; 614084, 2378170; 613740, 2378336; 613533, 2378572; 613401, 2378825; 613429, 2379003; 613326, 2379210; 613016, 2379371; 612780, 2379543; 612648, 2379727; 612487, 2379997; 612372, 2380152; 612372, 2380284; 612408, 2380419; 612389, 2380468; 612286, 2380594; 612039, 2380784; 611999, 2380916; 612033, 2381169; 611918, 2381508; 611855, 2381692; 611867, 2381829; 611872, 2381985; 611872, 2382180; 611930, 2382444; 611976, 2382576; 612102, 2382714; 612114, 2382789; 612114, 2382996; 612114, 2383174; 612160,

2383289; 612298, 2383444; 612315, 2383593; 612326, 2383817; 612303, 2384007; 612252, 2384169; 612246, 2384168; 612251, 2384174; 612240, 2384208; 612280, 2384215; 612320, 2384271; 612338, 2384392; 612309, 2384604; 612091, 2384714; 611803, 2384892; 611602, 2385012; 611464, 2385122; 611361, 2385311; 611200, 2385558; 610970, 2385719; 610482, 2385920; 610160, 2386070; 609988, 2386294; 609948, 2386569; 610011, 2386880; 610063, 2387104; 610246, 2387282; 610488, 2387345; 610942, 2387333; 611125, 2387333; 611390, 2387368; 611711, 2387420; 611987, 2387356; 612286, 2387310; 612510, 2387144; 612648, 2386874; 612671, 2386644; 612757, 2386454; 612947, 2386230; 613033, 2386098; 613062, 2385989; 612970, 2385679; 612884, 2385478; 612797, 2385294; 612728, 2385047; 612728, 2384783; 612682, 2384604; 612700, 2384426; 612746, 2384260; 612737, 2384258; 612780, 2384070; 612797, 2383817; 612797, 2383634; 612636, 2383421; 612499, 2383208; 612435, 2383013; 612441, 2382783; 612435, 2382622; 612372, 2382496; 612257, 2382260; 612125, 2382002; 612148, 2381784; 612234, 2381410; 612418, 2381014; 612579, 2380767; 612786, 2380474; 612779, 2380473; 612734, 2380198; 612780, 2380054; 612872, 2379888; 612993, 2379790; 613113, 2379744; 613268, 2379744; 613406, 2379721; 613590, 2379566; 613768, 2379290; 613768, 2379106; 613676, 2378905; 613757, 2378710; 614079, 2378526; 614360, 2378423; 614596, 2378250; 614636, 2378078; 614682, 2377888; 614814, 2377710; 614940, 2377492; 615193, 2377325; 615354, 2377210; 615394, 2377131; 615427, 2377131; 615304, 2376959; 615304, 2376750; 615489, 2376504; 615562, 2376295; 615562, 2376049; 615513, 2375853; 615599, 2375595; 615907, 2375324; 615943, 2375115; 615636, 2374808; 615538, 2374611; 615624, 2374451; 615808, 2374304; 616128, 2374304; 616546, 2374341; 616915, 2374402; 617050, 2374034; 617111, 2373505; 617296, 2373222; 617431, 2373075; 617517, 2372964; 617480, 2372718; 617185, 2372423; 617111, 2372153; 617124, 2371821; 617480, 2371538; 617714, 2371440; 618045, 2371415; 618377, 2371428; 618648, 2371489; 618771, 2371366; 618648, 2371145; 618476, 2370936; 618525, 2370776; 618660, 2370641; 619041, 2370420; 619508, 2370260; 619705, 2370211; 620012, 2369916; 620467, 2369633; 620811, 2369436; 620810, 2369436; 620933, 2369379; 621036, 2369345; 621082, 2369265; 621025, 2369104; 621013, 2368897; 621019, 2368788; 621088, 2368690; 621197, 2368592; 621312, 2368535; 621530, 2368403; 621737, 2368305; 621817, 2368201; 621771, 2368104; 621593, 2368041; 621341, 2368012; 621053, 2367926; 620835, 2367765; 620743, 2367604; 620743, 2367424; 620604, 2367260; 620603, 2367259; 620604, 2367258; 620865, 2367188; 621059, 2367041; 621398, 2366932; 621484, 2366920; 621691, 2366984; 621800, 2367063; 621978, 2367103; 622093, 2367103; 622151, 2367103; 622260, 2367023; 622271, 2366891; 622398, 2366868; 622593, 2366862; 622760, 2366759; 622765, 2366632; 622765, 2366581; 622639, 2366454; 622484, 2366224; 622421, 2365960; 622449, 2365662; 622467, 2365661; 622478, 2365541; 622576, 2365431; 622668, 2365391; 622745, 2365350; 622721, 2365226; 622702, 2365179; 622708, 2365159; 622707, 2365156; 622714, 2365138; 622737, 2365058; 622775, 2364977; 622782, 2364959; 622783, 2364959; 622946, 2364800; 623041, 2364696; 623146, 2364605; 623414, 2364344; 623432, 2364332; 623639, 2364167; 623880, 2364018; 623982, 2363952; 624084, 2363881; 624075, 2363840; 624185, 2363777; 624483, 2363599; 624661, 2363558; 624694, 2363558; 624716, 2363547; 624725, 2363518; 624702, 2363484; 624592, 2363467; 624437, 2363495; 624253, 2363576; 624041, 2363691; 623869, 2363863; 623736, 2363966; 623432, 2364156; 623328, 2364259; 623260, 2364323; 623179, 2364455; 623030, 2364610; 622926, 2364708; 622789, 2364820; 622726, 2364839; 622749, 2364824; 622714, 2364840; 622716, 2364842; 622576, 2364886; 622555, 2364901; 622550, 2364906; 622549, 2364907; 622548, 2364907; return to starting point.

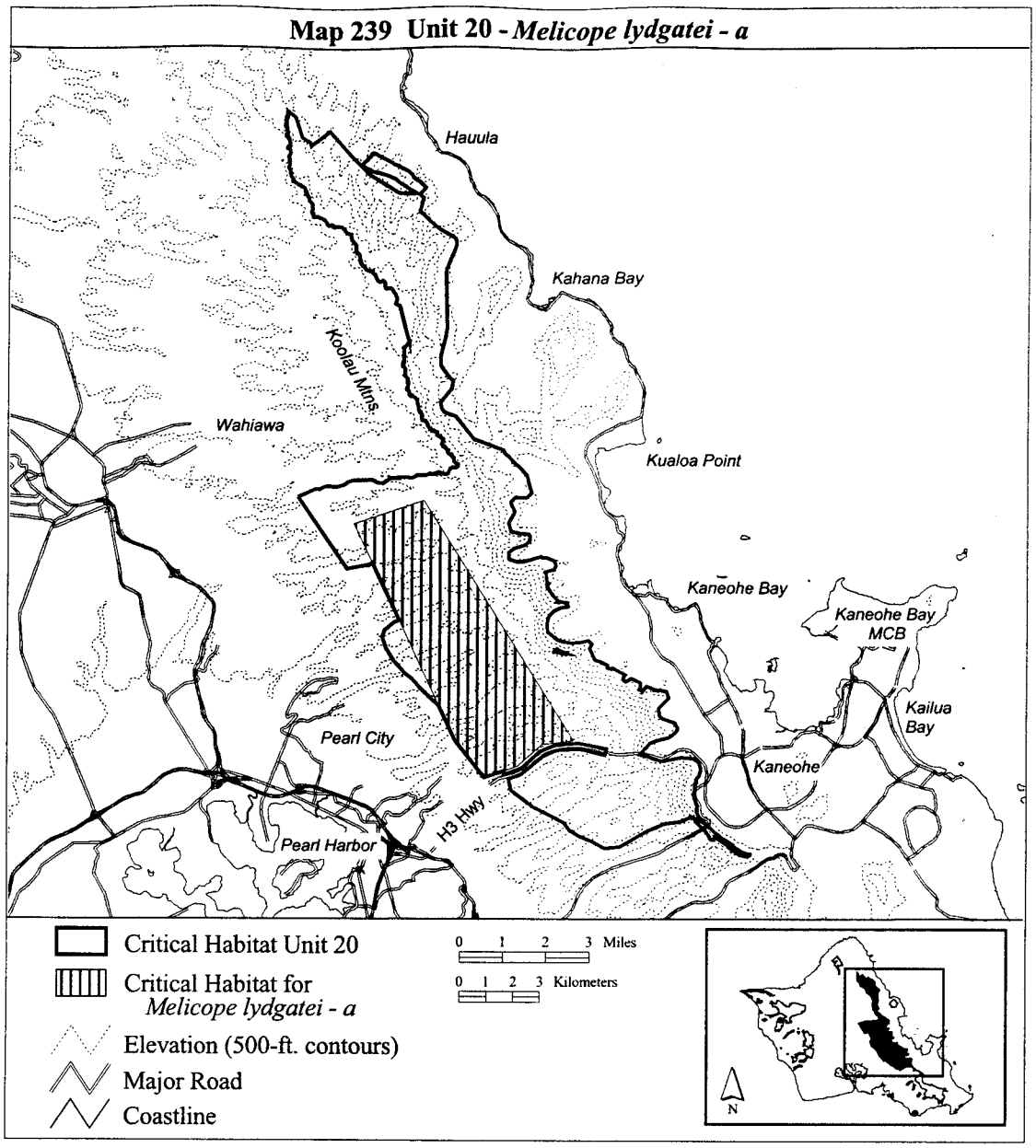
(ii) **Note:** Map 238 follows:



(239) Oahu 20—*Melicope lydgatei*—a (3,499 ha; 8,646 ac)

(i) Unit consists of the following 11 boundary points: Start at 610585, 2374351; 609877, 2375857; 612494, 2376750; 618121, 2367756; 616955, 2367642; 616046, 2366818; 614795, 2366392; 613686, 2367756; 610603, 2374312; 610601, 2374322; 610587, 2374351; return to starting point.

(ii) **Note:** Map 239 follows:



(240) Oahu 20—*Myrsine juddii*—a (949 ha; 2,346 ac)

(i) Unit consists of the following 637 boundary points: Start at 611505, 2377599; 611595, 2377608; 611620, 2377608; 611632, 2377597; 611636, 2377596; 611663, 2377589; 611666, 2377588; 611685, 2377589; 611731, 2377598; 611739, 2377608; 611845, 2377608; 612012, 2377589; 612011, 2377588; 612012, 2377584; 612038, 2377574; 612066, 2377574; 612069, 2377574; 612103, 2377583; 612103, 2377584; 612166, 2377617; 612168, 2377619; 612247, 2377687; 612247, 2377695; 612255, 2377697; 612402, 2377690; 612402, 2377689; 612403, 2377685; 612432, 2377673; 612468, 2377676; 612482, 2377684; 612483, 2377688; 612505, 2377688; 612575, 2377698; 612596, 2377708; 612604, 2377703; 612630, 2377702; 612668, 2377720; 612688, 2377749; 612686, 2377751; 612705, 2377757; 612764, 2377738; 612765, 2377738; 612794, 2377742; 612814, 2377728; 612853, 2377742; 612870, 2377747; 613040, 2377760; 613059, 2377772; 613059, 2377774; 613085, 2377777; 613154, 2377768; 613224, 2377738; 613264, 2377728; 613265, 2377728; 613335, 2377738; 613336, 2377738; 613359, 2377752; 613368, 2377747; 613413, 2377754; 613415, 2377755; 613449, 2377784; 613454, 2377825; 613460, 2377881; 613497, 2377929; 613554, 2377977; 613555, 2377987; 613674, 2377978; 613675, 2377978; 613694, 2377988; 613721, 2377976; 613733, 2377976; 613762, 2378001; 613771, 2378068; 613764, 2378090; 613757, 2378093; 613753, 2378093; 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613711, 2378118; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613568, 2378357; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613462, 2378464; 613447, 2378478; 613424, 2378499; 613386, 2378532; 613364, 2378562; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248,

2378749; 613247, 2378750; 613232, 2378759; 613213, 2378764; 613199, 2378769; 613190, 2378778; 613172, 2378818; 613152, 2378848; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613145, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 613142, 2379072; 613115, 2379100; 613099, 2379113; 613098, 2379113; 613063, 2379127; 612997, 2379166; 612978, 2379188; 612969, 2379215; 612963, 2379226; 612959, 2379247; 612959, 2379248; 612945, 2379276; 612945, 2379277; 612929, 2379297; 612928, 2379298; 612905, 2379314; 612876, 2379327; 612840, 2379337; 612770, 2379350; 612764, 2379355; 612758, 2379364; 612748, 2379389; 612748, 2379390; 612725, 2379410; 612700, 2379424; 612683, 2379441; 612663, 2379470; 612619, 2379529; 612600, 2379563; 612586, 2379618; 612573, 2379650; 612555, 2379679; 612517, 2379716; 612495, 2379729; 612412, 2379753; 612397, 2379761; 612387, 2379798; 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611744, 2382512; 611805, 2382557; 611831, 2382588; 611844, 2382604; 611844, 2382605; 611850, 2382621; 611874, 2382653; 611896, 2382683; 611896, 2382684; 611903, 2382704; 611903, 2382705; 611903, 2382706; 611902, 2382707; 611901, 2382707; 611900, 2382707; 611900, 2382706; 611899, 2382706; 611892, 2382686; 611891, 2382684; 611795, 2383056; 611597, 2383822; 611567, 2383939; 611567, 2383940; 611561, 2383949; 611537, 2384020; 611536, 2384020; 611525, 2384040; 611515, 2384051; 611495, 2384064; 611460, 2384078; 611430, 2384082; 611404, 2384097; 611396, 2384120; 611393, 2384150; 611397, 2384172; 611413, 2384204; 611422, 2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611429, 2384357; 611417, 2384382; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611374, 2384489; 611358, 2384501; 611334, 2384524; 611326, 2384536; 611302, 2384584; 611257, 2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 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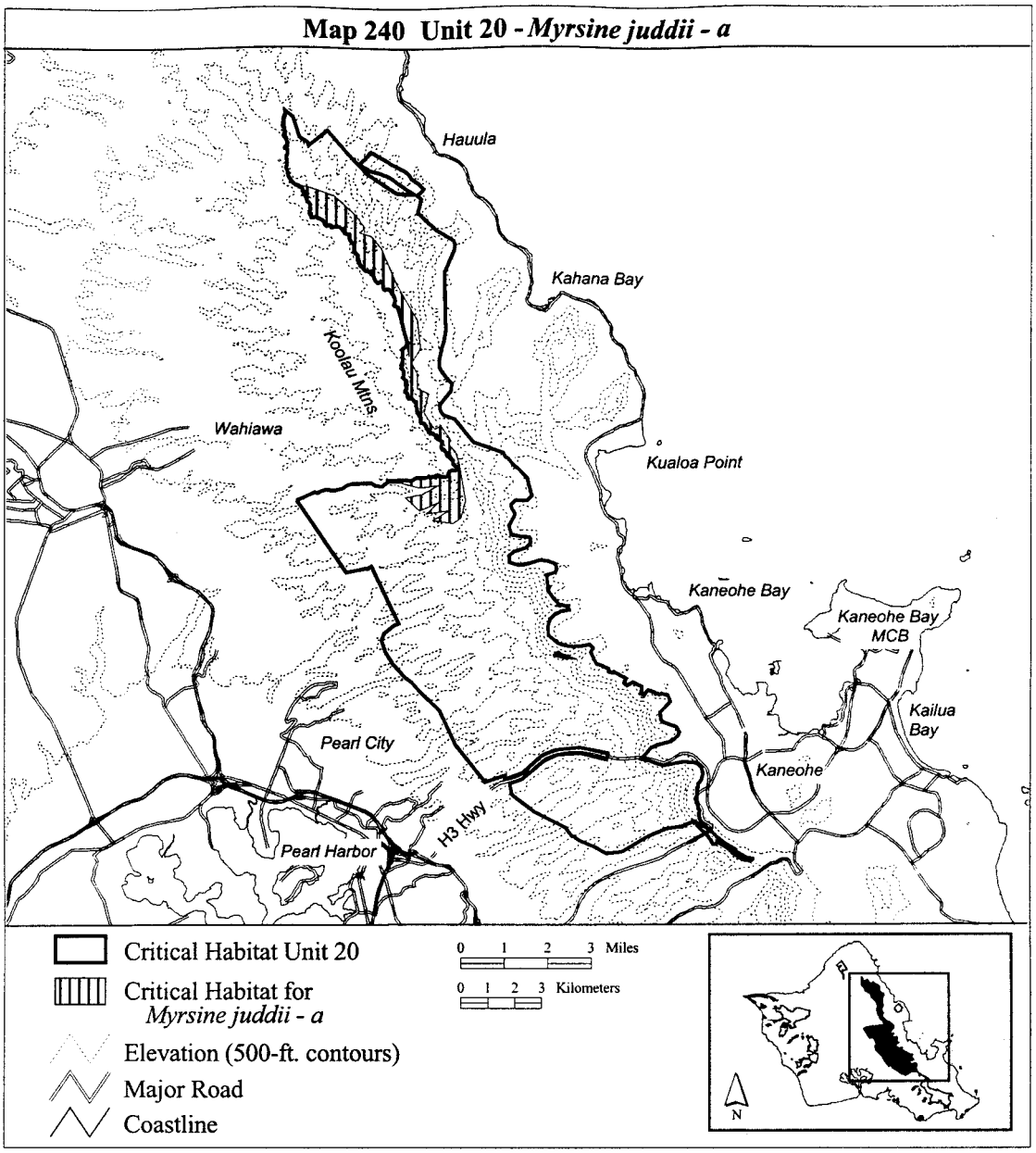
(ii) **Note:** Map 240 follows:



(241) Oahu 20—*Phlegmariurus nutans*—a (1,624 ha; 4,014 ac)

(i) Unit consists of the following 518 boundary points: Start at 612247, 2377695; 612255, 2377697; 612402, 2377690; 612402, 2377689; 612403, 2377685; 612432, 2377673; 612468, 2377676; 612482, 2377684; 612483, 2377688; 612505, 2377688; 612575, 2377698; 612596, 2377708; 612604, 2377703; 612630, 2377702; 612668, 2377720; 612688, 2377749; 612686, 2377751; 612705, 2377757; 612764, 2377738; 612765, 2377738; 612794, 2377742; 612814, 2377728; 612853, 2377742; 612870, 2377747; 613040, 2377760; 613059, 2377772; 613059, 2377774; 613085, 2377777; 613154, 2377768; 613224, 2377738; 613264, 2377728; 613265, 2377728; 613335, 2377738; 613336, 2377738; 613359, 2377752; 613368, 2377747; 613413, 2377754; 613415, 2377755; 613449, 2377784; 613454, 2377825; 613460, 2377881; 613497, 2377929; 613554, 2377977; 613555, 2377987; 613674, 2377978; 613675, 2377978; 613694, 2377988; 613721, 2377976; 613733, 2377976; 613762, 2378001; 613771, 2378068; 613764, 2378090; 613757, 2378093; 613753, 2378093; 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613711, 2378118; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613568, 2378357; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613462, 2378464; 613447, 2378478; 613424, 2378499; 613386, 2378532; 613364, 2378562; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248, 2378749; 613247, 2378750; 613232, 2378759; 613231, 2378759; 613213, 2378764; 613199, 2378769; 613190, 2378778; 613172, 2378818; 613172, 2378819; 613152, 2378848; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613145, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185,

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612218, 2380419; 612218, 2380420; 612215, 2380452; 612212, 2380464; 612202, 2380506; 612202, 2380507; 612197, 2380516; 612177, 2380539; 612112, 2380593; 612086, 2380625; 612073, 2380644; 612046, 2380669; 612046, 2380670; 612016, 2380686; 611992, 2380690; 611965, 2380687; 611955, 2380689; 611941, 2380693; 611927, 2380702; 611919, 2380710; 611905, 2380743; 611889, 2380825; 611889, 2380826; 611880, 2380839; 611856, 2380862; 611812, 2380892; 611799, 2380905; 611798, 2380918; 611800, 2380925; 611815, 2380943; 611838, 2380960; 611838, 2380961; 611848, 2380980; 611851, 2381022; 611848, 2381067; 611853, 2381081; 611879, 2381118; 611879, 2381119; 611879, 2381131; 611879, 2381132; 611868, 2381149; 611858, 2381155; 611857, 2381155; 611847, 2381160; 611837, 2381167; 611828, 2381178; 611825, 2381193; 611830, 2381214; 611838, 2381223; 611854, 2381250; 611854, 2381251; 611856, 2381258; 611855, 2381265; 611849, 2381285; 611848, 2381286; 611828, 2381312; 611784, 2381363; 611765, 2381383; 611734, 2381424; 611733, 2381424; 611730, 2381426; 611737, 2381446; 611745, 2381514; 611746, 2381550; 611748, 2381618; 611748, 2381619; 611739, 2381669; 611736, 2381680; 611736, 2381681; 611727, 2381699; 611727, 2381700; 611673, 2381758; 611666, 2381774; 611666, 2381794; 611670, 2381810; 611702, 2381865; 611712, 2381882; 611712, 2381883; 611712, 2381915; 611712, 2381916; 611710, 2381923; 611687, 2381955; 611687, 2381978; 611695, 2381990; 611702, 2382013; 611702, 2382014; 611700, 2382058; 611694, 2382120; 611695, 2382225; 611701, 2382278; 611701, 2382279; 611699, 2382320; 611697, 2382339; 611722, 2382329; 611752, 2382479; 611931, 2382659; 612029, 2382853; 612029, 2383033; 612029, 2383265; 612074, 2383438; 612171, 2383602; 612231, 2383760; 612186, 2383909; 611976, 2384164; 611729, 2384584; 611624, 2384741; 611652, 2384737; 611227, 2385310; 611018, 2385490; 610538, 2385497; 610367, 2385372; 610333, 2385392; 610292, 2385406; 610280, 2385413; 610261, 2385429; 610248, 2385449; 610237, 2385473; 610222, 2385512; 610222, 2385513; 610214, 2385522; 610206, 2385531; 610206, 2385532; 610187, 2385540; 610166, 2385544; 610134, 2385558; 610129, 2385561; 610122, 2385580; 610119, 2385604; 610119, 2385605; 610112, 2385620; 610111, 2385621; 610093, 2385637; 610078, 2385652; 610077, 2385659; 610090, 2385687; 610097, 2385698; 610098, 2385699; 610098, 2385700; 610097, 2385705; 610097, 2385706; 610081, 2385734; 610054, 2385762; 610039, 2385790; 610028, 2385816; 610024, 2385839; 610027, 2385873; 610035, 2385901; 610035, 2385902; 610035, 2385943; 610035, 2385944; 610029, 2385956; 610029, 2385957; 610003, 2385991; 609994, 2386004; 609993, 2386004; 609993, 2386005; 609971, 2386017; 609955, 2386025; 609948, 2386031; 609929, 2386085; 609909, 2386112; 609898, 2386121; 609887, 2386134; 609883, 2386146; 609884, 2386168; 609879, 2386204; 609884, 2386223; 609905, 2386254; 609905, 2386255; 609909, 2386278; 609909, 2386279; 609907, 2386291; 609881, 2386354; 609880, 2386355; 609858, 2386384; 609834, 2386404; 609797, 2386443; 609790, 2386450; 609769, 2386468; 609748, 2386495; 609737, 2386524; 609719, 2386644; 609711, 2386719; 609711, 2386720; 609705, 2386737; 609704, 2386737; 609704, 2386738; 609693, 2386745; 609692, 2386745; 609595, 2386759; 609570, 2386766; 609560, 2386772; 609536, 2386797; 609481, 2386863; 609461, 2386894; 609449, 2386918; 609449, 2386919; 609439, 2386933; 609438, 2386934; 609425, 2386943; 609379, 2386966; 609323, 2387005; 609308, 2387012; 609269, 2387020; 609248, 2387021; 609184, 2387014; 609134, 2387001; 609078, 2386982; 609074, 2386984; 609062, 2387000; 609048, 2387031; 609047, 2387032; 609025, 2387051; 608989, 2387068; 608988, 2387068; 608975, 2387068; 608974, 2387068; 608905, 2387055; 608862, 2387042; 608856, 2387043; 608849, 2387049; 608810, 2387121; 608794, 2387150; 608794, 2387151; 608776, 2387175; 608736, 2387223; 608719, 2387246; 608718, 2387246; 608718, 2387247; 608693, 2387265; 608643, 2387281; 608604, 2387303; 608558, 2387325; 608497, 2387362; 608496, 2387362; 608459, 2387369; 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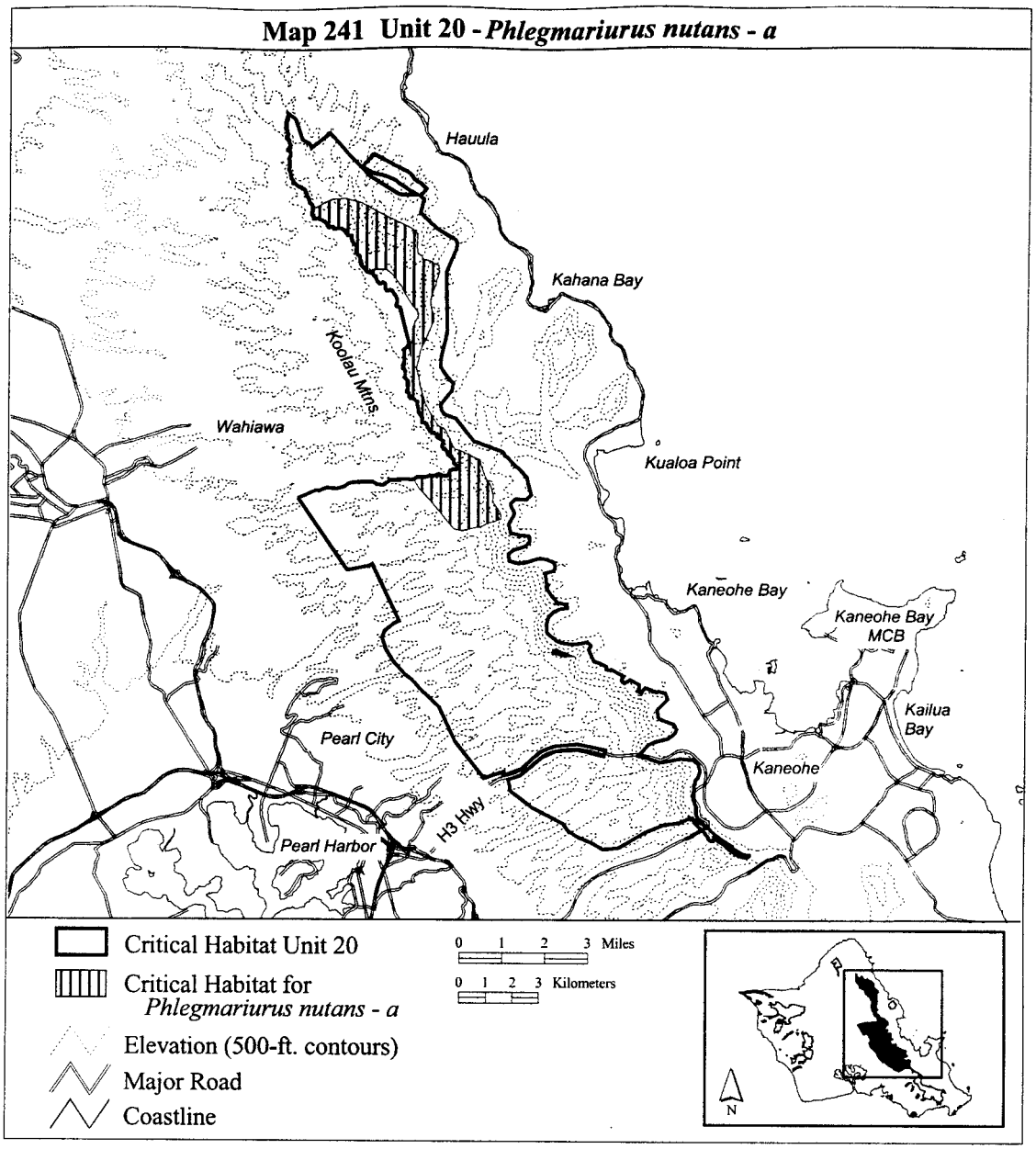
612695, 2384044; 612815, 2383685; 612815, 2383497; 612695, 2383318; 612576, 2382996; 612456, 2382726; 612321, 2382426; 612276, 2382209; 612164, 2381767; 612253, 2381453; 612291, 2381153; 612433, 2380719; 612486, 2380501; 612673, 2380134; 612815, 2379940; 612890, 2379775; 612987, 2379618; 613242, 2379498; 613362, 2379296; 613467, 2379071; 613542, 2378876; 613639, 2378749; 613954, 2378644; 613987, 2378588; 613976, 2378636; 614575, 2378337; 614613, 2378157; 614748, 2377790; 614845, 2377580; 614965, 2377423; 615025, 2377228; 615070, 2377034; 615070, 2376854; 615077, 2376741; 615220, 2376562; 615354, 2376352; 615392, 2376150; 615369, 2376105; 615070, 2375992; 614860, 2375933; 614673, 2375835; 614515, 2375820; 614313, 2375775; 614143, 2375726; 614103, 2375700; 613969, 2375655; 613789, 2375678; 613587, 2375738; 613070, 2376389; 612576, 2376966; 612306, 2377266; 612089, 2377580; 612103, 2377583; 612103,

2377584; 612166, 2377617; 612168, 2377619; 612247, 2377687; return to starting point.

(ii) **Note:** Map 241 follows:

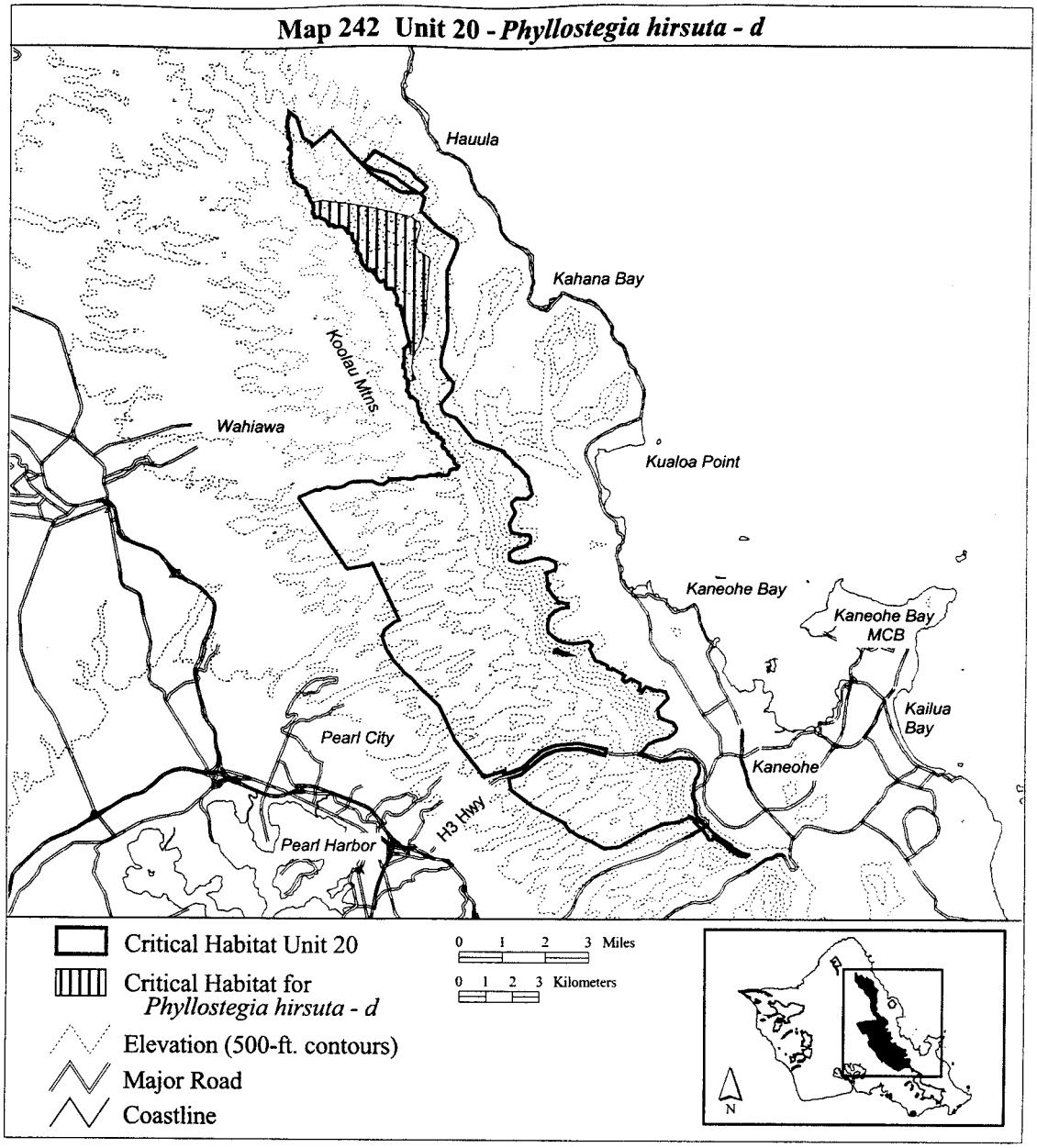


(242) Oahu 20—*Phyllostegia hirsuta*—d (1,005 ha; 2,483 ac)

(i) Unit consists of the following 365 boundary points: Start at 608181, 2387918; 608609, 2387992; 609066, 2387923; 609648, 2387838; 610294, 2387723; 610699, 2387638; 611287, 2387529; 611887, 2387381; 612047, 2387289; 612218, 2387158; 612275, 2387009; 612218, 2386810; 612138, 2386495; 612077, 2386335; 612081, 2386336; 612173, 2386170; 612258, 2386084; 612418, 2385987; 612561, 2385919; 612607, 2385873; 612607, 2385791; 612489, 2383611; 612441, 2383240; 612407, 2383075; 612333, 2382778; 612235, 2382526; 612127, 2382349; 612121, 2382349; 612098, 2382264; 612030, 2382069; 612001, 2381847; 611990, 2381692; 612041, 2381550; 612121, 2381395; 612156, 2381312; 611855, 2381263; 611855, 2381265; 611855, 2381266; 611849, 2381285; 611848, 2381285; 611848, 2381286; 611828, 2381312; 611784, 2381363; 611765, 2381383; 611734, 2381424; 611733, 2381424; 611730, 2381426; 611737, 2381446; 611745, 2381514; 611746, 2381550; 611748, 2381618; 611748, 2381619; 611739, 2381669; 611736, 2381680; 611736, 2381681; 611727, 2381699; 611727, 2381700; 611726, 2381700; 611673, 2381758; 611666, 2381774; 611666, 2381794; 611670, 2381810; 611702, 2381865; 611712, 2381882; 611712, 2381883; 611712, 2381915; 611712, 2381916; 611710, 2381923; 611687, 2381955; 611687, 2381978; 611695, 2381990; 611702, 2382013; 611702, 2382014; 611700, 2382058; 611694, 2382120; 611695, 2382225; 611701, 2382278; 611701, 2382279; 611699, 2382320; 611695, 2382360; 611693, 2382433; 611692, 2382455; 611698,

2382473; 611744, 2382512; 611805, 2382557; 611831, 2382588; 611844, 2382604; 611844, 2382605; 611850, 2382621; 611874, 2382653; 611896, 2382683; 611896, 2382684; 611903, 2382704; 611903, 2382705; 611903, 2382706; 611902, 2382707; 611901, 2382707; 611900, 2382707; 611900, 2382706; 611899, 2382706; 611892, 2382686; 611891, 2382684; 611795, 2383056; 611597, 2383822; 611567, 2383939; 611567, 2383940; 611561, 2383949; 611537, 2384020; 611536, 2384020; 611525, 2384040; 611515, 2384051; 611495, 2384064; 611460, 2384078; 611430, 2384082; 611404, 2384097; 611396, 2384120; 611393, 2384150; 611397, 2384172; 611413, 2384204; 611422, 2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611429, 2384357; 611417, 2384382; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611374, 2384489; 611358, 2384501; 611334, 2384524; 611326, 2384536; 611302, 2384584; 611257, 2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 611192, 2384704; 611191, 2384703; 611165, 2384698; 611119, 2384696; 611118, 2384696; 611082, 2384690; 611081, 2384690; 611065, 2384682; 611064, 2384681; 611058, 2384675; 611046, 2384674; 611039, 2384675; 611028, 2384688; 611014, 2384713; 610994, 2384778; 610981, 2384838; 610976, 2384927; 610973, 2384941; 610973, 2384942; 610965, 2384959; 610965, 2384960; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610809, 2384945; 610780, 2384942; 610766, 2384942; 610749, 2384953; 610709, 2384995; 610692, 2385014; 610679, 2385041; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610558, 2385236; 610543, 2385248; 610533, 2385266; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610508, 2385342; 610497, 2385351; 610496, 2385351; 610454, 2385362; 610440, 2385362; 610394, 2385362; 610370, 2385370; 610333, 2385392; 610292, 2385406; 610280, 2385413; 610261, 2385429; 610248, 2385449; 610237, 2385473; 610222, 2385512; 610222, 2385513; 610214, 2385522; 610206, 2385531; 610206, 2385532; 610187, 2385540; 610166, 2385544; 610134, 2385558; 610129, 2385561; 610122, 2385580; 610119, 2385604; 610119, 2385605; 610112, 2385620; 610111, 2385621; 610093, 2385637; 610078, 2385652; 610077, 2385659; 610090, 2385687; 610097, 2385698; 610098, 2385699; 610098, 2385700; 610097, 2385705; 610097, 2385706; 610081, 2385734; 610054, 2385762; 610039, 2385790; 610028, 2385816; 610024, 2385839; 610027, 2385873; 610035, 2385901; 610035, 2385902; 610035, 2385943; 610035, 2385944; 610029, 2385956; 610029, 2385957; 610003, 2385991; 609994, 2386004; 609993, 2386004; 609993, 2386005; 609971, 2386017; 609955, 2386025; 609948, 2386031; 609929, 2386085; 609909, 2386112; 609908, 2386113; 609898, 2386121; 609887, 2386134; 609883, 2386146; 609884, 2386168; 609879, 2386204; 609884, 2386223; 609905, 2386254; 609905, 2386255; 609909, 2386278; 609909, 2386279; 609907, 2386291; 609881, 2386354; 609880, 2386355; 609858, 2386384; 609834, 2386404; 609797, 2386443; 609797, 2386444; 609790, 2386450; 609769, 2386468; 609748, 2386495; 609737, 2386524; 609719, 2386644; 609711, 2386719; 609711, 2386720; 609705, 2386737; 609704, 2386737; 609704, 2386738; 609693, 2386745; 609692, 2386745; 609595, 2386759; 609570, 2386766; 609560, 2386772; 609536, 2386797; 609481, 2386863; 609461, 2386894; 609449, 2386918; 609449, 2386919; 609439, 2386933; 609438, 2386934; 609425, 2386943; 609379, 2386966; 609323, 2387005; 609308, 2387012; 609269, 2387020; 609248, 2387021; 609184, 2387014; 609134, 2387001; 609078, 2386982; 609074, 2386984; 609062, 2387000; 609048, 2387031; 609047, 2387032; 609025, 2387051; 609024, 2387051; 608989, 2387068; 608988, 2387068; 608975, 2387068; 608974, 2387068; 608905, 2387055; 608862, 2387042; 608856, 2387043; 608849, 2387049; 608810, 2387121; 608794, 2387150; 608794, 2387151; 608776, 2387175; 608736, 2387223; 608719, 2387246; 608718, 2387246; 608718, 2387247; 608693, 2387265; 608692, 2387265; 608643, 2387281; 608604, 2387303; 608558, 2387325; 608497, 2387362; 608496, 2387362; 608459, 2387369; 608458, 2387369; 608435, 2387371; 608434, 2387371; 608410, 2387366; 608377, 2387354; 608355, 2387351; 608336, 2387351; 608316, 2387358; 608308, 2387366; 608294, 2387395; 608292, 2387413; 608300, 2387459; 608299, 2387471; 608298, 2387472; 608298, 2387473; 608289, 2387479; 608252, 2387489; 608234, 2387501; 608228, 2387506; 608223, 2387520; 608230, 2387572; 608232, 2387576; 608238, 2387590; 608252, 2387607; 608267, 2387627; 608267, 2387628; 608272, 2387642; 608275, 2387670; 608275, 2387671; 608273, 2387689; 608258, 2387739; 608257, 2387765; 608259, 2387774; 608270, 2387794; 608274, 2387812; 608274, 2387813; 608254, 2387851; 608254, 2387852; 608227, 2387885; 608190, 2387914; return to starting point.

(ii) **Note:** Map 242 follows:



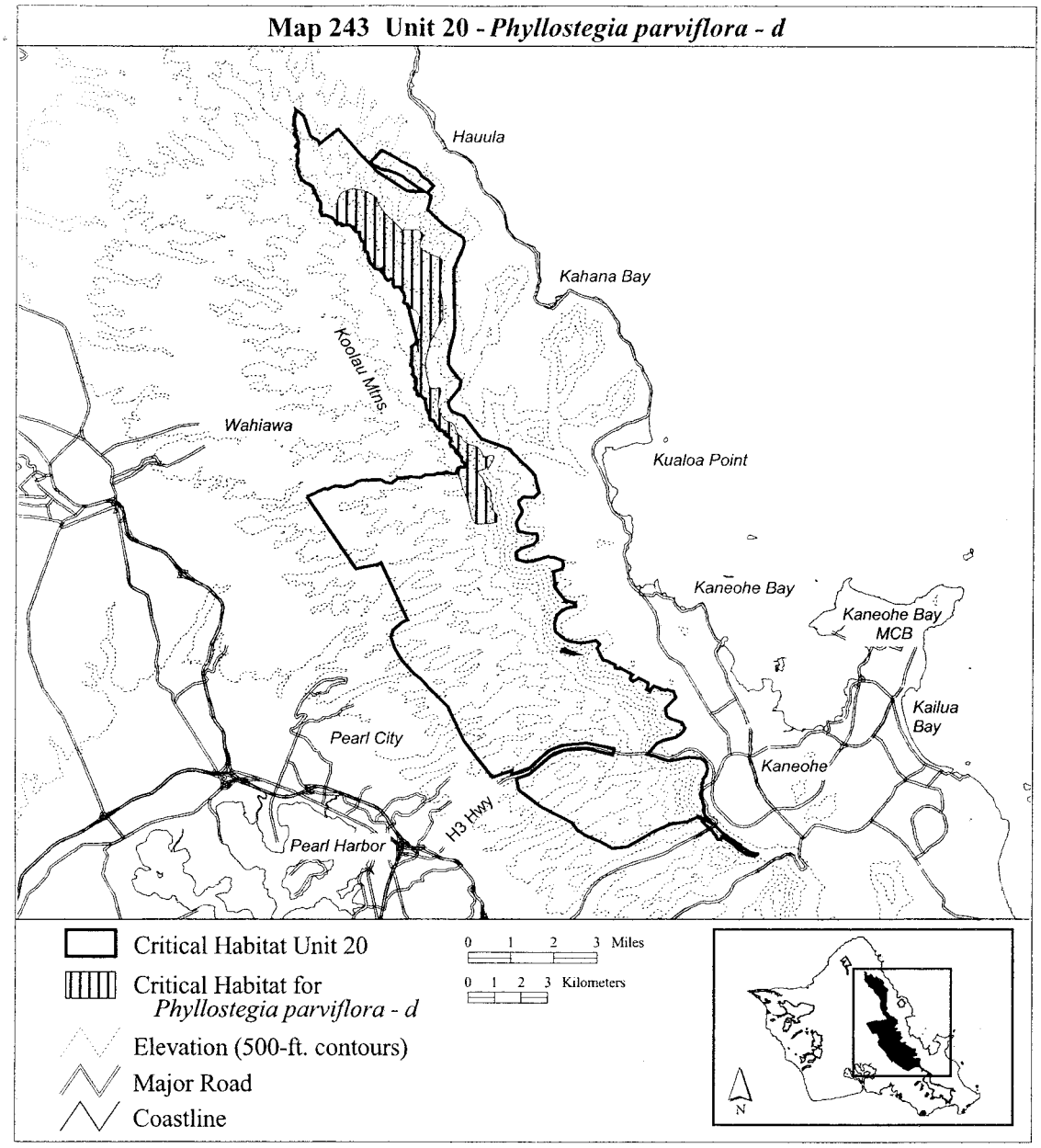
(243) Oahu 20—*Phyllostegia parviflora*—d (1,430 ha; 3,534 ac)

(i) Unit consists of the following 536 boundary points: Start at 613555, 2377987; 613674, 2377978; 613675, 2377978; 613694, 2377988; 613721, 2377976; 613733, 2377976; 613762, 2378001; 613771, 2378068; 613764, 2378090; 613757, 2378093; 613753, 2378093; 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613568, 2378357; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613462, 2378464; 613447, 2378478; 613431, 2378493; 613398, 2378533; 613361, 2378569; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248, 2378749; 613247, 2378750; 613232, 2378759; 613231, 2378759; 613222, 2378762; 613169, 2378834; 613145, 2378878; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 613142, 2379072; 613115, 2379100; 613099, 2379113; 613098, 2379113; 613085, 2379118; 613059, 2379138; 612974, 2379200; 612969, 2379215; 612963, 2379226; 612959, 2379247; 612959, 2379248; 612945, 2379276; 612929, 2379297; 612928, 2379298; 612905, 2379314; 612876, 2379327; 612840, 2379337; 612797, 2379345; 612790, 2379349; 612726, 2379413; 612686, 2379438; 612683, 2379441; 612663, 2379470; 612619, 2379529; 612600, 2379563; 612586, 2379618; 612573, 2379650; 612555, 2379679; 612532, 2379701; 612524, 2379714; 612523, 2379714; 612518, 2379716; 612517, 2379716; 612495, 2379729; 612429, 2379748; 612396, 2379830; 612387, 2379922; 612386, 2379924; 612386, 2379928; 612379, 2379961; 612379, 2379962; 612375, 2379970; 612367, 2379981; 612366, 2379982; 612353, 2379991; 612328, 2380018; 612262,

2380145; 612255, 2380163; 612249, 2380199; 612248, 2380233; 612234, 2380304; 612226, 2380334; 612225, 2380334; 612224, 2380337; 612211, 2380367; 612213, 2380397; 612218, 2380419; 612218, 2380420; 612215, 2380452; 612212, 2380464; 612202, 2380506; 612202, 2380507; 612197, 2380516; 612177, 2380539; 612148, 2380563; 612141, 2380574; 612075, 2380646; 612066, 2380651; 612046, 2380669; 612046, 2380670; 612016, 2380686; 611999, 2380689; 611988, 2380695; 611930, 2380710; 611911, 2380727; 611905, 2380743; 611889, 2380825; 611889, 2380826; 611880, 2380839; 611856, 2380862; 611853, 2380864; 611840, 2380904; 611842, 2380969; 611848, 2380980; 611851, 2381022; 611848, 2381067; 611853, 2381081; 611879, 2381118; 611879, 2381119; 611879, 2381131; 611879, 2381132; 611868, 2381149; 611858, 2381155; 611857, 2381155; 611847, 2381160; 611837, 2381167; 611828, 2381178; 611827, 2381184; 611830, 2381214; 611838, 2381223; 611854, 2381250; 611854, 2381251; 611856, 2381258; 611855, 2381265; 611855, 2381266; 611849, 2381285; 611848, 2381285; 611848, 2381286; 611828, 2381312; 611794, 2381351; 611777, 2381381; 611739, 2381439; 611742, 2381488; 611745, 2381514; 611746, 2381550; 611748, 2381618; 611748, 2381619; 611739, 2381669; 611736, 2381680; 611736, 2381681; 611727, 2381699; 611727, 2381700; 611694, 2381735; 611700, 2381745; 611700, 2381785; 611703, 2381785; 611703, 2381866; 611712, 2381882; 611712, 2381883; 611712, 2381915; 611712, 2381916; 611710, 2381923; 611702, 2381934; 611699, 2382004; 611702, 2382013; 611702, 2382014; 611700, 2382058; 611694, 2382114; 611694, 2382127; 611695, 2382225; 611701, 2382278; 611701, 2382279; 611699, 2382320; 611697, 2382336; 611694, 2382371; 611693, 2382433; 611692, 2382455; 611698, 2382473; 611744, 2382512; 611805, 2382557; 611831, 2382588; 611844, 2382604; 611844, 2382605; 611850, 2382621; 611874, 2382653; 611896, 2382683; 611896, 2382684; 611903, 2382704; 611903, 2382705; 611903, 2382706; 611902, 2382707; 611901, 2382707; 611900, 2382707; 611900, 2382706; 611899, 2382706; 611892, 2382686; 611891, 2382684; 611871, 2382764; 611901, 2382941; 611929, 2383224; 611969, 2383422; 611980, 2383541; 611969, 2383614; 611901, 2383750; 611856, 2383829; 611816, 2383835; 611686, 2383897; 611556, 2383970; 611552, 2383974; 611537, 2384020; 611536, 2384020; 611525, 2384040; 611515, 2384051; 611495, 2384064; 611460, 2384078; 611450, 2384080; 611426, 2384106; 611409, 2384168; 611413, 2384204; 611422, 2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611429, 2384357; 611426, 2384363; 611426, 2384372; 611412, 2384397; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611358, 2384501; 611349, 2384509; 611311, 2384568; 611302, 2384584; 611257, 2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 611192, 2384704; 611191, 2384703; 611165, 2384698; 611119, 2384696; 611118, 2384696; 611093, 2384692; 611011, 2384723; 610994, 2384778; 610987, 2384811; 610985, 2384830; 610979, 2384903; 610978, 2384906; 610976, 2384927; 610973, 2384941; 610973, 2384942; 610965, 2384959; 610965, 2384960; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610809, 2384945; 610780, 2384942; 610770, 2384942; 610725, 2385016; 610645, 2385136; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610583, 2385226; 610555, 2385265; 610518, 2385321; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610508, 2385342; 610500, 2385348; 610499, 2385350; 610498, 2385350; 610497, 2385351; 610496, 2385351; 610454, 2385362; 610440, 2385362; 610394, 2385362; 610370, 2385370; 610333, 2385392; 610308, 2385401; 610233, 2385503; 610222, 2385512; 610222, 2385513; 610214, 2385522; 610206, 2385531; 610206, 2385532; 610192, 2385538; 610119, 2385602; 610119, 2385604; 610119, 2385605; 610112, 2385620; 610111, 2385621; 610093, 2385637; 610078, 2385652; 610077, 2385656; 610091, 2385656; 610084, 2385675; 610090, 2385687; 610097, 2385698; 610098, 2385699; 610098, 2385700; 610097, 2385705; 610097, 2385706; 610081, 2385734; 610054, 2385762; 610046, 2385776; 610041, 2385791; 610026, 2385854; 610027, 2385873; 610035, 2385901; 610035, 2385902; 610035, 2385943; 610035, 2385944; 610029, 2385956; 610029, 2385957; 610003, 2385991; 609994, 2386004; 609993, 2386004; 609993, 2386005; 609971, 2386017; 609970, 2386018; 609931, 2386080; 609929, 2386085; 609928, 2386087; 609928, 2386238; 609908, 2386270; 609909, 2386278; 609909, 2386279; 609907, 2386291; 609881, 2386354; 609880, 2386355; 609858, 2386384; 609834, 2386404; 609797, 2386443; 609797, 2386444; 609790, 2386450; 609769, 2386468; 609748, 2386495; 609737, 2386524; 609722, 2386625; 609724, 2386696; 609713, 2386702; 609711, 2386719; 609711, 2386720; 609705, 2386737; 609704, 2386737; 609704, 2386738; 609693, 2386745; 609692, 2386745; 609616, 2386756; 609532, 2386803; 609526, 2386877; 609481, 2386956; 609315, 2387009; 609308, 2387012; 609295, 2387015; 609215, 2387041; 608972, 2387091; 608865, 2387182; 608848, 2387368; 608836, 2387668; 608859, 2387804; 608944, 2388098; 609130, 2388256; 609453, 2388364; 609832, 2388301; 610058, 2388217; 610340, 2388030; 610408, 2387793; 610663, 2387453; 610889, 2387216; 611109, 2387041; 611302, 2386848; 611737, 2386848; 611918, 2386837; 612065, 2386730; 612121, 2386645; 612116, 2386543; 612014, 2386362; 611974, 2386204; 612071, 2386113; 612218, 2386017; 612415, 2385910; 612755, 2385791; 612851, 2385701; 612777, 2385186; 612789, 2385050; 612777, 2384813; 612772, 2384655; 612868, 2384123; 612862, 2383479; 612613, 2383043; 612381, 2382563; 612240, 2382014; 612216, 2381821; 612218, 2381822; 612212, 2381787; 612206, 2381743; 612205, 2381743; 612209, 2381731; 612209, 2381729; 612211, 2381729; 612211, 2381694; 612237, 2381535; 612280, 2381361; 612332, 2381150; 612341, 2381048; 612387, 2380988; 612448, 2380938; 612573, 2380918; 612633, 2380918; 612726, 2380947; 612784, 2380941; 612796, 2380840; 612778, 2380730; 612741, 2380559; 612691, 2380388; 612709, 2380247; 612772, 2380044; 612842, 2379905; 612911, 2379798; 612958, 2379751; 613027, 2379714; 613088, 2379688; 613184, 2379662; 613244, 2379621; 613299, 2379558; 613325, 2379500; 613340, 2379407; 613404, 2379320; 613464, 2379228; 613557, 2379126; 613597, 2379060; 613679, 2378935; 613820, 2378851; 613994, 2378799; 614090, 2378782; 614217, 2378724; 614333, 2378585; 614376, 2378472; 614423, 2378414; 614483, 2378374; 614547, 2378368; 614654, 2378408; 614732, 2378434; 614776, 2378434; 614808, 2378382; 614796, 2378307; 614729, 2378139; 614640, 2377991; 614515, 2377962; 614469, 2377928; 614341, 2377879; 614226, 2377826; 614222, 2377826; 614223, 2377823; 614226, 2377824; 614232, 2377805; 614262, 2377747; 614260, 2377747; 614295, 2377693; 614365, 2377606; 614420, 2377496; 614469, 2377375; 614535, 2377297; 614640, 2377187; 614695, 2377059; 614709, 2376961; 614683,

2376868; 614698, 2376781; 614715, 2376718; 614779, 2376642; 614781, 2376599; 614776, 2376527; 614776, 2376408; 614863, 2376283; 614920, 2376237; 614952, 2376191; 614912, 2375919; 614576, 2375867; 614136, 2375846; 614072, 2375922; 613959, 2376147; 613887, 2376501; 613731, 2376972; 613618, 2377259; 613554, 2377540; 613484, 2377656; 613479, 2377656; 613466, 2377685; 613447, 2377709; 613498, 2377803; 613503, 2377803; 613531, 2377881; 613547, 2377971; 613554, 2377977; return to starting point.

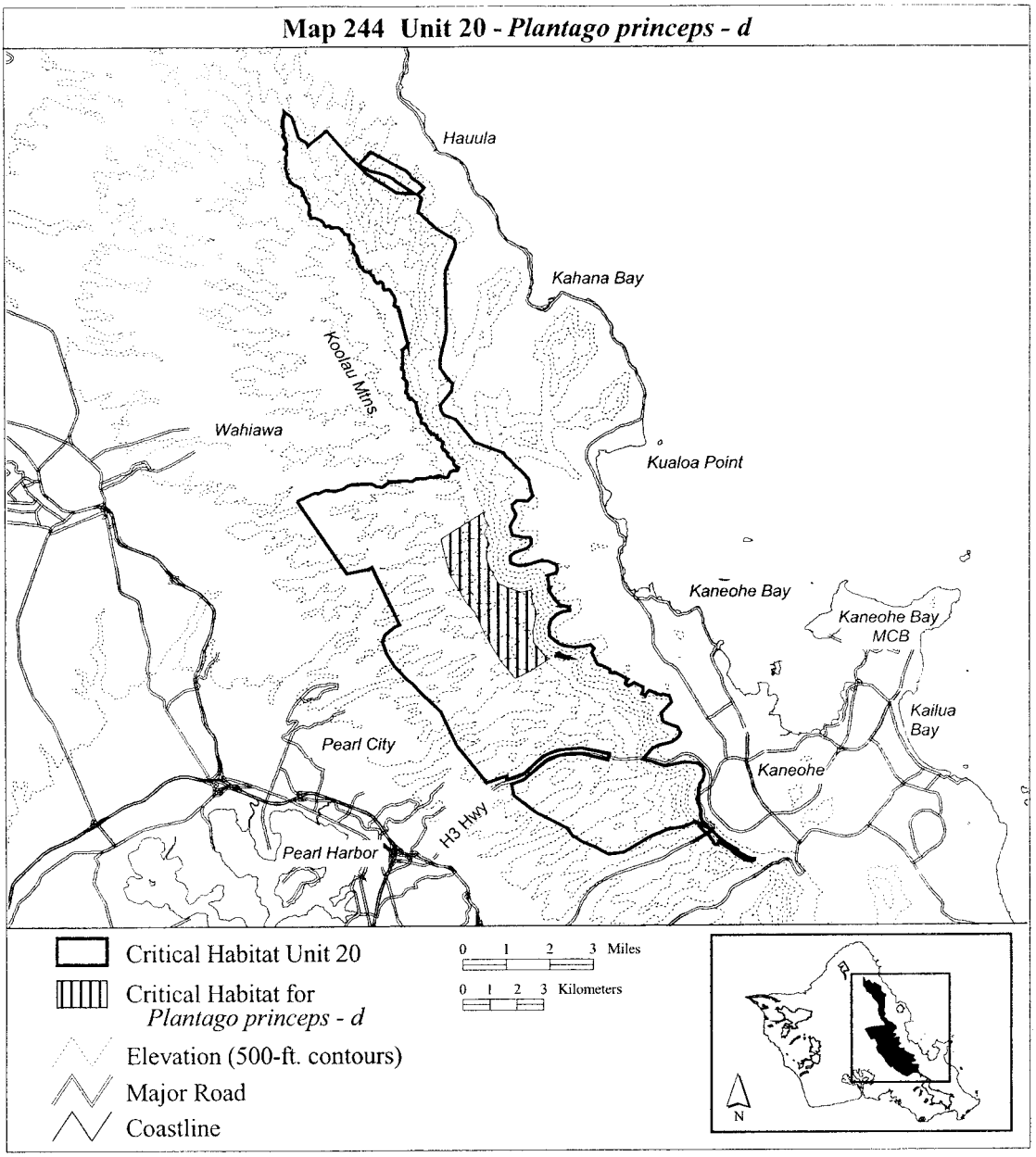
(ii) **Note:** Map 243 follows:



(244) Oahu 20—*Plantago princeps*—d (992 ha; 2,450 ac)

(i) Unit consists of the following 33 boundary points: Start at 615847, 2370245; 615284, 2370964; 614778, 2371801; 614350, 2372717; 614019, 2373116; 613434, 2374148; 613308, 2374586; 613142, 2375258; 613095, 2375422; 614663, 2376418; 614715, 2376331; 614709, 2376258; 614796, 2376057; 614807, 2376056; 614827, 2375891; 614720, 2375618; 614914, 2375248; 614797, 2375024; 614797, 2374683; 614914, 2374352; 615245, 2373788; 615635, 2373603; 616073, 2373466; 616453, 2373525; 616462, 2373252; 616492, 2373077; 616628, 2372765; 616647, 2372609; 616511, 2372025; 616531, 2371607; 616940, 2371110; 617144, 2370985; 616433, 2370522; return to starting point.

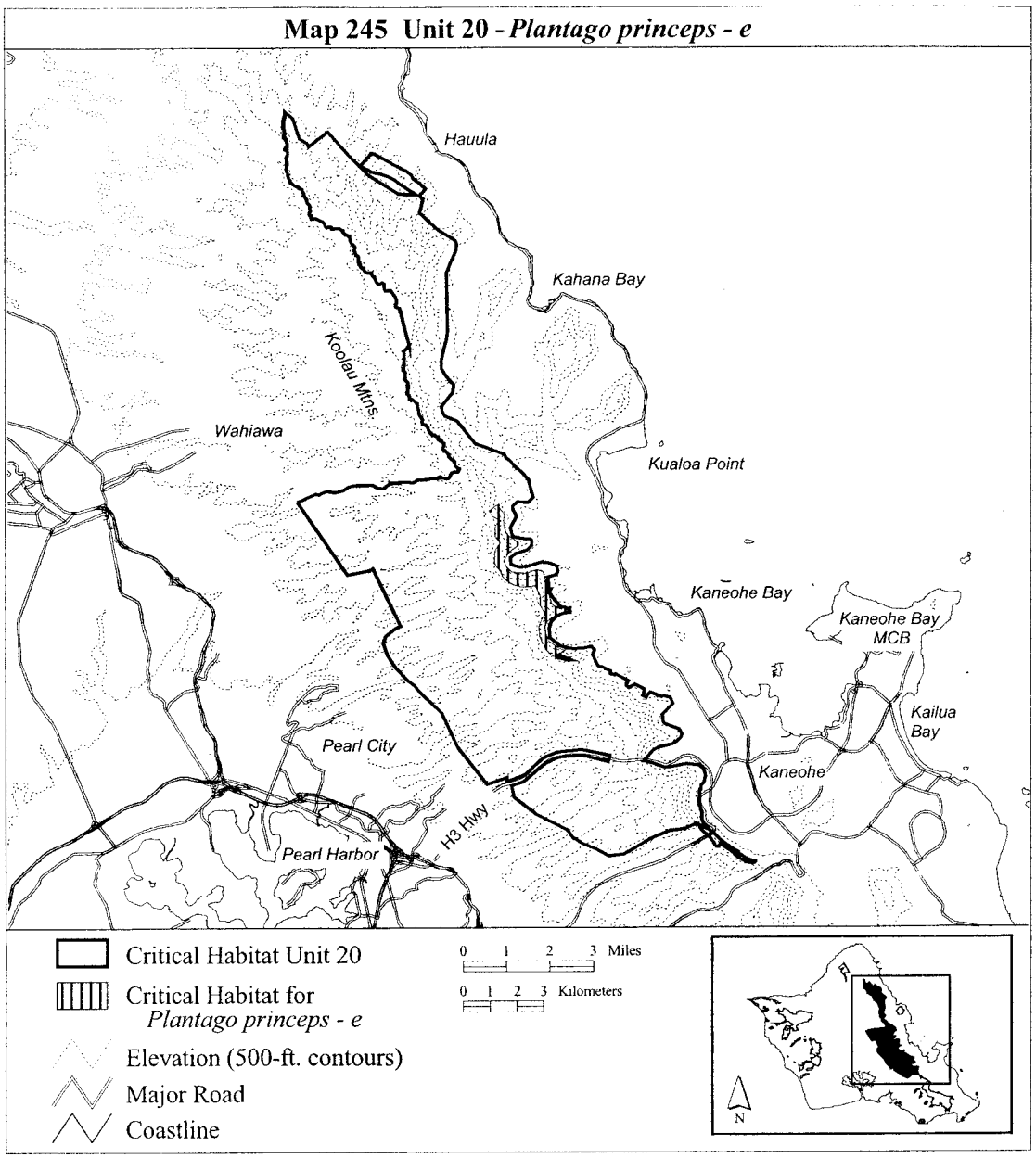
(ii) **Note:** Map 244 follows:



(245) Oahu 20—*Plantago princeps*—e (295 ha; 730 ac)

(i) Unit consists of the following 93 boundary points: Start at 617328, 2371105; 617214, 2371162; 616969, 2371396; 616855, 2371624; 616752, 2371886; 616730, 2372217; 616758, 2372348; 616832, 2372491; 616935, 2372656; 616941, 2372742; 616747, 2373067; 616781, 2373068; 616775, 2373158; 616775, 2373266; 616764, 2373386; 616724, 2373483; 616690, 2373597; 616593, 2373734; 616479, 2373745; 616217, 2373694; 615983, 2373711; 615783, 2373773; 615595, 2373887; 615447, 2373984; 615361, 2374104; 615310, 2374258; 615230, 2374355; 615173, 2374406; 615088, 2374537; 615076, 2374720; 615088, 2374839; 615076, 2374948; 615105, 2375073; 615190, 2375233; 615282, 2375301; 615265, 2375370; 615168, 2375455; 615099, 2375575; 615099, 2375672; 615082, 2375888; 615145, 2376054; 615196, 2376122; 615190, 2376208; 615111, 2376282; 614997, 2376327; 614900, 2376459; 614852, 2376538; 615243, 2376787; 615253, 2376726; 615250, 2376726; 615299, 2376601; 615390, 2376493; 615441, 2376379; 615413, 2376191; 615436, 2375911; 615487, 2375740; 615641, 2375575; 615829, 2375449; 615954, 2375358; 615943, 2375233; 615686, 2375056; 615481, 2374782; 615430, 2374674; 615504, 2374475; 615715, 2374275; 616057, 2374224; 616308, 2374230; 616479, 2374292; 616690, 2374355; 616866, 2374281; 616980, 2373950; 617089, 2373471; 617187, 2373089; 617203, 2373089; 617271, 2373004; 617482, 2372958; 617647, 2372947; 617790, 2372913; 617858, 2372901; 617853, 2372821; 617767, 2372776; 617590, 2372719; 617448, 2372639; 617311, 2372616; 617146, 2372525; 617003, 2372337; 616958, 2372189; 617003, 2371921; 617106, 2371687; 617220, 2371596; 617419, 2371465; 617602, 2371362; 617717, 2371359; return to starting point.

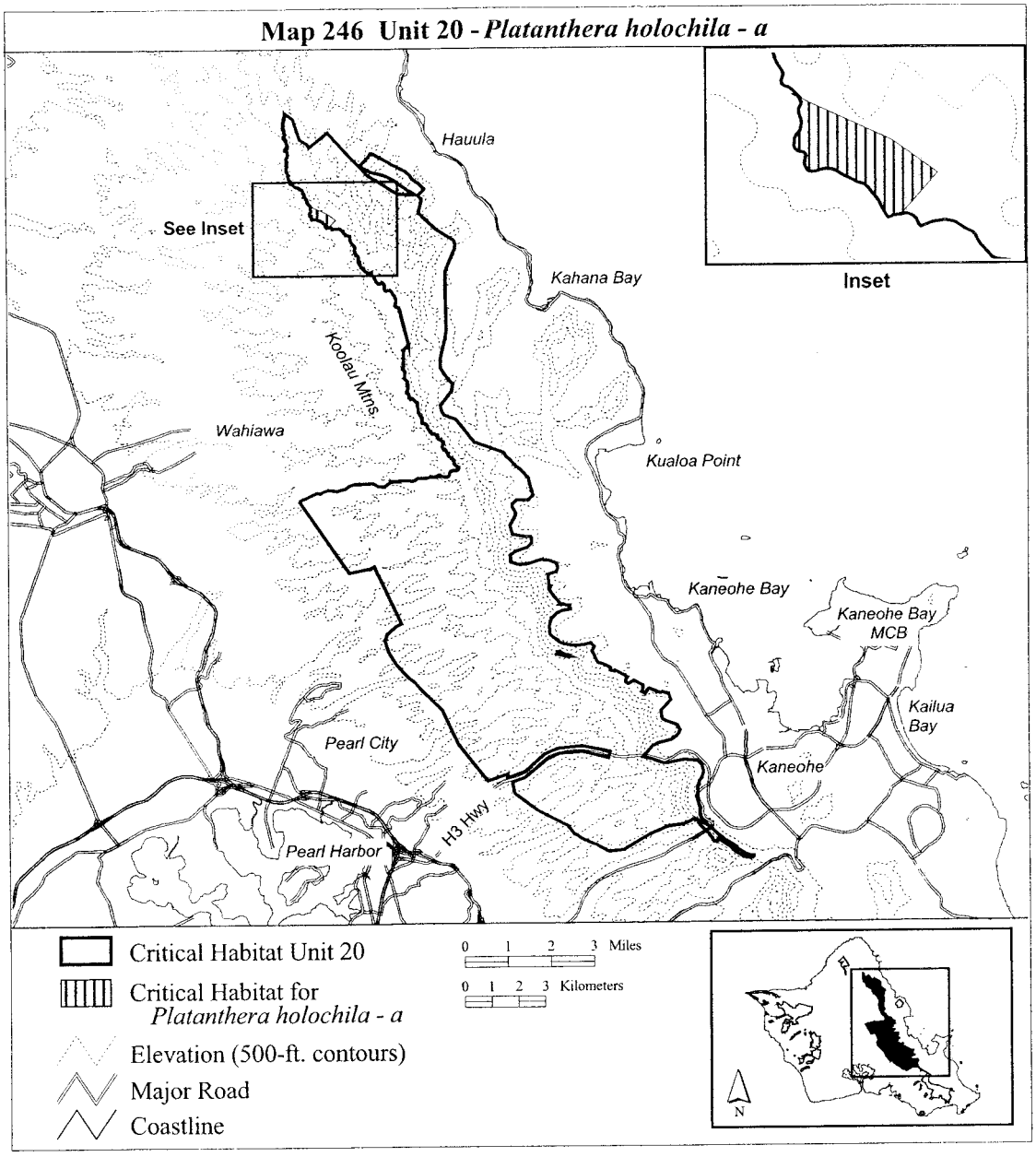
(ii) **Note:** Map 245 follows:



(246) Oahu 20—*Platanthera holochila*—a (35 ha; 86 ac)

(i) Unit consists of the following 64 boundary points: Start at 608249, 2387857; 608319, 2387816; 608894, 2387555; 609199, 2387341; 608944, 2387062; 608905, 2387055; 608862, 2387042; 608856, 2387043; 608849, 2387049; 608810, 2387121; 608794, 2387150; 608794, 2387151; 608776, 2387175; 608736, 2387223; 608719, 2387246; 608718, 2387246; 608718, 2387247; 608693, 2387265; 608692, 2387265; 608643, 2387281; 608604, 2387303; 608603, 2387303; 608558, 2387325; 608497, 2387362; 608496, 2387362; 608459, 2387369; 608458, 2387369; 608435, 2387371; 608434, 2387371; 608410, 2387366; 608377, 2387354; 608355, 2387351; 608336, 2387351; 608316, 2387358; 608308, 2387366; 608294, 2387395; 608292, 2387413; 608300, 2387459; 608299, 2387471; 608298, 2387472; 608298, 2387473; 608289, 2387479; 608252, 2387489; 608234, 2387501; 608228, 2387506; 608223, 2387520; 608230, 2387572; 608232, 2387576; 608238, 2387590; 608252, 2387607; 608267, 2387627; 608267, 2387628; 608272, 2387642; 608275, 2387670; 608275, 2387671; 608273, 2387689; 608258, 2387739; 608257, 2387765; 608259, 2387774; 608270, 2387794; 608274, 2387812; 608274, 2387813; 608254, 2387851; 608254, 2387852; return to starting point.

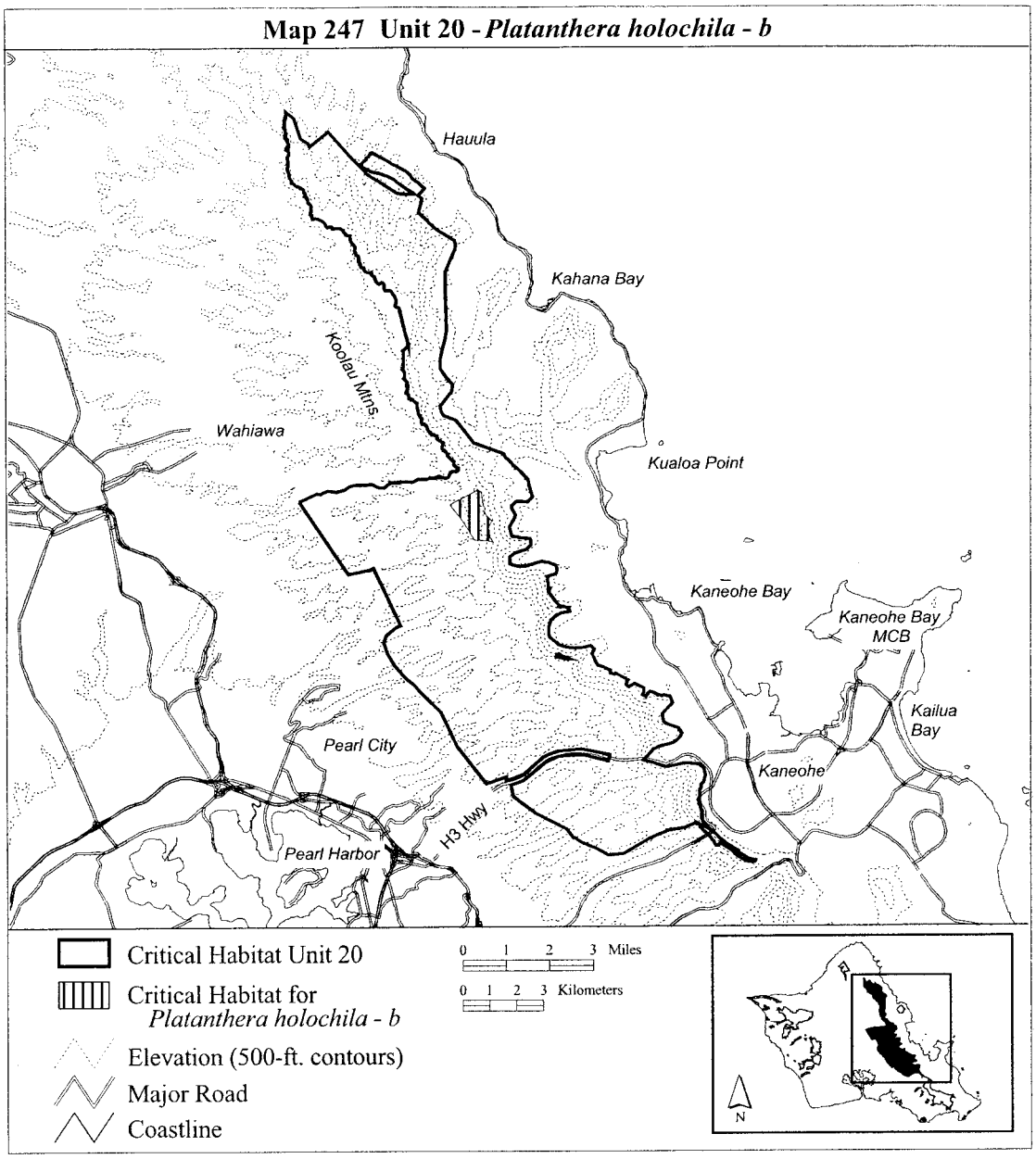
(ii) **Note:** Map 246 follows:



(247) Oahu 20—*Platanthera holochila*—b (165 ha; 407 ac)

(i) Unit consists of the following 15 boundary points: Start at 614492, 2377295; 614625, 2377208; 614686, 2376742; 614770, 2376592; 614740, 2376486; 614814, 2376331; 615019, 2376154; 614881, 2375865; 614931, 2375554; 615003, 2375471; 615053, 2375377; 614929, 2375380; 614354, 2375432; 613918, 2376130; 613435, 2376741; return to starting point.

(ii) **Note:** Map 247 follows:

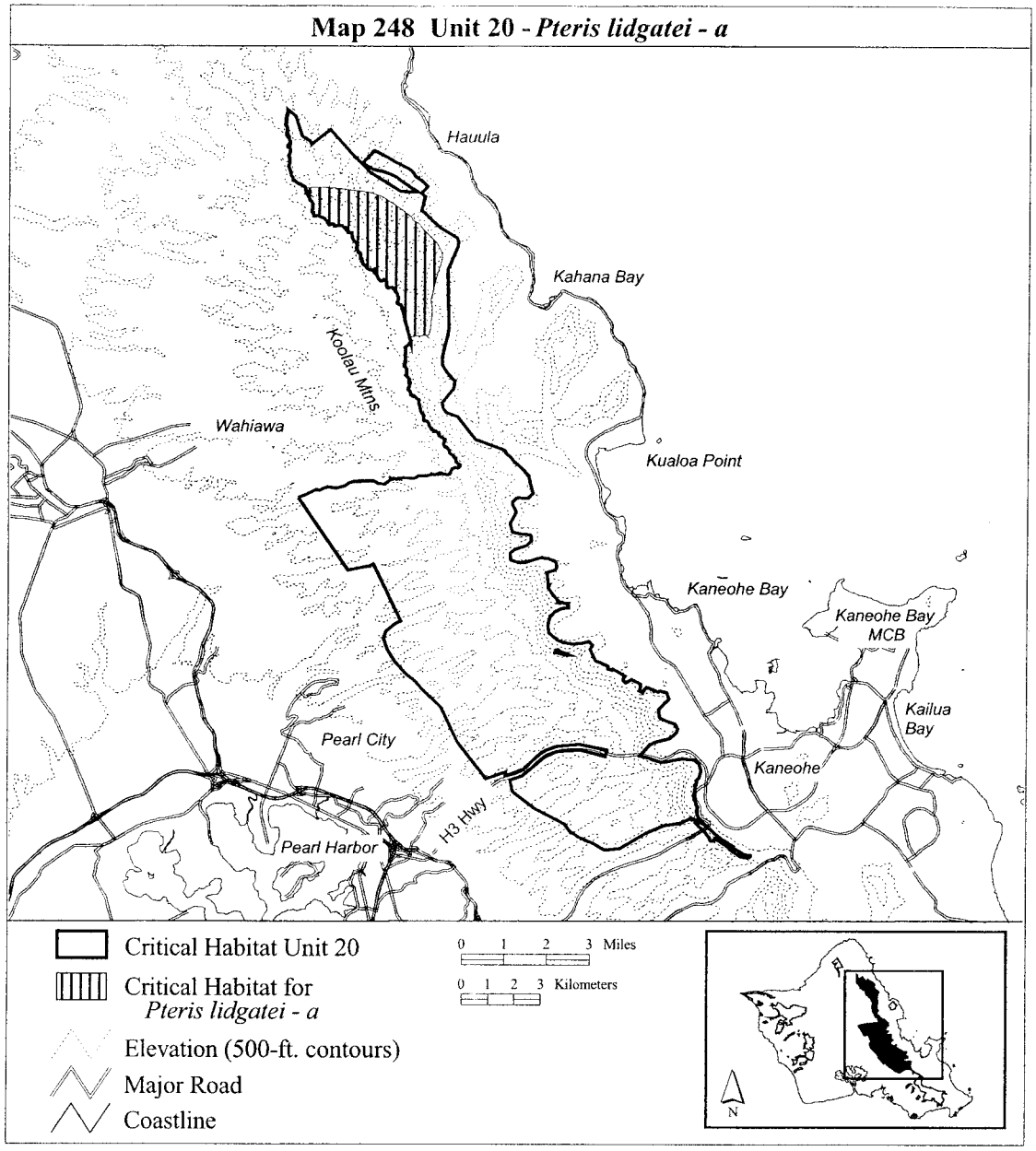


(248) Oahu 20—*Pteris lidgatei*—a (1,232 ha; 3,045 ac)

(i) Unit consists of the following 322 boundary points: Start at 607973, 2388394; 608211, 2388424; 608644, 2388424; 609046, 2388411; 609575, 2388347; 609945, 2388296; 610416, 2388239; 610824, 2388099; 611220, 2387844; 611583, 2387595; 611889, 2387334; 611946, 2387232; 612201, 2387104; 612278, 2386970; 612405, 2386817; 612679, 2386550; 612672, 2386543; 612686, 2386543; 612864, 2386352; 613011, 2386084; 613062, 2385823; 613004, 2385523; 612915, 2385294; 612832, 2384975; 612750, 2384688; 612730, 2384542; 612641, 2384216; 612686, 2383974; 612686, 2383624; 612616, 2383120; 612575, 2382918; 611844, 2382869; 611795, 2383056; 611597, 2383822; 611567, 2383939; 611567, 2383940; 611561, 2383949; 611537, 2384020; 611536, 2384020; 611525, 2384040; 611515, 2384051; 611495, 2384064; 611460, 2384078; 611430, 2384082; 611404, 2384097; 611396, 2384120; 611393, 2384150; 611397, 2384172; 611413, 2384204; 611422, 2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611429, 2384357; 611417, 2384382; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611374, 2384489; 611358, 2384501; 611334, 2384524; 611326, 2384536; 611302, 2384584; 611257, 2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 611192, 2384704; 611191, 2384703; 611165, 2384698; 611119, 2384696; 611118, 2384696; 611082, 2384690; 611081, 2384690; 611065, 2384682; 611064, 2384681; 611058, 2384675; 611046, 2384674; 611039, 2384675; 611028, 2384688; 611014, 2384713; 610994, 2384778; 610981, 2384838; 610976, 2384927; 610973, 2384941; 610973, 2384942; 610965, 2384959; 610965, 2384960; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610809, 2384945; 610780, 2384942; 610766, 2384942; 610749, 2384953; 610709, 2384995; 610692,

2385014; 610679, 2385041; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610558, 2385236; 610543, 2385248; 610533, 2385266; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610508, 2385342; 610497, 2385351; 610496, 2385351; 610454, 2385362; 610440, 2385362; 610394, 2385362; 610370, 2385370; 610333, 2385392; 610292, 2385406; 610280, 2385413; 610261, 2385429; 610248, 2385449; 610237, 2385473; 610222, 2385512; 610222, 2385513; 610214, 2385522; 610206, 2385531; 610206, 2385532; 610187, 2385540; 610166, 2385544; 610134, 2385558; 610129, 2385561; 610122, 2385580; 610119, 2385604; 610119, 2385605; 610112, 2385620; 610111, 2385621; 610093, 2385637; 610078, 2385652; 610077, 2385659; 610090, 2385687; 610097, 2385698; 610098, 2385699; 610098, 2385700; 610097, 2385705; 610097, 2385706; 610081, 2385734; 610054, 2385762; 610039, 2385790; 610028, 2385816; 610024, 2385839; 610027, 2385873; 610035, 2385901; 610035, 2385902; 610035, 2385943; 610035, 2385944; 610029, 2385956; 610029, 2385957; 610003, 2385991; 609994, 2386004; 609993, 2386004; 609993, 2386005; 609971, 2386017; 609955, 2386025; 609948, 2386031; 609929, 2386085; 609909, 2386112; 609908, 2386113; 609898, 2386121; 609887, 2386134; 609883, 2386146; 609884, 2386168; 609879, 2386204; 609884, 2386223; 609905, 2386254; 609905, 2386255; 609909, 2386278; 609909, 2386279; 609907, 2386291; 609881, 2386354; 609880, 2386355; 609858, 2386384; 609834, 2386404; 609797, 2386443; 609797, 2386444; 609790, 2386450; 609769, 2386468; 609748, 2386495; 609737, 2386524; 609719, 2386644; 609711, 2386719; 609711, 2386720; 609705, 2386737; 609704, 2386737; 609704, 2386738; 609693, 2386745; 609692, 2386745; 609595, 2386759; 609570, 2386766; 609560, 2386772; 609536, 2386797; 609481, 2386863; 609461, 2386894; 609449, 2386918; 609449, 2386919; 609439, 2386933; 609438, 2386934; 609425, 2386943; 609379, 2386966; 609323, 2387005; 609308, 2387012; 609269, 2387020; 609248, 2387021; 609184, 2387014; 609134, 2387001; 609078, 2386982; 609074, 2386984; 609062, 2387000; 609048, 2387031; 609047, 2387032; 609025, 2387051; 609024, 2387051; 608989, 2387068; 608988, 2387068; 608975, 2387068; 608974, 2387068; 608905, 2387055; 608862, 2387042; 608856, 2387043; 608849, 2387049; 608810, 2387121; 608794, 2387150; 608794, 2387151; 608776, 2387175; 608736, 2387223; 608719, 2387246; 608718, 2387246; 608718, 2387247; 608693, 2387265; 608692, 2387265; 608643, 2387281; 608604, 2387303; 608558, 2387325; 608497, 2387362; 608496, 2387362; 608459, 2387369; 608458, 2387369; 608435, 2387371; 608434, 2387371; 608410, 2387366; 608377, 2387354; 608355, 2387351; 608336, 2387351; 608316, 2387358; 608308, 2387366; 608294, 2387395; 608292, 2387413; 608300, 2387459; 608299, 2387471; 608298, 2387472; 608298, 2387473; 608289, 2387479; 608252, 2387489; 608234, 2387501; 608228, 2387506; 608223, 2387520; 608230, 2387572; 608232, 2387576; 608238, 2387590; 608252, 2387607; 608267, 2387627; 608267, 2387628; 608272, 2387642; 608275, 2387670; 608275, 2387671; 608273, 2387689; 608258, 2387739; 608257, 2387765; 608259, 2387774; 608270, 2387794; 608274, 2387812; 608274, 2387813; 608254, 2387851; 608254, 2387852; 608227, 2387885; 608190, 2387914; 608165, 2387924; 608146, 2387938; 608143, 2387944; 608141, 2387956; 608156, 2388000; 608156, 2388001; 608156, 2388002; 608152, 2388015; 608129, 2388052; 608116, 2388066; 608100, 2388105; 608092, 2388136; 608092, 2388137; 608082, 2388155; 608034, 2388210; 608029, 2388227; 608037, 2388262; 608037, 2388263; 608034, 2388274; 608017, 2388312; 608011, 2388328; 608011, 2388329; 607997, 2388340; 607987, 2388344; 607980, 2388349; 607975, 2388357; 607973, 2388367; return to starting point.

(ii) **Note:** Map 248 follows:

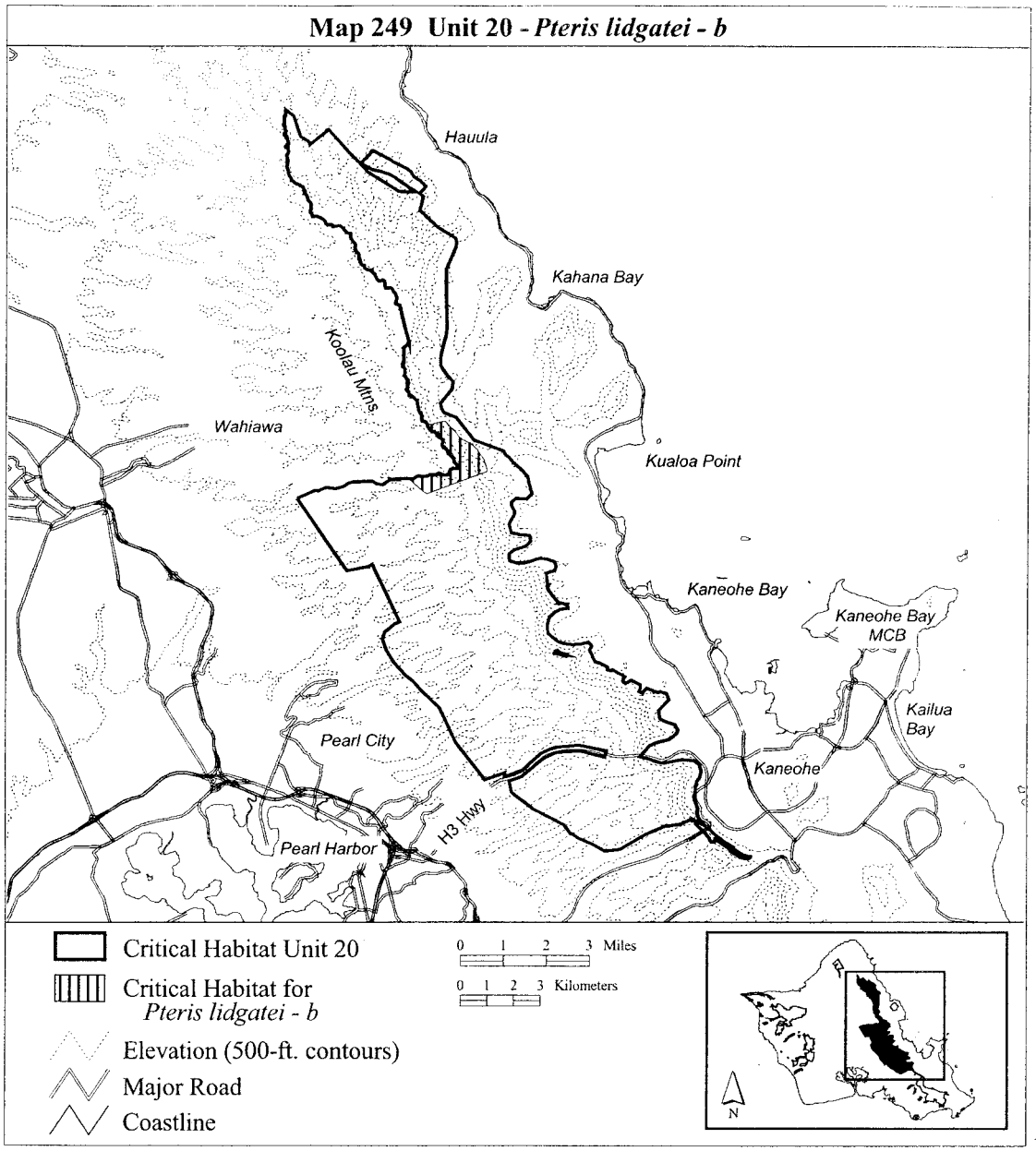


(249) Oahu 20—*Pteris lidgatei*—b (288 ha; 711 ac)

(i) Unit consists of the following 167 boundary points: Start at 612247, 2377695; 612255, 2377697; 612402, 2377690; 612402, 2377689; 612403, 2377685; 612432, 2377673; 612468, 2377676; 612482, 2377684; 612483, 2377688; 612505, 2377688; 612575, 2377698; 612576, 2377698; 612596, 2377708; 612604, 2377703; 612630, 2377702; 612668, 2377720; 612688, 2377749; 612686, 2377751; 612705, 2377757; 612764, 2377738; 612765, 2377738; 612794, 2377742; 612814, 2377728; 612853, 2377742; 612870, 2377747; 613040, 2377760; 613059, 2377772; 613059, 2377774; 613085, 2377777; 613154, 2377768; 613224, 2377738; 613264, 2377728; 613265, 2377728; 613335, 2377738; 613336, 2377738; 613359, 2377752; 613368, 2377747; 613413, 2377754; 613415, 2377755; 613449, 2377784; 613454, 2377825; 613460, 2377881; 613497, 2377929; 613554, 2377977; 613555, 2377987; 613674, 2377978; 613675, 2377978; 613694, 2377988; 613721, 2377976; 613733, 2377976; 613762, 2378001; 613771, 2378068; 613764, 2378090; 613757, 2378093; 613753, 2378093; 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613711, 2378118; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613568, 2378357; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613462, 2378464; 613447, 2378478; 613424, 2378499; 613386, 2378532; 613364, 2378562; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248, 2378749; 613247, 2378750; 613232, 2378759; 613231, 2378759; 613213, 2378764; 613199, 2378769; 613190, 2378778; 613172, 2378818; 613172, 2378819; 613152, 2378848; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613145, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187,

2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 613142, 2379072; 613115, 2379100; 613099, 2379113; 613098, 2379113; 613063, 2379127; 612997, 2379166; 612978, 2379188; 612969, 2379215; 612963, 2379226; 612959, 2379247; 612959, 2379248; 612945, 2379276; 612945, 2379277; 612929, 2379297; 612928, 2379298; 612905, 2379314; 612876, 2379327; 612840, 2379337; 612770, 2379350; 612764, 2379355; 612758, 2379364; 612748, 2379389; 612748, 2379390; 612725, 2379410; 612700, 2379424; 612683, 2379441; 612663, 2379470; 612619, 2379529; 612600, 2379563; 612591, 2379598; 613252, 2379742; 613432, 2379563; 613629, 2379372; 613776, 2379155; 613980, 2379040; 614267, 2378881; 614452, 2378702; 614738, 2378301; 614721, 2378277; 614809, 2378014; 614830, 2377880; 612590, 2377032; 612412, 2377172; 611997, 2377529; 611892, 2377602; 612012, 2377589; 612011, 2377588; 612012, 2377584; 612038, 2377574; 612066, 2377574; 612069, 2377574; 612103, 2377583; 612103, 2377584; 612166, 2377617; 612168, 2377619; 612169, 2377619; 612247, 2377687; return to starting point.

(ii) **Note:** Map 249 follows:

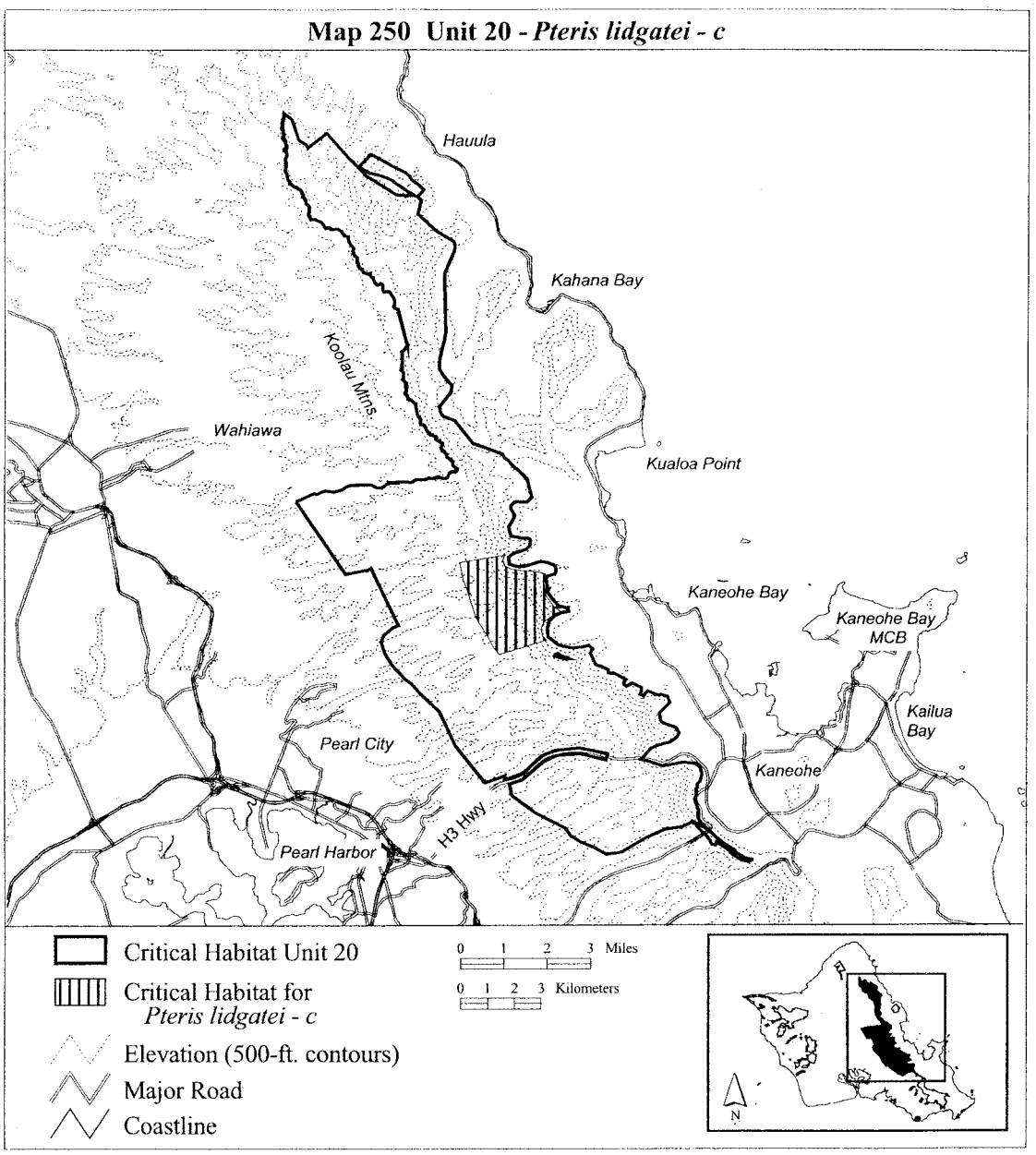


(250) Oahu 20—*Pteris lidgatei*—c (844 ha; 2,085 ac)

(i) Unit consists of the following 33 boundary points: Start at 615336, 2371138; 615108, 2371435; 614942, 2371722; 614713, 2372117; 614483, 2372506; 614006, 2373883; 613993, 2373883; 613891, 2374444; 613858, 2374602; 615567, 2374877; 615503, 2374814; 615452, 2374661; 615542, 2374482; 615777, 2374348; 616185, 2374285; 616370, 2374285; 616753, 2374253; 617008, 2374183; 617072, 2374055; 616989, 2373883; 616977, 2373883; 616995, 2373628; 617065, 2373341; 617205, 2373144; 617346, 2372959; 617620, 2372755; 617409, 2372697; 617199, 2372544; 616982,

2372353; 616880, 2372105; 616931, 2371837; 617072, 2371696; 615352, 2371166; return to starting point.

(ii) **Note:** Map 250 follows:



(251) Oahu 20—*Sanicula purpurea*—a (704 ha; 1,739 ac)

(i) Unit consists of the following 940 boundary points: Start at 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613568, 2378357; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613462, 2378464; 613447, 2378478; 613424, 2378499; 613386, 2378532; 613364, 2378562; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248, 2378749; 613247, 2378750; 613232, 2378759; 613213, 2378764; 613199, 2378769; 613190, 2378778; 613172, 2378818; 613152, 2378848; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 613142, 2379072; 613115, 2379100; 613099, 2379113; 613098, 2379113; 613063, 2379127; 612997, 2379166; 612978, 2379188; 612969, 2379215; 612963, 2379226; 612959, 2379247; 612945, 2379276; 612945, 2379277; 612929, 2379297; 612905, 2379314; 612876, 2379327; 612840, 2379337; 612770, 2379350; 612764, 2379355; 612758, 2379364; 612748, 2379389; 612748, 2379390; 612725, 2379410; 612700, 2379424; 612683, 2379441; 612663, 2379470; 612619, 2379529; 612600, 2379563; 612586, 2379618; 612573, 2379650; 612555, 2379679; 612517, 2379716; 612495,

2379729; 612412, 2379753; 612397, 2379761; 612387, 2379798; 612388, 2379851; 612386, 2379928; 612379, 2379961; 612379, 2379962; 612375, 2379970; 612367, 2379981; 612366, 2379982; 612353, 2379991; 612328, 2380018; 612262, 2380145; 612255, 2380163; 612249, 2380199; 612248, 2380233; 612234, 2380304; 612226, 2380334; 612224, 2380337; 612211, 2380367; 612213, 2380397; 612218, 2380419; 612218, 2380420; 612215, 2380452; 612212, 2380464; 612202, 2380506; 612202, 2380507; 612197, 2380516; 612177, 2380539; 612112, 2380593; 612086, 2380625; 612073, 2380644; 612046, 2380669; 612046, 2380670; 612016, 2380686; 611992, 2380690; 611965, 2380687; 611955, 2380689; 611941, 2380693; 611927, 2380702; 611919, 2380710; 611905, 2380743; 611889, 2380825; 611889, 2380826; 611880, 2380839; 611856, 2380862; 611812, 2380892; 611799, 2380905; 611798, 2380918; 611800, 2380925; 611815, 2380943; 611838, 2380960; 611838, 2380961; 611848, 2380980; 611851, 2381022; 611848, 2381067; 611853, 2381081; 611879, 2381118; 611879, 2381119; 611879, 2381131; 611868, 2381149; 611858, 2381155; 611857, 2381155; 611847, 2381160; 611837, 2381167; 611828, 2381178; 611825, 2381193; 611830, 2381214; 611838, 2381223; 611854, 2381250; 611856, 2381258; 611855, 2381265; 611855, 2381266; 611849, 2381285; 611848, 2381286; 611828, 2381312; 611784, 2381363; 611765, 2381383; 611734, 2381424; 611733, 2381424; 611730, 2381426; 611737, 2381446; 611745, 2381514; 611746, 2381550; 611748, 2381618; 611748, 2381619; 611739, 2381669; 611736, 2381680; 611736, 2381681; 611727, 2381699; 611727, 2381700; 611673, 2381758; 611666, 2381774; 611666, 2381794; 611670, 2381810; 611702, 2381865; 611712, 2381882; 611712, 2381883; 611712, 2381915; 611712, 2381916; 611710, 2381923; 611687, 2381955; 611687, 2381978; 611695, 2381990; 611702, 2382013; 611702, 2382014; 611700, 2382058; 611694, 2382120; 611695, 2382225; 611701, 2382278; 611699, 2382320; 611695, 2382360; 611693, 2382433; 611692, 2382455; 611698, 2382473; 611744, 2382512; 611805, 2382557; 611831, 2382588; 611844, 2382604; 611844, 2382605; 611850, 2382621; 611874, 2382653; 611896, 2382683; 611903, 2382704; 611903, 2382705; 611903, 2382706; 611902, 2382707; 611901, 2382707; 611900, 2382707; 611900, 2382706; 611899, 2382706; 611892, 2382686; 611891, 2382684; 611795, 2383056; 611597, 2383822; 611567, 2383939; 611567, 2383940; 611561, 2383949; 611537, 2384020; 611536, 2384020; 611525, 2384040; 611515, 2384051; 611495, 2384064; 611460, 2384078; 611430, 2384082; 611404, 2384097; 611396, 2384120; 611393, 2384150; 611397, 2384172; 611413, 2384204; 611422, 2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611429, 2384357; 611417, 2384382; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611358, 2384501; 611334, 2384524; 611326, 2384536; 611302, 2384584; 611257, 2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 611192, 2384704; 611191, 2384703; 611165, 2384698; 611119, 2384696; 611082, 2384690; 611081, 2384690; 611065, 2384682; 611064, 2384681; 611058, 2384675; 611046, 2384674; 611039, 2384675; 611028, 2384688; 611014, 2384713; 610994, 2384778; 610981, 2384838; 610976, 2384927; 610973, 2384941; 610973, 2384942; 610965, 2384959; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610809, 2384945; 610780, 2384942; 610766, 2384942; 610749, 2384953; 610709, 2384995; 610692, 2385014; 610679, 2385041; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610558, 2385236; 610543, 2385248; 610533, 2385266; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610497, 2385351; 610496, 2385351; 610454, 2385362; 610440, 2385362; 610394, 2385362; 610370, 2385370; 610333, 2385392; 610292, 2385406; 610280, 2385413; 610261, 2385429; 610248, 2385449; 610237, 2385473; 610222, 2385512; 610222, 2385513; 610214, 2385522; 610206, 2385531; 610206, 2385532; 610187, 2385540; 610166, 2385544; 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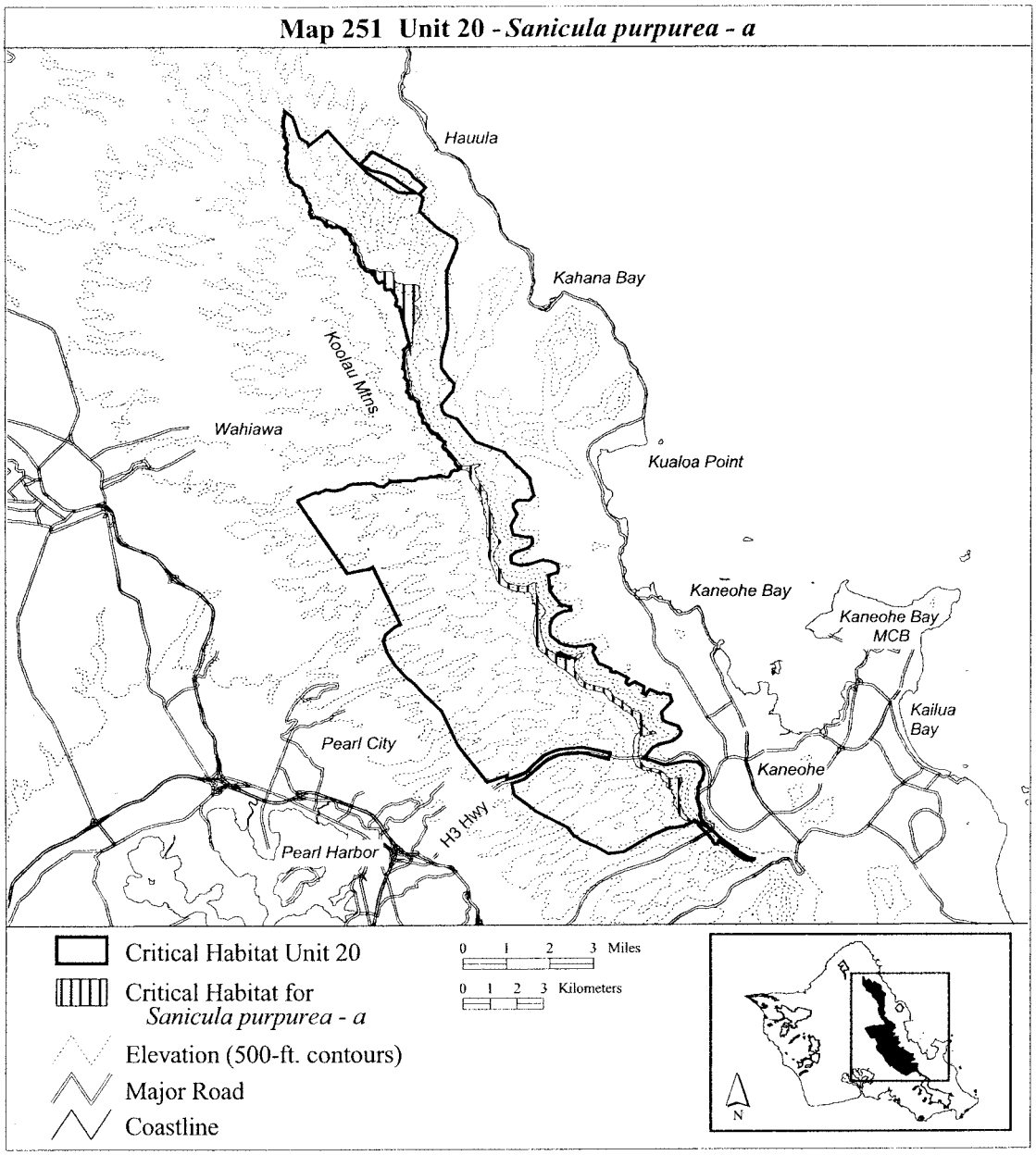
2374431; 614870, 2374599; 614819, 2374755; 614819, 2374861; 614816, 2374861; 614810, 2374936; 614828, 2375020; 614861, 2375104; 614852, 2375185; 614861, 2375303; 614825, 2375375; 614765, 2375465; 614762, 2375564; 614762, 2375687; 614756, 2375832; 614777, 2375979; 614762, 2376138; 614723, 2376259; 614641, 2376349; 614641, 2376391; 614641, 2376550; 614617, 2376653; 614590, 2376791; 614602, 2376929; 614602, 2376932; 614530, 2377068; 614482, 2377179; 614434, 2377242; 614365, 2377350; 614323, 2377431; 614211, 2377594; 614115, 2377753; 614115, 2377816; 614088, 2377922; 614031, 2378000; 613935, 2378000; 613833, 2377985; 613763, 2378008; 613771, 2378068; 613764, 2378090; 613757, 2378093; 613753, 2378093; return to starting point.

(ii) **Note:** Map 251 follows:

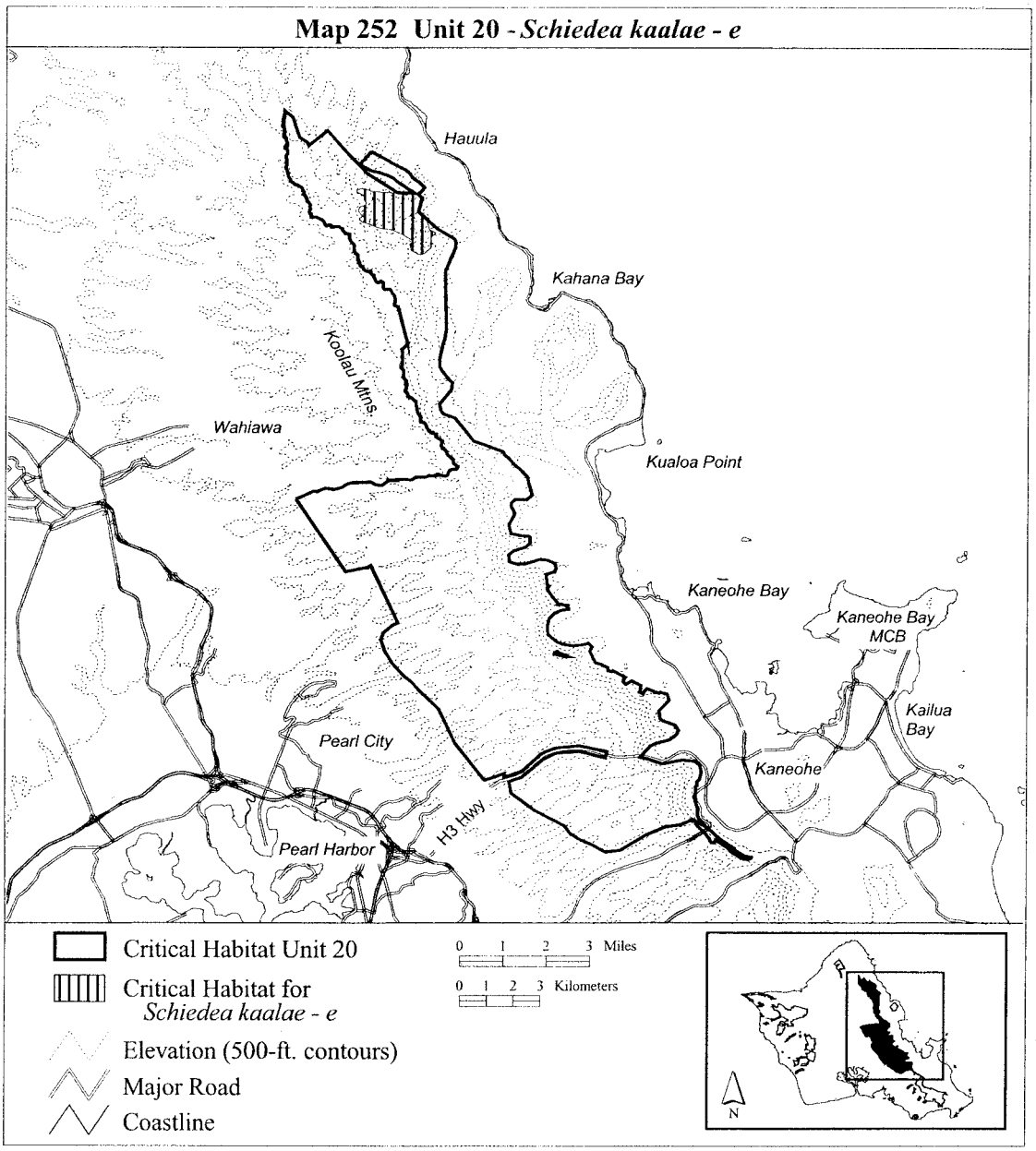


(252) Oahu 20—*Schiedea kaalae*—e (378 ha; 934 ac)

(i) Unit consists of the following 100 boundary points: Start at 610262, 2387162; 610252, 2387163; 610196, 2387181; 610159, 2387216; 610133, 2387242; 610063, 2387266; 610077, 2387301; 610149, 2387343; 610210, 2387403; 610168, 2387460; 610107, 2387518; 610058, 2387565; 610063, 2387719; 610159, 2387749; 610222, 2387768; 610273, 2387791; 610320, 2387824; 610336, 2387848; 610325, 2387892; 610299, 2387953; 610259, 2388006; 610259, 2388044; 610266, 2388112; 610252, 2388147; 610222, 2388182; 610178, 2388226; 610114, 2388238; 610000, 2388289; 609981, 2388301; 609999, 2388345; 610027, 2388381; 610054, 2388383; 610098, 2388387; 610124, 2388392; 610140, 2388423; 610168, 2388432; 610222, 2388437; 610278, 2388437; 610318, 2388437; 610348, 2388390; 610402, 2388369; 610446, 2388369; 610486, 2388355; 610504, 2388319; 610504, 2388322; 611095, 2388275; 611810,

2388272; 612073, 2388265; 612212, 2388258; 612267, 2388207; 612400, 2388103; 612399, 2388096; 612360, 2387934; 612330, 2387792; 612282, 2387600; 612285, 2387571; 612284, 2387567; 612284, 2387566; 612285, 2387565; 612286, 2387564; 612293, 2387485; 612424, 2387377; 612559, 2387286; 612603, 2387148; 612610, 2387155; 612620, 2387131; 612633, 2387027; 612677, 2386915; 612714, 2386885; 612785, 2386861; 612876, 2386831; 612910, 2386794; 612873, 2386740; 612789, 2386649; 612731, 2386564; 612731, 2386446; 612731, 2386338; 612731, 2386230; 612637, 2386146; 612542, 2386065; 612407, 2385981; 612313, 2385977; 612235, 2386008; 612127, 2386072; 612013, 2386132; 611965, 2386227; 611972, 2386311; 612002, 2386372; 612063, 2386480; 612009, 2386551; 612014, 2386556; 611965, 2386574; 611658, 2386733; 611486, 2386821; 611257, 2386902; 611071, 2386929; 610859, 2386949; 610680, 2387010; 610558, 2387054; 610437, 2387114; return to starting point.

(ii) **Note:** Map 252 follows:

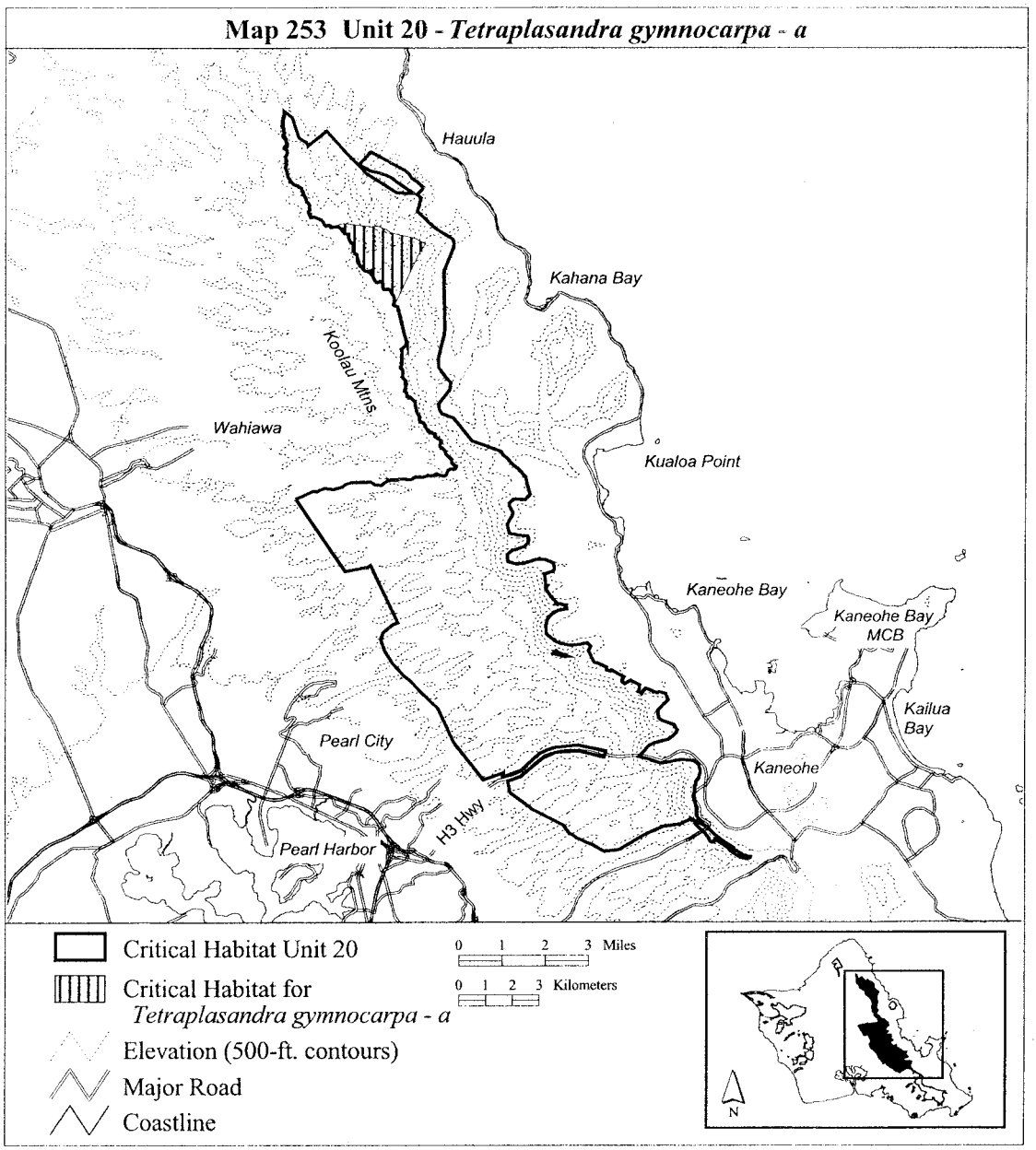


(253) Oahu 20—*Tetraplasandra gymnocarpa*—a (457 ha; 1,129 ac)

(i) Unit consists of the following 197 boundary points: Start at 609064, 2386997; 609513, 2387148; 610476, 2387018; 610552, 2386998; 610622, 2387041; 610795, 2387041; 611132, 2386909; 611289, 2386794; 611684, 2386695; 612203, 2386580; 612317, 2386517; 612583, 2386377; 612341, 2386005; 611418, 2384089; 611404, 2384097; 611396, 2384120; 611393, 2384150; 611397, 2384172; 611413, 2384204; 611422, 2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611429, 2384357; 611417, 2384382; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611374, 2384489; 611358, 2384501; 611334, 2384524; 611326, 2384536; 611302, 2384584; 611257,

2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 611192, 2384704; 611191, 2384703; 611165, 2384698; 611119, 2384696; 611118, 2384696; 611082, 2384690; 611081, 2384690; 611065, 2384682; 611064, 2384681; 611058, 2384675; 611046, 2384674; 611039, 2384675; 611028, 2384688; 611014, 2384713; 610994, 2384778; 610981, 2384838; 610976, 2384927; 610973, 2384941; 610973, 2384942; 610965, 2384959; 610965, 2384960; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610809, 2384945; 610780, 2384942; 610766, 2384942; 610749, 2384953; 610709, 2384995; 610692, 2385014; 610679, 2385041; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610558, 2385236; 610543, 2385248; 610533, 2385266; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610508, 2385342; 610497, 2385351; 610496, 2385351; 610454, 2385362; 610440, 2385362; 610440, 2385363; 610394, 2385362; 610370, 2385370; 610333, 2385392; 610292, 2385406; 610280, 2385413; 610261, 2385429; 610248, 2385449; 610237, 2385473; 610222, 2385512; 610222, 2385513; 610214, 2385522; 610206, 2385531; 610206, 2385532; 610187, 2385540; 610166, 2385544; 610134, 2385558; 610129, 2385561; 610122, 2385580; 610119, 2385604; 610119, 2385605; 610112, 2385620; 610111, 2385621; 610093, 2385637; 610078, 2385652; 610077, 2385659; 610090, 2385687; 610097, 2385698; 610098, 2385699; 610098, 2385700; 610097, 2385705; 610097, 2385706; 610081, 2385734; 610054, 2385762; 610039, 2385790; 610028, 2385816; 610024, 2385839; 610027, 2385873; 610035, 2385901; 610035, 2385902; 610035, 2385943; 610035, 2385944; 610029, 2385956; 610029, 2385957; 610003, 2385991; 609994, 2386004; 609993, 2386004; 609993, 2386005; 609971, 2386017; 609955, 2386025; 609948, 2386031; 609929, 2386085; 609909, 2386112; 609908, 2386113; 609898, 2386121; 609887, 2386134; 609883, 2386146; 609884, 2386168; 609879, 2386204; 609884, 2386223; 609905, 2386254; 609905, 2386255; 609909, 2386278; 609909, 2386279; 609907, 2386291; 609881, 2386354; 609880, 2386355; 609858, 2386384; 609834, 2386404; 609797, 2386443; 609797, 2386444; 609790, 2386450; 609769, 2386468; 609748, 2386495; 609737, 2386524; 609719, 2386644; 609711, 2386719; 609711, 2386720; 609705, 2386737; 609704, 2386737; 609704, 2386738; 609693, 2386745; 609692, 2386745; 609595, 2386759; 609570, 2386766; 609560, 2386772; 609536, 2386797; 609481, 2386863; 609461, 2386894; 609449, 2386918; 609449, 2386919; 609439, 2386933; 609438, 2386934; 609425, 2386943; 609379, 2386966; 609323, 2387005; 609308, 2387012; 609269, 2387020; 609248, 2387021; 609184, 2387014; 609134, 2387001; 609078, 2386982; 609074, 2386984; return to starting point.

(ii) **Note:** Map 253 follows:

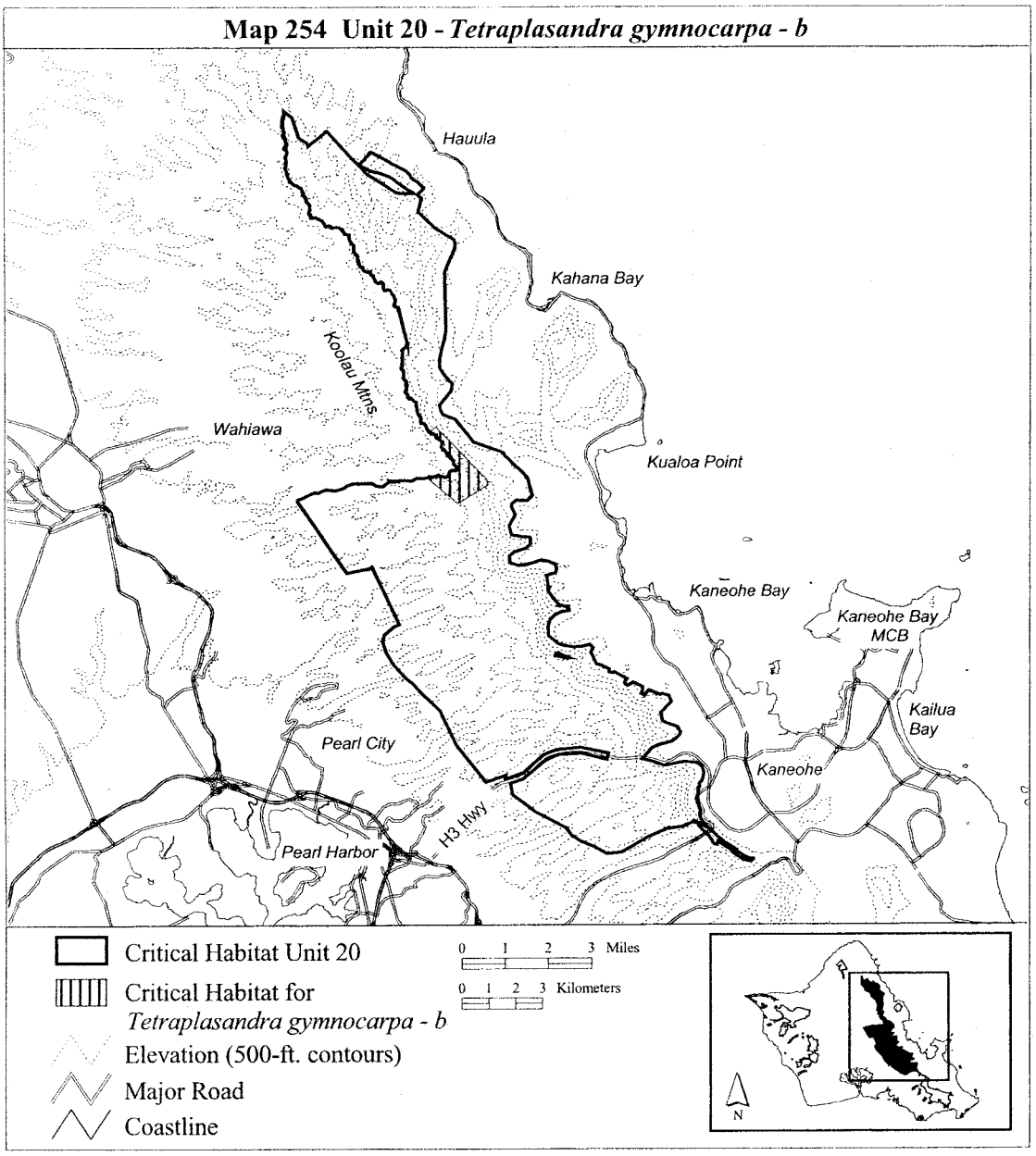


(254) Oahu 20—*Tetraplasandra gymnocarpa*—b (235 ha; 581 ac)

(i) Unit consists of the following 125 boundary points: Start at 612686, 2377751; 612705, 2377757; 612764, 2377738; 612765, 2377738; 612794, 2377742; 612814, 2377728; 612853, 2377742; 612870, 2377747; 613040, 2377760; 613059, 2377772; 613059, 2377774; 613085, 2377777; 613154, 2377768; 613224, 2377738; 613264, 2377728; 613265, 2377728; 613335, 2377738; 613336, 2377738; 613359, 2377752; 613368, 2377747; 613413, 2377754; 613415, 2377755; 613449, 2377784; 613454, 2377825; 613460, 2377881; 613497, 2377929; 613554, 2377977; 613555, 2377987; 613674, 2377978; 613675, 2377978; 613694, 2377988; 613721, 2377976; 613733, 2377976; 613762, 2378001; 613771, 2378068; 613764, 2378090; 613757, 2378093; 613753, 2378093; 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613711, 2378118; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613568, 2378357; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613462, 2378464; 613447, 2378478; 613424, 2378499; 613386, 2378532; 613364, 2378562; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248, 2378749; 613247, 2378750; 613232, 2378759; 613231, 2378759; 613213, 2378764; 613199, 2378769; 613190, 2378778; 613172, 2378818; 613172, 2378819; 613152, 2378848; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613145, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 613142, 2379072; 613115, 2379100; 613099, 2379113; 613098, 2379113; 613063, 2379127; 612997, 2379166; 612978, 2379188; 612969, 2379215; 612963, 2379226; 612959, 2379247; 612959, 2379248; 612945, 2379276; 612945, 2379277; 612929,

2379297; 612928, 2379298; 612905, 2379314; 612876, 2379327; 612840, 2379337; 612770, 2379350; 612764, 2379355; 612758, 2379364; 612748, 2379389; 612748, 2379390; 612725, 2379410; 612708, 2379419; 612945, 2379601; 614821, 2377667; 614879, 2377445; 613757, 2376749; 612632, 2377703; 612668, 2377720; 612688, 2377749; return to starting point.

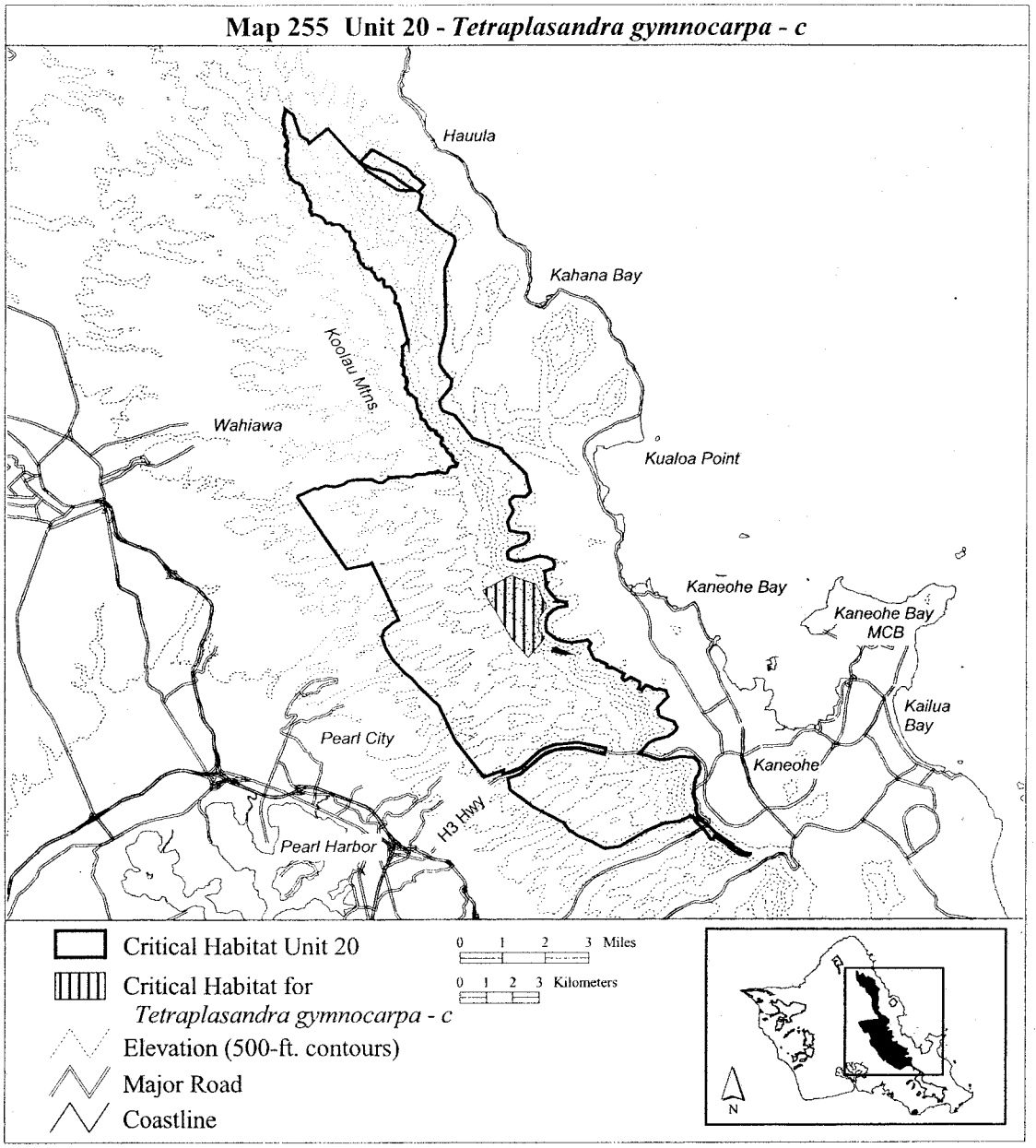
(ii) **Note:** Map 254 follows:



(255) Oahu 20—*Tetraplasandra gymnocarpa*—c (411 ha; 1,016 ac)

(i) Unit consists of the following 12 boundary points: Start at 614721, 2373348; 615833, 2373916; 616083, 2373791; 616741, 2373598; 617116, 2372803; 617082, 2372633; 616843, 2372292; 616855, 2371861; 617070, 2371555; 616446, 2370840; 615799, 2371623; 615300, 2372440; return to starting point.

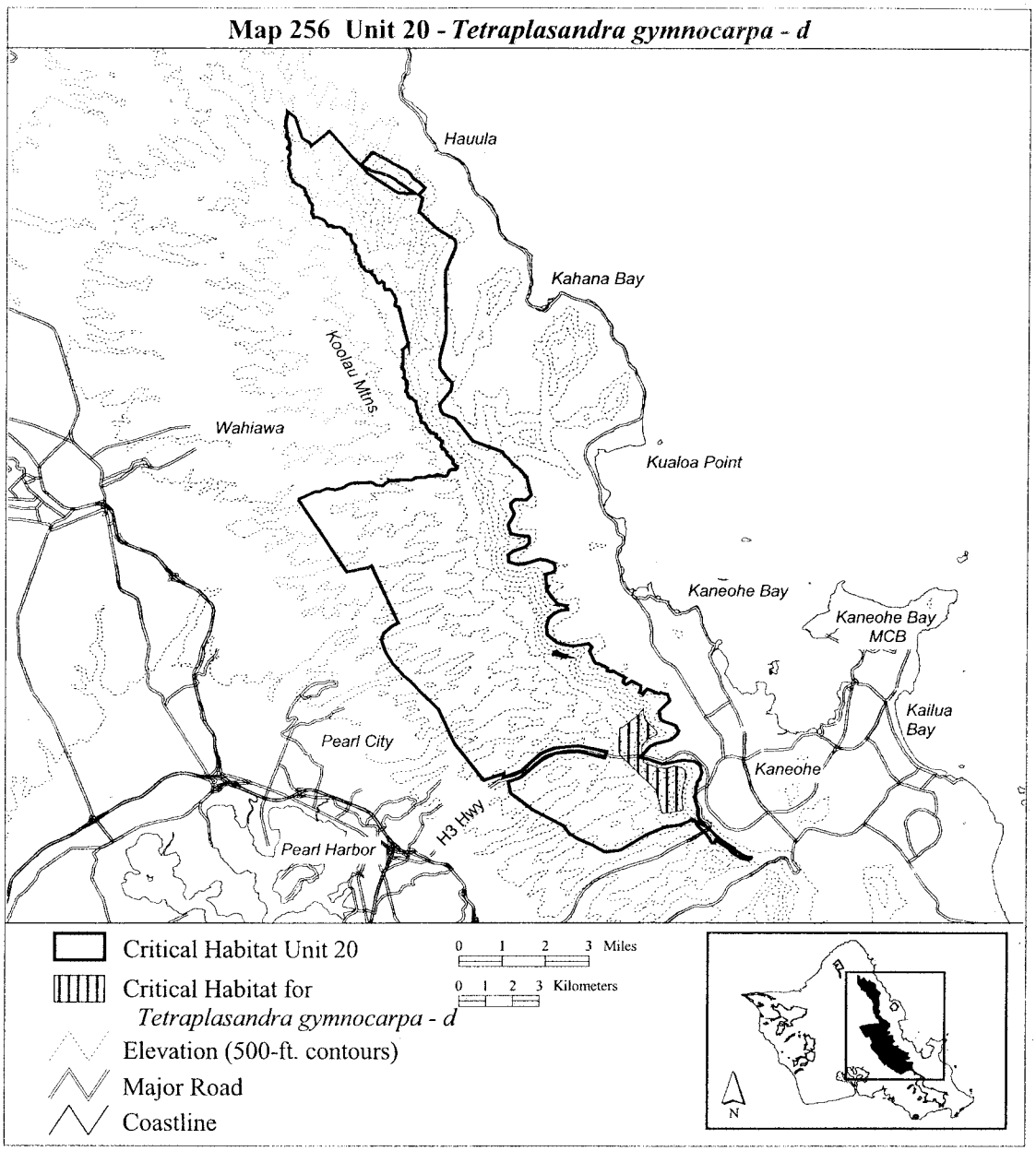
(ii) **Note:** Map 255 follows:



(256) Oahu 20—*Tetraplasandra gymnocarpa*—d (370 ha; 914 ac)

(i) Unit consists of the following 42 boundary points: Start at 621415, 2365210; 621377, 2365197; 621260, 2365702; 621215, 2365844; 621141, 2366079; 619831, 2367368; 619834, 2367413; 619826, 2367420; 619787, 2367457; 619819, 2368310; 619899, 2368379; 619896, 2368335; 620536, 2368845; 620712, 2369081; 620721, 2368747; 620937, 2368490; 621164, 2368253; 621205, 2368109; 620896, 2367965; 620670, 2367717; 620670, 2367338; 620604, 2367260; 620603, 2367260; 620603, 2367259; 620604, 2367258; 620682, 2367237; 620711, 2367069; 621226, 2366873; 621451, 2366857; 621905, 2366944; 621914, 2366941; 621926, 2366944; 621932, 2366935; 622173, 2366851; 622276, 2366759; 622317, 2366501; 622183, 2366264; 622122, 2365750; 622170, 2365369; 622180, 2365290; 621429, 2365165; 621416, 2365206; return to starting point.

(ii) **Note:** Map 256 follows:

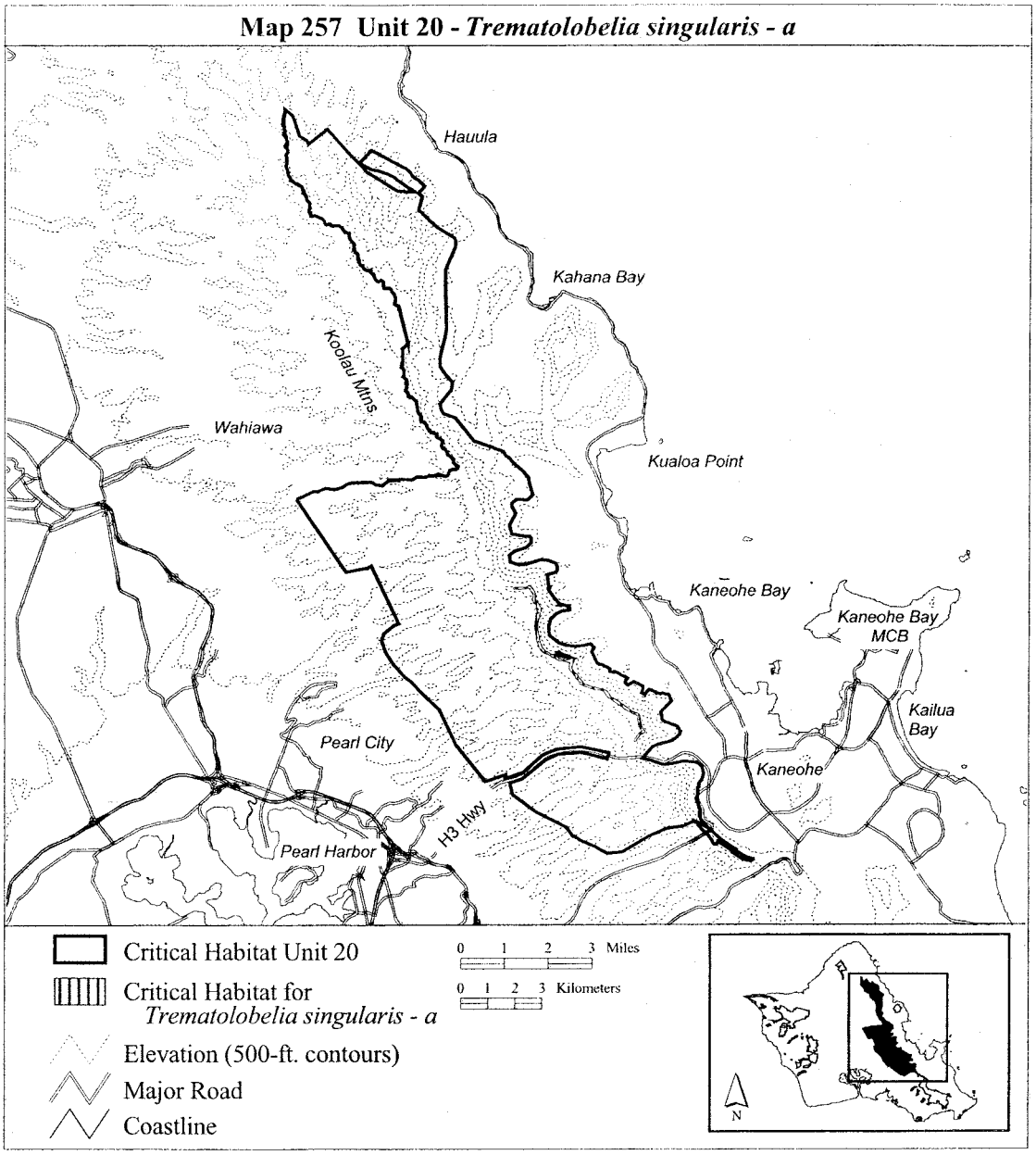


(257) Oahu 20—*Trematolobelia singularis*—a (88 ha; 217 ac)

(i) Unit consists of the following 173 boundary points: Start at 619374, 2369581; 619392, 2369559; 619441, 2369499; 619483, 2369472; 619551, 2369457; 619725, 2369358; 619888, 2369229; 620066, 2369093; 620195, 2369010; 620366, 2368938; 620453, 2368904; 620483, 2368794; 620502, 2368623; 620559, 2368456; 620624, 2368335; 620688, 2368271; 620684, 2368214; 620586, 2368153; 620479, 2368054; 620381, 2367956; 620362, 2367873; 620290, 2367865; 620260, 2367914; 620316, 2368001; 620381, 2368058; 620472, 2368187; 620552, 2368248; 620582, 2368282; 620536, 2368339; 620430, 2368437; 620430, 2368547; 620415, 2368684; 620423, 2368775; 620381, 2368839; 620298, 2368862; 620097, 2368972; 619953, 2369059; 619714, 2369248; 619539, 2369351; 619411, 2369430; 619377, 2369472; 619377, 2369458; 619289, 2369552; 619210, 2369659; 619134, 2369731; 619013, 2369783; 618837, 2369792; 618789, 2369792; 618637, 2369862; 618406, 2369919; 618243, 2370004; 618243, 2370068; 618197, 2370144; 618185, 2370171; 618137, 2370183; 618109, 2370220; 618079, 2370301; 617988, 2370408; 617906, 2370492; 617858, 2370556; 617858, 2370623; 617876, 2370687; 617897, 2370796; 617836, 2370808; 617773, 2370817; 617724, 2370838; 617648, 2370859; 617542, 2370859; 617451, 2370902; 617379, 2370941; 617218, 2371026; 617157, 2371064; 617151, 2371055; 617084, 2371122; 616985, 2371134; 616903, 2371185; 616812, 2371264; 616733, 2371359; 616713, 2371457; 616666, 2371619; 616638, 2371785; 616611, 2371942; 616583, 2372108; 616599, 2372266; 616638, 2372415; 616634, 2372423; 616631, 2372565; 616698, 2372672; 616678, 2372739; 616666, 2372806; 616654, 2372908; 616631, 2372964; 616567, 2372999; 616536, 2373078; 616489, 2373161; 616524, 2373236; 616532, 2373310; 616504, 2373381; 616469, 2373445; 616433, 2373496; 616410,

2373563; 616366, 2373579; 616351, 2373567; 616252, 2373543; 616122, 2373523; 615948, 2373519; 615842, 2373516; 615814, 2373594; 615864, 2373580; 615870, 2373618; 616047, 2373606; 616102, 2373606; 616185, 2373606; 616319, 2373634; 616390, 2373665; 616473, 2373638; 616536, 2373535; 616607, 2373405; 616607, 2373255; 616627, 2373137; 616717, 2373042; 616757, 2372960; 616820, 2372829; 616832, 2372707; 616796, 2372605; 616761, 2372522; 616761, 2372419; 616729, 2372348; 616705, 2372195; 616709, 2372096; 616721, 2371958; 616753, 2371836; 616769, 2371714; 616761, 2371674; 616796, 2371548; 616839, 2371473; 616875, 2371371; 616958, 2371280; 617045, 2371209; 617192, 2371133; 617194, 2371135; 617369, 2371041; 617509, 2370969; 617636, 2370923; 617697, 2370908; 617824, 2370908; 617958, 2370938; 618000, 2370956; 618058, 2370984; 618109, 2370993; 618128, 2370956; 618097, 2370929; 618058, 2370868; 618027, 2370799; 617988, 2370714; 617967, 2370641; 617973, 2370568; 618030, 2370492; 618076, 2370438; 618106, 2370408; 618161, 2370368; 618212, 2370256; 618337, 2370141; 618385, 2370065; 618431, 2370004; 618546, 2369956; 618737, 2369901; 618855, 2369874; 619068, 2369828; 619198, 2369792; 619313, 2369707; 619347, 2369643; 619374, 2369586; return to starting point.

(ii) **Note:** Map 257 follows:

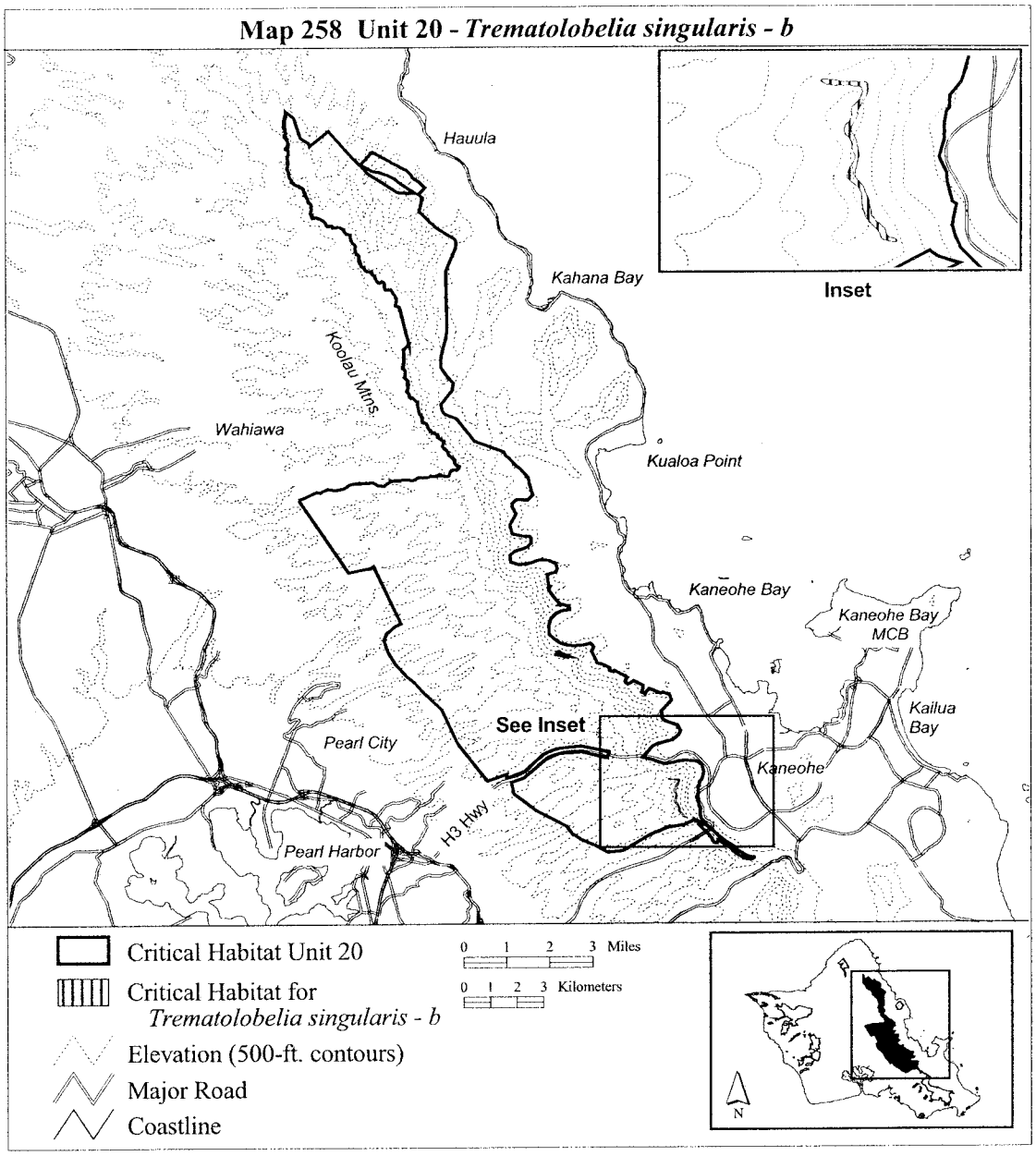


(258) Oahu 20—*Trematolobelia singularis*—b (10 ha; 25 ac)

(i) Unit consists of the following 104 boundary points: Start at 622202, 2365006; 622110, 2365022; 622077, 2365045; 622053, 2365096; 622025, 2365135; 621986, 2365171; 621931, 2365225; 621917, 2365275; 621904, 2365327; 621896, 2365404; 621891, 2365456; 621854, 2365504; 621801, 2365545; 621767, 2365584; 621767, 2365605; 621772, 2365640; 621790,

2365678; 621813, 2365705; 621835, 2365747; 621834, 2365781; 621835, 2365782; 621835, 2365784; 621832, 2365788; 621833, 2365788; 621823, 2365812; 621813, 2365837; 621804, 2365879; 621799, 2365908; 621779, 2365935; 621745, 2365973; 621740, 2365992; 621740, 2366025; 621751, 2366056; 621784, 2366087; 621807, 2366127; 621803, 2366169; 621799, 2366195; 621809, 2366216; 621840, 2366239; 621871, 2366276; 621890, 2366304; 621900, 2366327; 621907, 2366351; 621891, 2366388; 621840, 2366397; 621787, 2366406; 621706, 2366405; 621654, 2366406; 621584, 2366414; 621553, 2366429; 621531, 2366439; 621532, 2366457; 621565, 2366462; 621627, 2366456; 621683, 2366445; 621730, 2366436; 621801, 2366441; 621865, 2366434; 621930, 2366434; 621953, 2366420; 621956, 2366377; 621953, 2366337; 621928, 2366285; 621899, 2366237; 621880, 2366205; 621857, 2366169; 621860, 2366136; 621840, 2366101; 621815, 2366053; 621803, 2366028; 621798, 2366007; 621823, 2365964; 621846, 2365922; 621870, 2365794; 621871, 2365794; 621872, 2365783; 621874, 2365781; 621871, 2365770; 621870, 2365770; 621869, 2365768; 621857, 2365714; 621848, 2365669; 621834, 2365618; 621834, 2365594; 621849, 2365573; 621880, 2365543; 621914, 2365506; 621935, 2365444; 621959, 2365404; 621970, 2365335; 621981, 2365287; 621983, 2365253; 622011, 2365219; 622022, 2365197; 622057, 2365178; 622088, 2365146; 622107, 2365130; 622118, 2365084; 622130, 2365064; 622146, 2365054; 622172, 2365050; 622200, 2365037; 622217, 2365025; 622217, 2365011; return to starting point.

(ii) **Note:** Map 258 follows:



(259) Oahu 20—*Viola oahuensis*—a (903 ha; 2,232 ac)

(i) Unit consists of the following 1014 boundary points: Start at 613555, 2377987; 613674, 2377978; 613675, 2377978; 613694, 2377988; 613721, 2377976; 613733, 2377976; 613762, 2378001; 613771, 2378068; 613764, 2378090; 613757, 2378093; 613753, 2378093; 613751, 2378091; 613747, 2378094; 613746, 2378095; 613718, 2378106; 613711, 2378117; 613691, 2378143; 613660, 2378168; 613602, 2378212; 613593, 2378224; 613586, 2378238; 613583, 2378253; 613583, 2378292; 613583, 2378328; 613583, 2378329; 613568, 2378356; 613556, 2378372; 613524, 2378400; 613517, 2378408; 613476, 2378444; 613462, 2378463; 613447, 2378478; 613424, 2378499; 613386, 2378532; 613364, 2378562; 613346, 2378613; 613330, 2378641; 613265, 2378728; 613248, 2378749; 613232, 2378759; 613213, 2378764; 613199, 2378769; 613190, 2378778; 613172, 2378818; 613172, 2378819; 613152, 2378848; 613147, 2378859; 613147, 2378860; 613146, 2378860; 613145, 2378860; 613145, 2378861; 613146, 2378862; 613144, 2378873; 613159, 2378951; 613185, 2378998; 613187, 2379004; 613187, 2379005; 613185, 2379019; 613185, 2379020; 613171, 2379040; 613142, 2379072; 613115, 2379100; 613099, 2379113; 613098, 2379113; 613063, 2379127; 612997, 2379166; 612978, 2379188; 612969, 2379215; 612963, 2379226; 612959, 2379247; 612959, 2379248; 612945, 2379276; 612929, 2379297; 612905, 2379314; 612876, 2379327; 612840, 2379337; 612770, 2379350; 612764, 2379355; 612758, 2379364; 612748, 2379389; 612748, 2379390; 612725, 2379410; 612700, 2379424; 612683, 2379441; 612663, 2379470; 612619, 2379529; 612600, 2379563; 612586, 2379618; 612573, 2379650; 612555, 2379679; 612517, 2379716; 612495, 2379729; 612412, 2379753; 612397, 2379761; 612387, 2379798; 612388, 2379851; 612386, 2379928; 612379, 2379961; 612375, 2379970; 612367, 2379981; 612366, 2379981; 612353, 2379991; 612328, 2380018; 612262, 2380145; 612255, 2380163; 612249, 2380199; 612248, 2380233; 612234, 2380304; 612226, 2380334; 612225, 2380334; 612224, 2380337; 612211, 2380367; 612213, 2380397; 612218, 2380419; 612218, 2380420; 612215, 2380452; 612212, 2380464; 612202, 2380506; 612202, 2380507; 612197, 2380516; 612177, 2380539; 612112, 2380593; 612086, 2380625; 612073, 2380644; 612046, 2380669; 612016, 2380686; 611992, 2380690; 611965, 2380687; 611955, 2380689; 611941, 2380693; 611927, 2380702; 611919, 2380710; 611905, 2380743; 611889, 2380825; 611889, 2380826; 611880, 2380839; 611856, 2380862; 611812, 2380892; 611799, 2380905; 611798, 2380918; 611800, 2380925; 611815, 2380943; 611838, 2380960; 611848, 2380980; 611851, 2381022; 611848, 2381067; 611853, 2381081; 611879, 2381118; 611879, 2381119; 611879, 2381131; 611879, 2381132; 611868, 2381149; 611858, 2381155; 611857, 2381155; 611847, 2381160; 611837, 2381167; 611828, 2381178; 611825, 2381193; 611830, 2381214; 611838, 2381223; 611854, 2381250; 611854, 2381251; 611856, 2381258; 611855, 2381265; 611855, 2381266; 611849, 2381285; 611848, 2381286; 611828, 2381312; 611784, 2381363; 611765, 2381383; 611734, 2381424; 611733, 2381424; 611730, 2381426; 611737, 2381446; 611745, 2381514; 611746, 2381550; 611748, 2381618; 611739, 2381669; 611736, 2381680; 611727, 2381699; 611727, 2381700; 611673, 2381758; 611666, 2381774; 611666, 2381794; 611670, 2381810; 611702, 2381865; 611712, 2381882; 611712, 2381883; 611712, 2381915; 611712, 2381916; 611710, 2381923; 611687, 2381955; 611687, 2381978; 611695, 2381990; 611702, 2382013; 611702, 2382014; 611700, 2382058; 611694, 2382120; 611695, 2382225; 611701, 2382278; 611701, 2382279; 611699, 2382320; 611695, 2382360; 611693, 2382433; 611692, 2382455; 611698, 2382473; 611744, 2382512; 611805, 2382557; 611831, 2382588; 611844, 2382604; 611850, 2382621; 611874, 2382653; 611896, 2382683; 611903, 2382704; 611903, 2382705; 611903, 2382706; 611902, 2382707; 611901, 2382707; 611900, 2382707; 611900, 2382706; 611899, 2382706; 611892, 2382686; 611891, 2382684; 611795, 2383056; 611597, 2383822; 611567, 2383939; 611567, 2383940; 611561, 2383949; 611537, 2384020; 611536, 2384020; 611525, 2384040; 611515, 2384051; 611495, 2384064; 611460, 2384078; 611430, 2384082; 611404, 2384097; 611396, 2384120; 611393, 2384150; 611397, 2384172; 611413, 2384204; 611422, 2384233; 611428, 2384263; 611435, 2384302; 611435, 2384321; 611429, 2384356; 611417, 2384382; 611394, 2384464; 611387, 2384476; 611374, 2384488; 611358, 2384501; 611334, 2384524; 611326, 2384536; 611302, 2384584; 611257, 2384667; 611256, 2384667; 611245, 2384680; 611244, 2384681; 611224, 2384695; 611223, 2384695; 611203, 2384703; 611202, 2384704; 611192, 2384704; 611165, 2384698; 611119, 2384696; 611082, 2384690; 611081, 2384690; 611065, 2384682; 611058, 2384675; 611046, 2384674; 611039, 2384675; 611028, 2384688; 611014, 2384713; 610994, 2384778; 610981, 2384838; 610976, 2384927; 610973, 2384941; 610965, 2384959; 610957, 2384969; 610957, 2384970; 610934, 2384987; 610933, 2384987; 610909, 2384993; 610908, 2384993; 610888, 2384986; 610839, 2384956; 610809, 2384945; 610780, 2384942; 610766, 2384942; 610749, 2384953; 610709, 2384995; 610692, 2385014; 610679, 2385041; 610630, 2385180; 610616, 2385205; 610606, 2385215; 610606, 2385216; 610598, 2385220; 610558, 2385236; 610543, 2385248; 610533, 2385266; 610516, 2385329; 610509, 2385341; 610509, 2385342; 610497, 2385351; 610496, 2385351; 610454, 2385362; 610440, 2385362; 610394, 2385362; 610370, 2385370; 610333, 2385392; 610292, 2385406; 610280, 2385413; 610261, 2385429; 610248, 2385449; 610237, 2385473; 610222, 2385512; 610222, 2385513; 610214, 2385522; 610206, 2385531; 610206, 2385532; 610187, 2385540; 610166, 2385544; 610134, 2385558; 610129, 2385561; 610122, 2385580; 610119, 2385604; 610119, 2385605; 610112, 2385620; 610111, 2385621; 610093, 2385637; 610078, 2385652; 610077, 2385659; 610090, 2385687; 610097, 2385698; 610098, 2385699; 610098, 2385700; 610097, 2385705; 610097, 2385706; 610081, 2385734; 610054, 2385762; 610039, 2385790; 610028, 2385816; 610024, 2385839; 610027, 2385873; 610035, 2385901; 610035, 2385902; 610035, 2385943; 610035, 2385944; 610029, 2385956; 610029, 2385957; 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2387021; 609184, 2387014; 609134, 2387001; 609078, 2386982; 609074, 2386984; 609062, 2387000; 609048, 2387031; 609047, 2387032; 609025, 2387051; 608989, 2387068; 608988, 2387068; 608975, 2387068; 608974, 2387068; 608905, 2387055; 608862, 2387042; 608856, 2387043; 608849, 2387049; 608810, 2387121; 608794, 2387150; 608794, 2387151; 608776, 2387175; 608736, 2387223; 608719, 2387246; 608718, 2387246; 608693, 2387265; 608692, 2387265; 608643, 2387281; 608604, 2387303; 608603, 2387303; 608558, 2387325; 608497, 2387362; 608496, 2387362; 608459, 2387369; 608458, 2387369; 608435, 2387371; 608410, 2387366; 608377, 2387354; 608355, 2387351; 608336, 2387351; 608316, 2387358; 608308, 2387366; 608294, 2387395; 608292, 2387413; 608300, 2387459; 608299, 2387471; 608298, 2387472; 608289, 2387479; 608252, 2387489; 608234, 2387501; 608228, 2387506; 608223, 2387520; 608230, 2387572; 608232, 2387576; 608238, 2387590; 608252, 2387607; 608267, 2387627; 608267, 2387628; 608272, 2387642; 608275, 2387670; 608275, 2387671; 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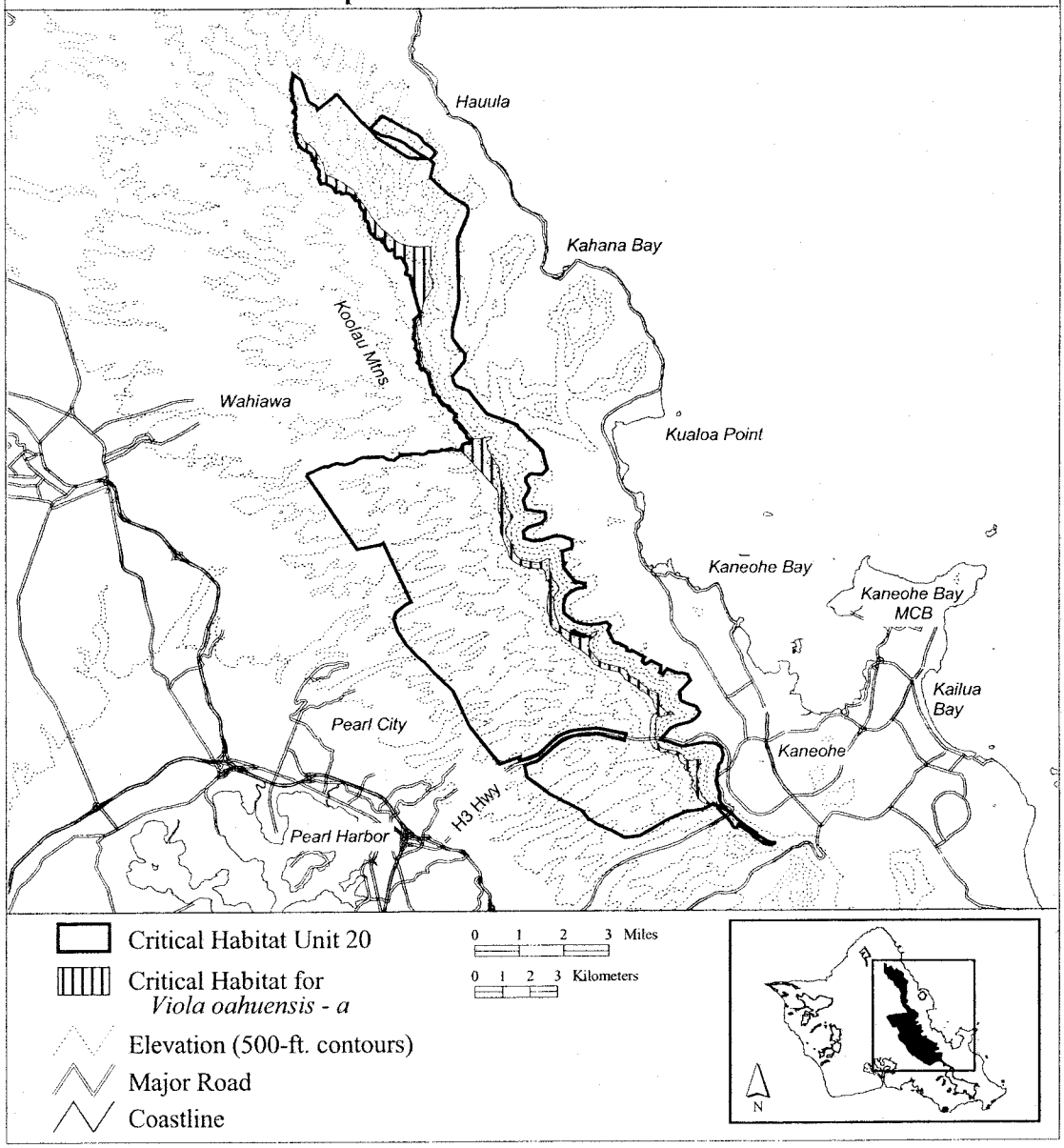
(ii) **Note:** Map 259 follows:

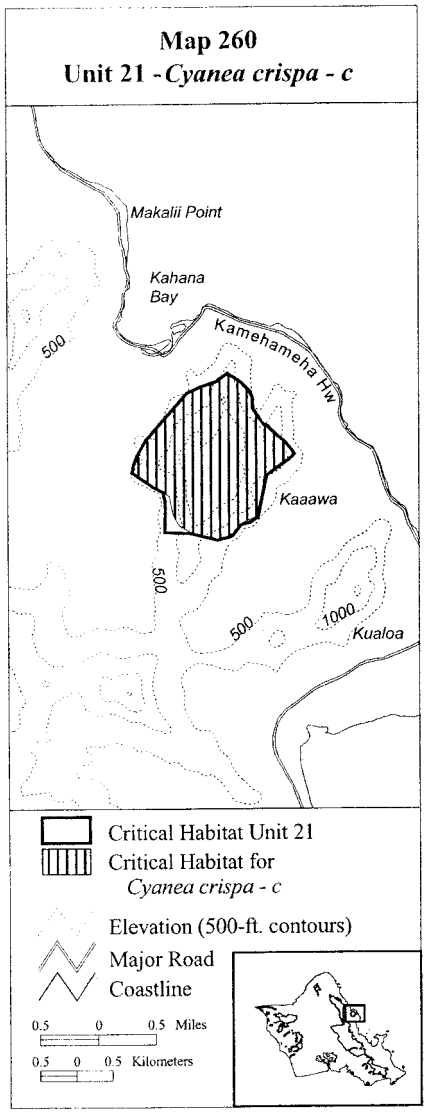
Map 259 Unit 20 - *Viola oahuensis - a*



(260) Oahu 21—*Cyanea crispa*—c (302 ha; 747 ac)

(i) Unit consists of the following 37 boundary points: Start at 617933, 2381390; 617892, 2381379; 617719, 2381338; 617384, 2381422; 617189, 2381542; 617110, 2381673; 617049, 2381956; 616835, 2382068; 616529, 2382272; 616554, 2382383; 616601, 2382510; 616729, 2382733; 617094, 2383146; 617300, 2383383; 617491, 2383463; 617713, 2383542; 617872, 2383652; 618044, 2383540; 618179, 2383410; 618225, 2383312; 618225, 2383164; 618360, 2382964; 618495, 2382829; 618656, 2382717; 618767, 2382588; 618804, 2382523; 618721, 2382449; 618563, 2382347; 618378, 2382198; 618350, 2382032; 618304, 2381819; 618258, 2381661; 618119, 2381597; 617980, 2381477; 617937, 2381395; 617934, 2381393; 617933, 2381392; return to starting point.

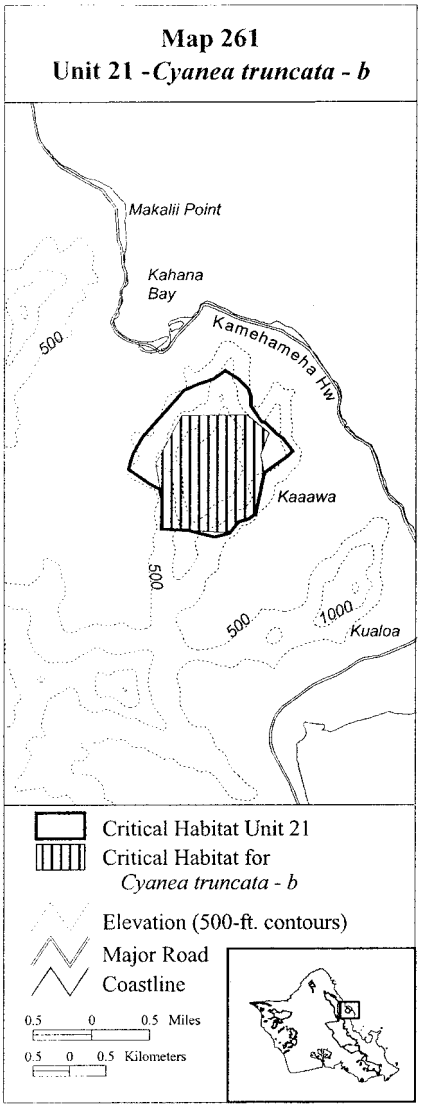
(ii) **Note:** Map 260 follows:



(261) Oahu 21—*Cyanea truncata*—b (211 ha; 520 ac)

(i) Unit consists of the following 23 boundary points: Start at 618479, 2382785; 618362, 2382482; 618416, 2382209; 618407, 2382202; 618406, 2382201; 618288, 2381653; 618264, 2381637; 618183, 2381582; 618057, 2381548; 617941, 2381398; 617940, 2381397; 616992, 2381447; 616996, 2381713; 616996, 2381862; 616998, 2381875; 616998, 2381876; 616997, 2381877; 616993, 2381879; 616985, 2381888; 616911, 2382352; 617268, 2383028; 618143, 2383034; 618178, 2383039; return to starting point.

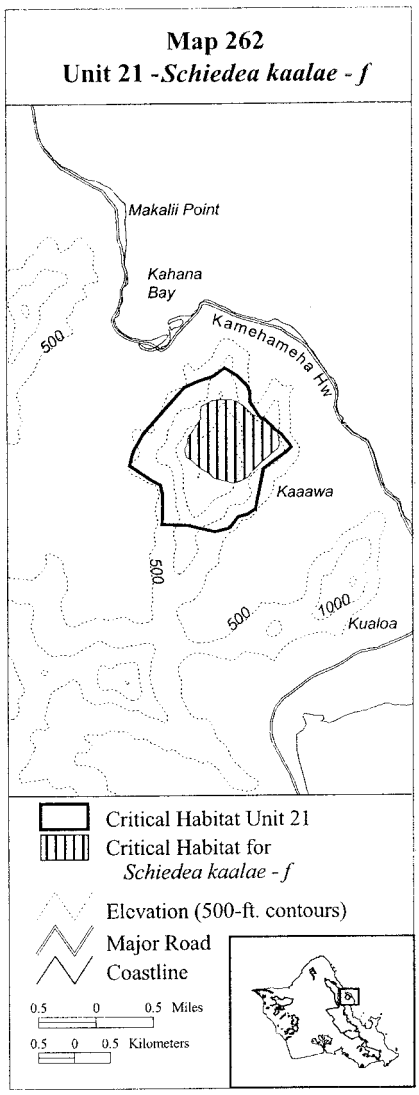
(ii) **Note:** Map 261 follows:



(262) Oahu 21—*Schiedea kaalae*—f (105 ha; 260 ac)

(i) Unit consists of the following 31 boundary points: Start at 617965, 2383203; 618037, 2383179; 618147, 2383102; 618264, 2382982; 618420, 2382928; 618471, 2382874; 618531, 2382829; 618614, 2382721; 618638, 2382581; 618620, 2382509; 618536, 2382443; 618387, 2382317; 618261, 2382195; 618189, 2382102; 618090, 2382057; 618004, 2382024; 617722, 2382091; 617650, 2382160; 617516, 2382246; 617429, 2382327; 617333, 2382396; 617312, 2382498; 617348, 2382579; 617357, 2382669; 617438, 2382781; 617495, 2382871; 617534, 2382931; 617531, 2383024; 617543, 2383114; 617701, 2383197; 617809, 2383206; return to starting point.

(ii) **Note:** Map 262 follows:

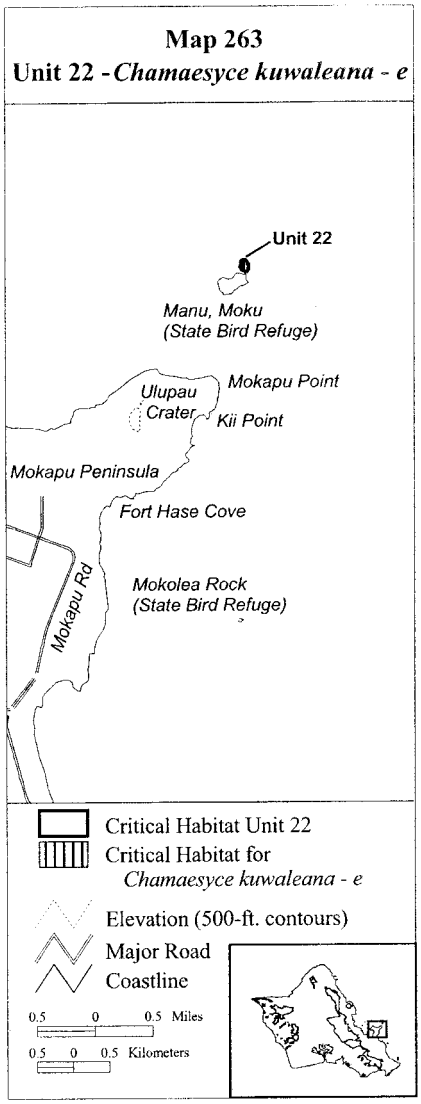


(263) Oahu 22—*Chamaesyce kuwaleana*—e (1 ha; 3 ac)

(i) Unit consists of the following 41 boundary points: Start at 632758, 2374821; 632752, 2374819; 632749, 2374820; 632735, 2374834; 632728, 2374841; 632710, 2374844; 632703, 2374848; 632695, 2374856; 632694, 2374865; 632682, 2374879; 632677, 2374886; 632677, 2374893; 632681,

2374899; 632688, 2374903; 632689, 2374903; 632695, 2374910; 632695, 2374911; 632696, 2374916; 632697, 2374917; 632696, 2374917; 632695, 2374920; 632691, 2374932; 632690, 2374948; 632694, 2374960; 632697, 2374967; 632707, 2374975; 632721, 2374981; 632736, 2374981; 632747, 2374977; 632756, 2374970; 632765, 2374955; 632774, 2374935; 632778, 2374927; 632779, 2374924; 632779, 2374923; 632781, 2374922; 632787, 2374905; 632787, 2374876; 632782, 2374856; 632774, 2374840; 632769, 2374833; return to starting point.

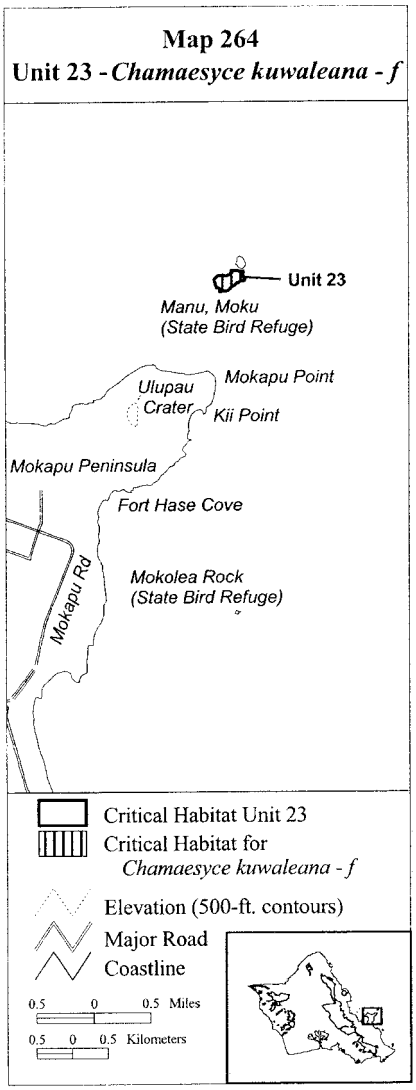
(ii) **Note:** Map 263 follows:



(264) Oahu 23—*Chamaesyce kuwaleana*—f (6 ha; 15 ac)

(i) Unit consists of the following 129 boundary points: Start at 632637, 2374611; 632629, 2374603; 632619, 2374595; 632608, 2374587; 632608, 2374586; 632597, 2374573; 632587, 2374562; 632581, 2374557; 632569, 2374552; 632562, 2374549; 632546, 2374546; 632534, 2374546; 632521, 2374547; 632507, 2374547; 632498, 2374546; 632497, 2374546; 632494, 2374543; 632486, 2374538; 632479, 2374535; 632475, 2374535; 632474, 2374536; 632473, 2374543; 632473, 2374550; 632470, 2374561; 632468, 2374569; 632468, 2374570; 632464, 2374575; 632464, 2374576; 632458, 2374582; 632451, 2374584; 632450, 2374584; 632442, 2374585; 632434, 2374589; 632428, 2374592; 632424, 2374597; 632420, 2374606; 632416, 2374616; 632412, 2374627; 632409, 2374637; 632406, 2374648; 632402, 2374660; 632399, 2374675; 632399, 2374685; 632399, 2374694; 632402, 2374698; 632411, 2374704; 632419, 2374712; 632427, 2374720; 632427, 2374721; 632433, 2374729; 632440, 2374734; 632444, 2374737; 632451, 2374740; 632459, 2374743; 632470, 2374743; 632481, 2374743; 632493, 2374748; 632499, 2374749; 632503, 2374748; 632510, 2374744; 632520, 2374741; 632529, 2374736; 632530, 2374736; 632539, 2374735; 632547, 2374735; 632548, 2374735; 632570, 2374745; 632579, 2374748; 632587, 2374751; 632595, 2374754; 632601, 2374757; 632606, 2374760; 632606, 2374761; 632610, 2374767; 632613, 2374772; 632615, 2374778; 632616, 2374786; 632616, 2374790; 632618, 2374793; 632620, 2374797; 632622, 2374799; 632627, 2374801; 632633, 2374802; 632644, 2374804; 632655, 2374805; 632668, 2374805; 632681, 2374803; 632694, 2374800; 632705, 2374797; 632721, 2374794; 632731, 2374790; 632732, 2374790; 632737, 2374791; 632738, 2374791; 632740, 2374792; 632743, 2374796; 632747, 2374797; 632752, 2374797; 632756, 2374795; 632760, 2374787; 632763, 2374778; 632763, 2374771; 632758, 2374768; 632750, 2374763; 632750, 2374762; 632749, 2374757; 632751, 2374749; 632755, 2374738; 632762, 2374727; 632770, 2374717; 632777, 2374707; 632783, 2374699; 632783, 2374690; 632781, 2374683; 632777, 2374679; 632767, 2374678; 632750, 2374674; 632738, 2374669; 632720, 2374663; 632694, 2374654; 632682, 2374650; 632681, 2374650; 632677, 2374646; 632677, 2374645; 632671, 2374638; 632668, 2374633; 632661, 2374628; 632641, 2374614; 632640, 2374614; return to starting point.

(ii) **Note:** Map 264 follows:

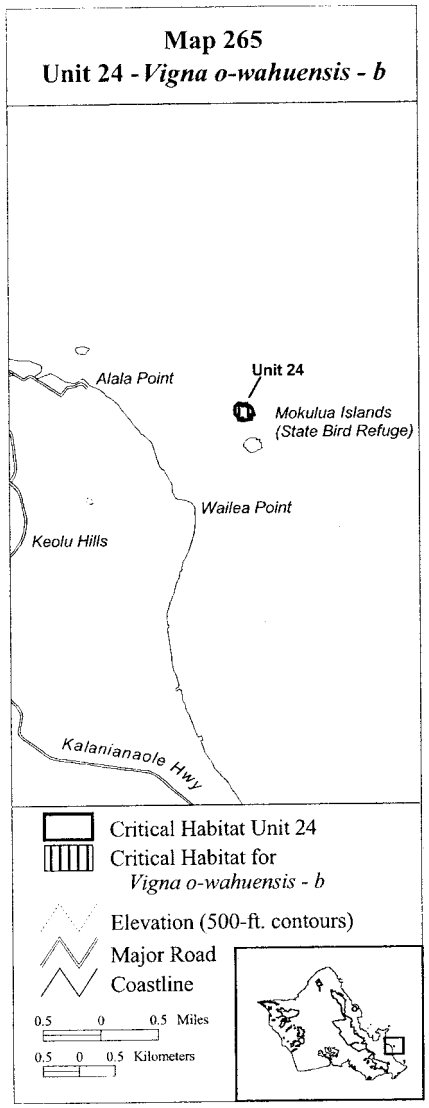


(265) Oahu 24—*Vigna o-wahuensis*—b (5 ha; 12 ac)

(i) Unit consists of the following 182 boundary points: Start at 634907, 2365956; 634895, 2365952; 634889, 2365949; 634884, 2365946; 634883, 2365946; 634879, 2365942; 634874, 2365938; 634871, 2365935; 634867, 2365934; 634863, 2365935; 634858, 2365937; 634857, 2365938; 634854, 2365938; 634853, 2365937; 634848, 2365936; 634844, 2365934; 634843, 2365935; 634842, 2365939; 634843, 2365942; 634843, 2365943; 634844, 2365947; 634846, 2365954; 634847, 2365960; 634847, 2365961; 634845, 2365964; 634845, 2365965; 634844, 2365965; 634838, 2365969; 634837, 2365969; 634836, 2365969; 634832, 2365968; 634831, 2365968; 634829, 2365966; 634828, 2365966; 634826, 2365963; 634823, 2365960; 634818, 2365954; 634812, 2365948; 634807, 2365947; 634802, 2365947; 634799, 2365947; 634796, 2365950; 634792,

2365956; 634788, 2365963; 634784, 2365969; 634784, 2365977; 634782, 2365983; 634782, 2365984; 634778, 2365989; 634778, 2365990; 634772, 2365995; 634762, 2366004; 634755, 2366010; 634749, 2366016; 634743, 2366023; 634741, 2366030; 634739, 2366040; 634738, 2366050; 634738, 2366057; 634737, 2366057; 634737, 2366068; 634737, 2366079; 634737, 2366088; 634740, 2366098; 634742, 2366104; 634742, 2366105; 634742, 2366109; 634742, 2366110; 634739, 2366114; 634738, 2366120; 634738, 2366126; 634738, 2366134; 634739, 2366140; 634741, 2366144; 634749, 2366150; 634763, 2366160; 634791, 2366178; 634795, 2366181; 634799, 2366182; 634803, 2366182; 634804, 2366182; 634806, 2366183; 634807, 2366184; 634807, 2366187; 634808, 2366189; 634809, 2366189; 634813, 2366189; 634815, 2366188; 634819, 2366186; 634821, 2366184; 634824, 2366178; 634827, 2366170; 634829, 2366160; 634831, 2366153; 634832, 2366148; 634832, 2366147; 634833, 2366147; 634844, 2366143; 634847, 2366142; 634851, 2366142; 634852, 2366142; 634852, 2366143; 634853, 2366144; 634855, 2366148; 634859, 2366154; 634862, 2366159; 634864, 2366164; 634869, 2366166; 634874, 2366169; 634881, 2366172; 634887, 2366175; 634893, 2366177; 634899, 2366177; 634902, 2366174; 634905, 2366171; 634906, 2366165; 634904, 2366158; 634902, 2366149; 634902, 2366144; 634902, 2366143; 634905, 2366141; 634906, 2366141; 634913, 2366142; 634921, 2366142; 634926, 2366144; 634929, 2366146; 634933, 2366148; 634936, 2366148; 634939, 2366144; 634942, 2366135; 634943, 2366135; 634946, 2366129; 634946, 2366128; 634950, 2366126; 634951, 2366126; 634957, 2366124; 634962, 2366119; 634968, 2366114; 634975, 2366105; 634981, 2366095; 634987, 2366083; 634993, 2366061; 634996, 2366050; 634999, 2366035; 634999, 2366024; 634998, 2366020; 634992, 2366018; 634985, 2366018; 634985, 2366019; 634984, 2366018; 634975, 2366017; 634963, 2366016; 634962, 2366016; 634960, 2366014; 634959, 2366014; 634959, 2366013; 634960, 2366011; 634960, 2366010; 634962, 2366006; 634965, 2366003; 634967, 2366000; 634969, 2365996; 634968, 2365990; 634965, 2365985; 634964, 2365985; 634963, 2365979; 634961, 2365974; 634961, 2365973; 634962, 2365965; 634963, 2365961; 634961, 2365960; 634956, 2365955; 634951, 2365953; 634942, 2365952; 634934, 2365951; 634930, 2365950; 634926, 2365949; 634922, 2365950; 634916, 2365953; 634911, 2365956; 634911, 2365957; 634910, 2365956; return to starting point.

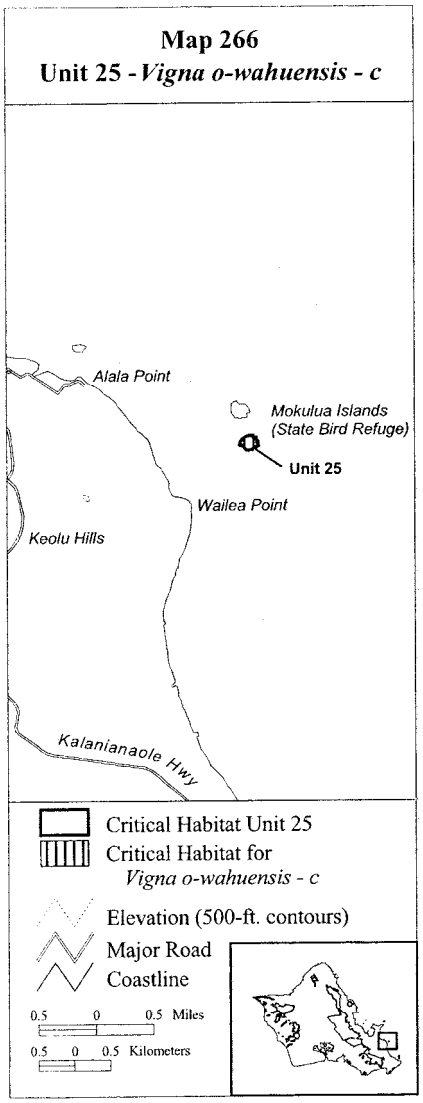
(ii) **Note:** Map 265 follows:



(266) Oahu 25—*Vigna o-wahuensis*—c (4 ha; 9 ac)

(i) Unit consists of the following 117 boundary points: Start at 635103, 2365593; 635104, 2365590; 635104, 2365589; 635105, 2365586; 635106, 2365574; 635107, 2365567; 635107, 2365566; 635108, 2365566; 635112, 2365561; 635116, 2365557; 635116, 2365552; 635111, 2365547; 635103, 2365543; 635091, 2365539; 635077, 2365535; 635065, 2365533; 635055, 2365530; 635054, 2365530; 635048, 2365523; 635042, 2365515; 635033, 2365507; 635028, 2365502; 635023, 2365498; 635015, 2365497; 635007, 2365497; 634993, 2365497; 634986, 2365497; 634986, 2365498; 634985, 2365497; 634980, 2365496; 634972, 2365497; 634958, 2365498; 634948, 2365500; 634938, 2365503; 634929, 2365511; 634921, 2365519; 634915, 2365529; 634914, 2365532; 634914, 2365533; 634906, 2365541; 634900, 2365548; 634893, 2365556; 634892, 2365557; 634887, 2365560; 634882, 2365562; 634876, 2365564; 634875, 2365565; 634875, 2365564; 634867, 2365564; 634861, 2365566; 634858, 2365567; 634857, 2365573; 634855, 2365579; 634854, 2365588; 634853, 2365592; 634856, 2365600; 634861, 2365606; 634862, 2365606; 634872, 2365624; 634887, 2365638; 634898, 2365648; 634898, 2365649; 634903, 2365654; 634910, 2365662; 634918, 2365671; 634928, 2365679; 634935, 2365684; 634944, 2365687; 634956, 2365691; 634967, 2365696; 634978, 2365699; 634990, 2365701; 634998, 2365698; 635005, 2365696; 635018, 2365695; 635027, 2365696; 635035, 2365698; 635037, 2365697; 635040, 2365694; 635041, 2365692; 635042, 2365688; 635041, 2365684; 635040, 2365681; 635039, 2365681; 635039, 2365678; 635039, 2365677; 635040, 2365675; 635040, 2365674; 635041, 2365674; 635046, 2365671; 635047, 2365671; 635054, 2365670; 635055, 2365670; 635062, 2365671; 635071, 2365671; 635078, 2365672; 635082, 2365672; 635084, 2365670; 635087, 2365666; 635087, 2365662; 635085, 2365658; 635085, 2365657; 635084, 2365652; 635083, 2365648; 635083, 2365647; 635086, 2365643; 635092, 2365637; 635099, 2365631; 635107, 2365625; 635110, 2365621; 635111, 2365616; 635110, 2365612; 635109, 2365608; 635104, 2365602; 635101, 2365599; 635101, 2365598; 635101, 2365597; return to starting point.

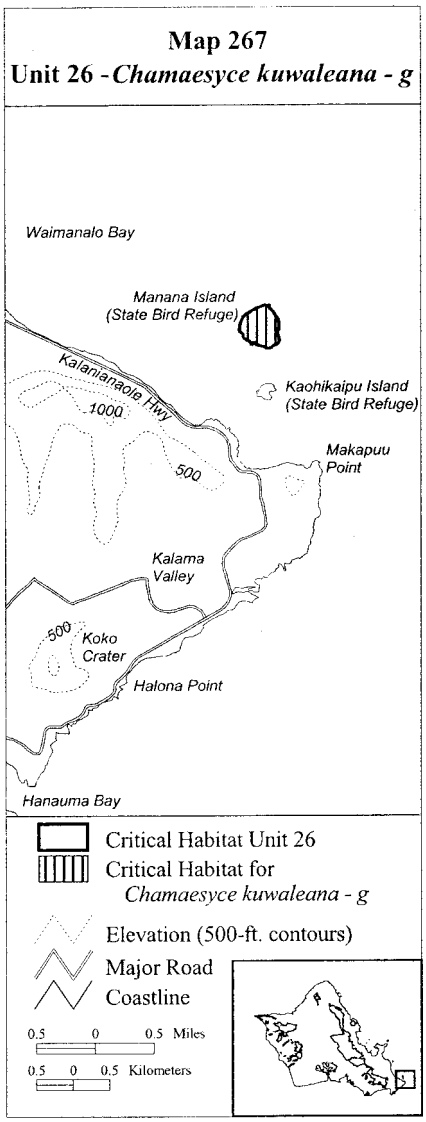
(ii) **Note:** Map 266 follows:



(267) Oahu 26—*Chamaesyce kuwaleana*—g (27 ha; 66 ac)

(i) Unit consists of the following 214 boundary points: Start at 639041, 2358964; 639029, 2358969; 639024, 2358973; 639019, 2358980; 639016, 2358988; 639015, 2358994; 639015, 2358998; 639014, 2359006; 639013, 2359012; 639012, 2359023; 639012, 2359024; 639009, 2359029; 639006, 2359034; 639005, 2359035; 639002, 2359038; 638998, 2359043; 638997, 2359043; 638992, 2359048; 638982, 2359054; 638972, 2359062; 638965, 2359067; 638959, 2359072; 638956, 2359077; 638955, 2359084; 638955, 2359090; 638959, 2359100; 638961, 2359105; 638962, 2359109; 638963, 2359116; 638964, 2359125; 638964, 2359139; 638966, 2359158; 638968, 2359166; 638972, 2359175; 638975, 2359185; 638980, 2359202; 638985, 2359213; 638990, 2359226; 638995, 2359239; 639003, 2359252; 639009, 2359267; 639016, 2359280; 639027, 2359291; 639035, 2359299; 639044, 2359307; 639057, 2359317; 639065, 2359323; 639076, 2359330; 639088, 2359336; 639107, 2359344; 639114, 2359349; 639122, 2359355; 639129, 2359360; 639137, 2359367; 639153, 2359376; 639167, 2359385; 639180, 2359392; 639190, 2359397; 639202, 2359404; 639210, 2359408; 639229, 2359417; 639241, 2359421; 639260, 2359429; 639278, 2359435; 639302, 2359444; 639312, 2359448; 639327, 2359452; 639337, 2359453; 639356, 2359453; 639369, 2359451; 639377, 2359449; 639383, 2359446; 639387, 2359442; 639391, 2359438; 639395, 2359434; 639396, 2359431; 639397, 2359426; 639398, 2359420; 639398, 2359416; 639399, 2359411; 639400, 2359407; 639400, 2359406; 639404, 2359403; 639413, 2359394; 639422, 2359387; 639430, 2359381; 639441, 2359370; 639450, 2359359; 639456, 2359350; 639463, 2359340; 639468, 2359332; 639474, 2359317; 639487, 2359300; 639495, 2359288; 639502, 2359276; 639510, 2359263; 639516, 2359251; 639520, 2359243; 639523, 2359239; 639525, 2359235; 639528, 2359229; 639531, 2359221; 639532, 2359216; 639533, 2359206; 639535, 2359193; 639536, 2359179; 639536, 2359168; 639539, 2359153; 639539, 2359142; 639540, 2359134; 639540, 2359129; 639540, 2359124; 639538, 2359112; 639536, 2359106; 639533, 2359100; 639529, 2359093; 639529, 2359092; 639526, 2359080; 639524, 2359071; 639524, 2359070; 639524, 2359056; 639523, 2359038; 639524, 2359025; 639526, 2359010; 639531, 2358995; 639534, 2358978; 639537, 2358968; 639540, 2358958; 639542, 2358950; 639543, 2358943; 639543, 2358938; 639543, 2358932; 639542, 2358923; 639539, 2358916; 639539, 2358915; 639537, 2358908; 639532, 2358898; 639526, 2358892; 639520, 2358887; 639508, 2358880; 639498, 2358876; 639487, 2358872; 639476, 2358867; 639468, 2358865; 639458, 2358860; 639450, 2358853; 639444, 2358848; 639439, 2358843; 639432, 2358837; 639426, 2358833; 639418, 2358829; 639409, 2358826; 639402, 2358822; 639395, 2358822; 639380, 2358822; 639370, 2358822; 639364, 2358824; 639355, 2358827; 639346, 2358832; 639335, 2358837; 639322, 2358842; 639309, 2358846; 639301, 2358849; 639293, 2358852; 639280, 2358856; 639265, 2358862; 639264, 2358862; 639253, 2358863; 639249, 2358866; 639241, 2358869; 639240, 2358869; 639236, 2358869; 639235, 2358869; 639230, 2358868; 639223, 2358867; 639220, 2358867; 639214, 2358867; 639211, 2358867; 639207, 2358872; 639201, 2358877; 639194, 2358884; 639186, 2358891; 639177, 2358898; 639172, 2358900; 639167, 2358901; 639166, 2358902; 639166, 2358901; 639162, 2358900; 639161, 2358900; 639158, 2358897; 639154, 2358895; 639154, 2358894; 639151, 2358891; 639148, 2358888; 639148, 2358887; 639144, 2358883; 639142, 2358881; 639137, 2358881; 639134, 2358881; 639130, 2358884; 639129, 2358886; 639124, 2358894; 639120, 2358902; 639117, 2358909; 639113, 2358915; 639106, 2358924; 639102, 2358929; 639095, 2358933; 639089, 2358936; 639082, 2358938; 639076, 2358941; 639069, 2358945; 639063, 2358948; 639058, 2358953; return to starting point.

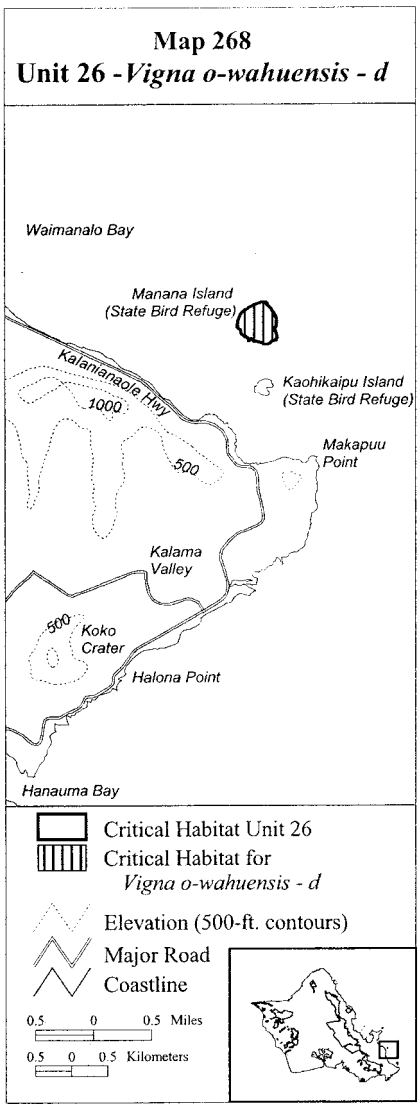
(ii) **Note:** Map 267 follows:



(268) Oahu 26—*Vigna o-wahuensis*—(27 ha; 66 ac)

(i) Unit consists of the following 214 boundary points: Start at 639041, 2358964; 639029, 2358969; 639024, 2358973; 639019, 2358980; 639016, 2358988; 639015, 2358994; 639015, 2358998; 639014, 2359006; 639013, 2359012; 639012, 2359023; 639012, 2359024; 639009, 2359029; 639006, 2359034; 639005, 2359035; 639002, 2359038; 638998, 2359043; 638997, 2359043; 638992, 2359048; 638982, 2359054; 638972, 2359062; 638965, 2359067; 638959, 2359072; 638956, 2359077; 638955, 2359084; 638955, 2359090; 638959, 2359100; 638961, 2359105; 638962, 2359109; 638963, 2359116; 638964, 2359125; 638964, 2359139; 638966, 2359158; 638968, 2359166; 638972, 2359175; 638975, 2359185; 638980, 2359202; 638985, 2359213; 638990, 2359226; 638995, 2359239; 639003, 2359252; 639009, 2359267; 639016, 2359280; 639027, 2359291; 639035, 2359299; 639044, 2359307; 639057, 2359317; 639065, 2359323; 639076, 2359330; 639088, 2359336; 639107, 2359344; 639114, 2359349; 639122, 2359355; 639129, 2359360; 639137, 2359367; 639153, 2359376; 639167, 2359385; 639180, 2359392; 639190, 2359397; 639202, 2359404; 639210, 2359408; 639229, 2359417; 639241, 2359421; 639260, 2359429; 639278, 2359435; 639302, 2359444; 639312, 2359448; 639327, 2359452; 639337, 2359453; 639356, 2359453; 639369, 2359451; 639377, 2359449; 639383, 2359446; 639387, 2359442; 639391, 2359438; 639395, 2359434; 639396, 2359431; 639397, 2359426; 639398, 2359420; 639398, 2359416; 639399, 2359411; 639400, 2359407; 639400, 2359406; 639404, 2359403; 639413, 2359394; 639422, 2359387; 639430, 2359381; 639441, 2359370; 639450, 2359359; 639456, 2359350; 639463, 2359340; 639468, 2359332; 639474, 2359317; 639487, 2359300; 639495, 2359288; 639502, 2359276; 639510, 2359263; 639516, 2359251; 639520, 2359243; 639523, 2359239; 639525, 2359235; 639528, 2359229; 639531, 2359221; 639532, 2359216; 639533, 2359206; 639535, 2359193; 639536, 2359179; 639536, 2359168; 639539, 2359153; 639539, 2359142; 639540, 2359134; 639540, 2359129; 639540, 2359124; 639538, 2359112; 639536, 2359106; 639533, 2359100; 639529, 2359093; 639529, 2359092; 639526, 2359080; 639524, 2359071; 639524, 2359070; 639524, 2359056; 639523, 2359038; 639524, 2359025; 639526, 2359010; 639531, 2358995; 639534, 2358978; 639537, 2358968; 639540, 2358958; 639542, 2358950; 639543, 2358943; 639543, 2358938; 639543, 2358932; 639542, 2358923; 639539, 2358916; 639539, 2358915; 639537, 2358908; 639532, 2358898; 639526, 2358892; 639520, 2358887; 639508, 2358880; 639498, 2358876; 639487, 2358872; 639476, 2358867; 639468, 2358865; 639458, 2358860; 639450, 2358853; 639444, 2358848; 639439, 2358843; 639432, 2358837; 639426, 2358833; 639418, 2358829; 639409, 2358826; 639402, 2358822; 639395, 2358822; 639380, 2358822; 639370, 2358822; 639364, 2358824; 639355, 2358827; 639346, 2358832; 639335, 2358837; 639322, 2358842; 639309, 2358846; 639301, 2358849; 639293, 2358852; 639280, 2358856; 639265, 2358862; 639264, 2358862; 639253, 2358863; 639249, 2358866; 639241, 2358869; 639240, 2358869; 639236, 2358869; 639235, 2358869; 639230, 2358868; 639223, 2358867; 639220, 2358867; 639214, 2358867; 639211, 2358867; 639207, 2358872; 639201, 2358877; 639194, 2358884; 639186, 2358891; 639177, 2358898; 639172, 2358900; 639167, 2358901; 639166, 2358902; 639166, 2358901; 639162, 2358900; 639161, 2358900; 639158, 2358897; 639154, 2358895; 639154, 2358894; 639151, 2358891; 639148, 2358888; 639148, 2358887; 639144, 2358883; 639142, 2358881; 639137, 2358881; 639134, 2358881; 639130, 2358884; 639129, 2358886; 639124, 2358894; 639120, 2358902; 639117, 2358909; 639113, 2358915; 639106, 2358924; 639102, 2358929; 639095, 2358933; 639089, 2358936; 639082, 2358938; 639076, 2358941; 639069, 2358945; 639063, 2358948; 639058, 2358953; return to starting point.

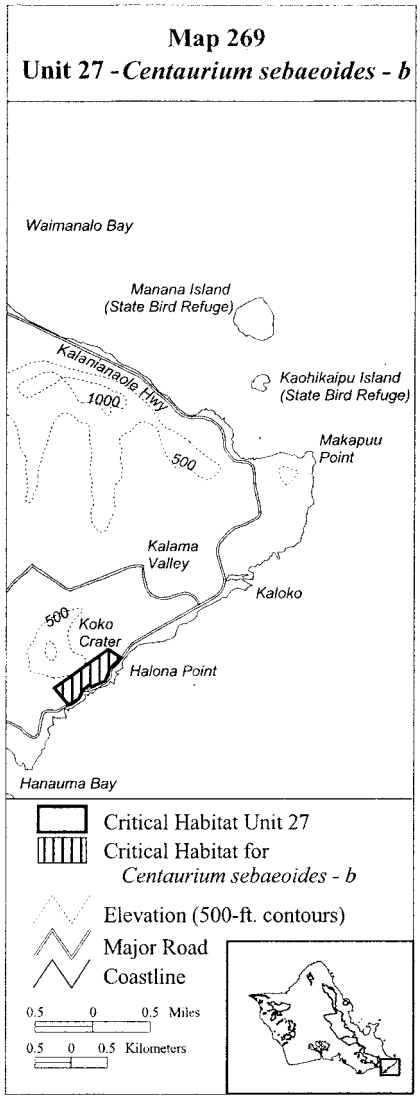
(ii) **Note:** Map 268 follows:



(269) Oahu 27—*Centaurium sebaeoides*—b (30 ha; 74 ac)

(i) Unit consists of the following 12 boundary points: Start at 636505, 2353431; 636303, 2353668; 637100, 2354241; 637297, 2354115; 637128, 2353956; 637052, 2353771; 636871, 2353692; 636811, 2353706; 636712, 2353621; 636657, 2353510; 636560, 2353454; 636508, 2353427; return to starting point.

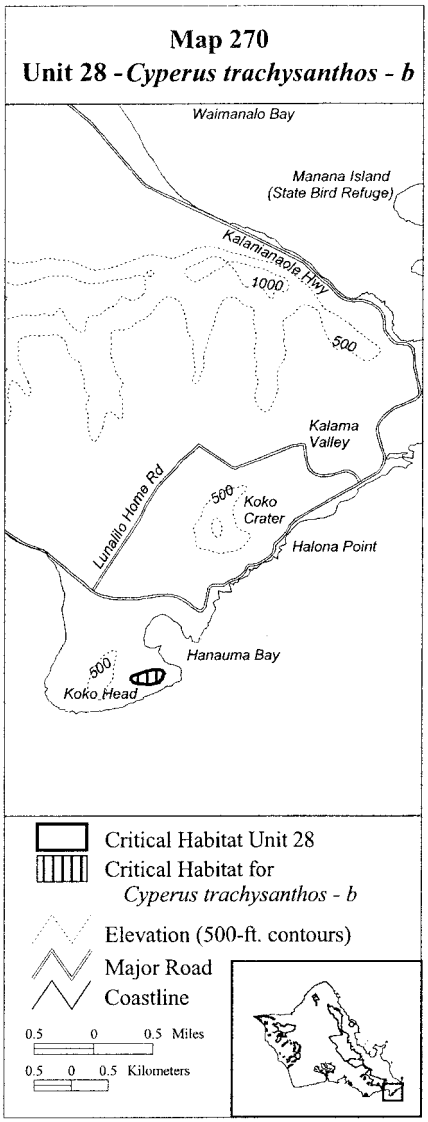
(ii) **Note:** Map 269 follows:



(270) Oahu 28—*Cyperus trachysanthos*—b (8 ha; 20 ac)

(i) Unit consists of the following 23 boundary points: Start at 635001, 2351956; 635110, 2351995; 635197, 2352022; 635282, 2352041; 635351, 2352039; 635434, 2352026; 635460, 2351985; 635438, 2351945; 635432, 2351917; 635414, 2351893; 635382, 2351869; 635338, 2351841; 635288, 2351826; 635247, 2351815; 635219, 2351815; 635158, 2351822; 635101, 2351828; 635053, 2351832; 634997, 2351852; 634971, 2351876; 634951, 2351893; 634949, 2351906; 634966, 2351939; return to starting point.

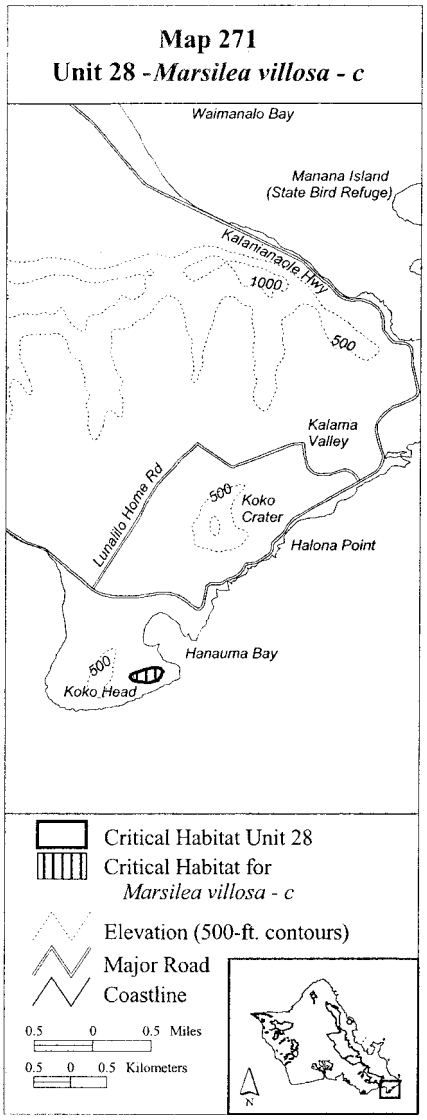
(ii) **Note:** Map 270 follows:



(271) Oahu 28—*Marsilea villosa*—c (7 ha; 18 ac)

(i) Unit consists of the following 14 boundary points: Start at 635006, 2351930; 635107, 2351989; 635178, 2352022; 635269, 2352038; 635357, 2352041; 635428, 2352038; 635441, 2351986; 635409, 2351898; 635383, 2351852; 635308, 2351830; 635246, 2351817; 635129, 2351826; 635035, 2351859; 635012, 2351898; return to starting point.

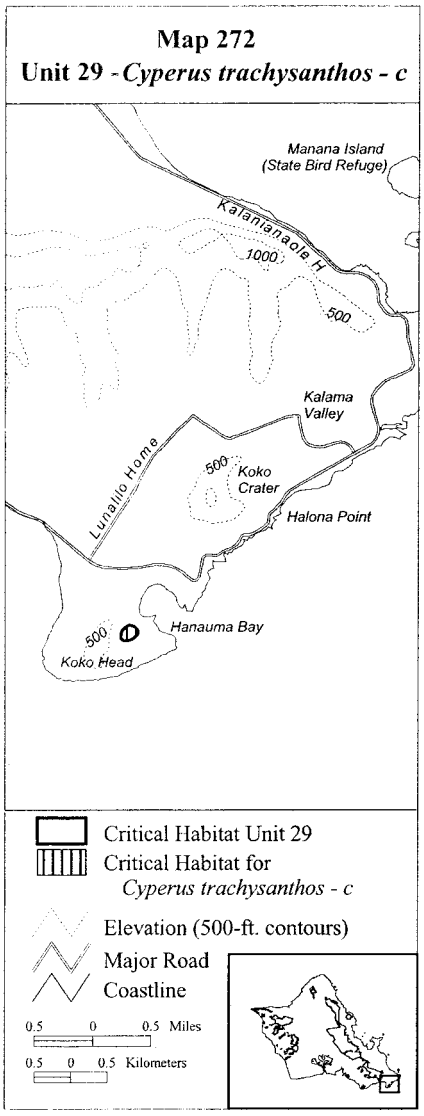
(ii) **Note:** Map 271 follows:

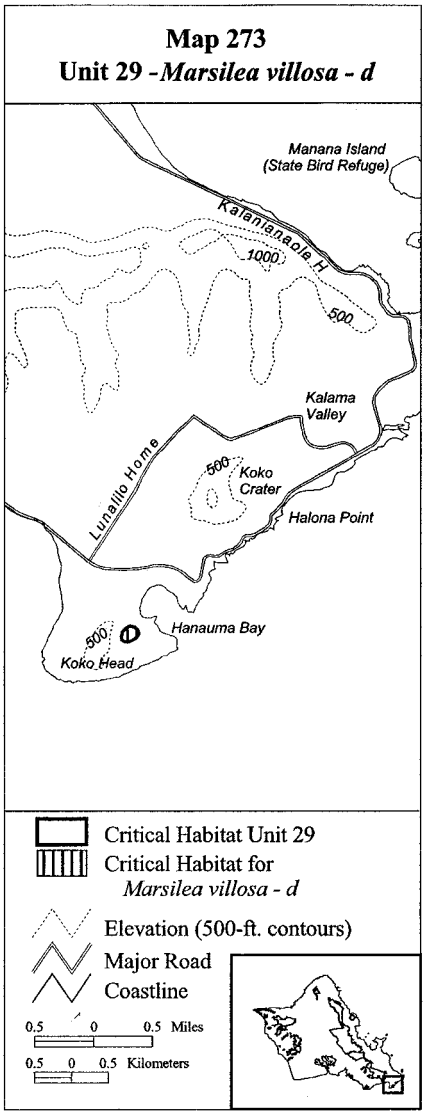


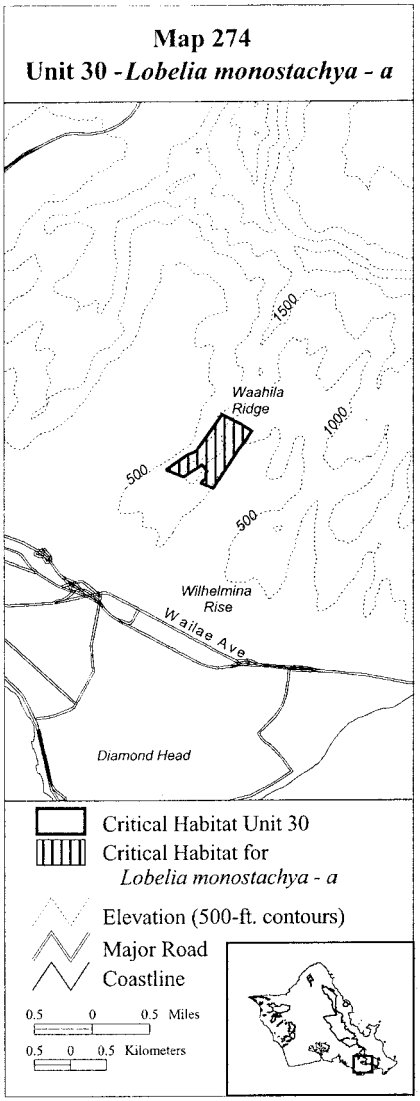
(272) Oahu 29—*Cyperus trachysanthos*—c (4 ha; 10 ac)

(i) Unit consists of the following 15 boundary points: Start at 634916, 2352187; 634932, 2352204; 634977, 2352241; 635034, 2352241; 635069, 2352232; 635108, 2352195; 635108, 2352137; 635086, 2352098; 635064, 2352067; 635021, 2352030; 634962, 2352004; 634921, 2352017; 634875, 2352043; 634873, 2352087; 634875, 2352135; return to starting point.

(ii) **Note:** Map 272 follows:







(273) Oahu 29—*Marsilea villosa*—d (5 ha; 11 ac)

(i) Unit consists of the following 13 boundary points: Start at 634980, 2352018; 634908, 2352018; 634873, 2352038; 634869, 2352090; 634886, 2352155; 634928, 2352207; 634999, 2352252; 635068, 2352236; 635116, 2352194; 635129, 2352152; 635123, 2352109; 635090, 2352064; 635035, 2352031; return to starting point.

(ii) **Note:** Map 273 follows:

(274) Oahu 30—*Lobelia monostachya*—a (60 ha; 148 ac)

(i) Unit consists of the following 27 boundary points: Start at 624168, 2356522; 624519, 2356753; 624644, 2356802; 624645, 2356802; 624645, 2356803; 624648, 2356804; 624902, 2357165; 625018, 2357329; 625039, 2357383; 625337, 2357226; 625511, 2357122; 625420, 2356986; 625323, 2356853; 624917, 2356242; 624907, 2356227; 624732, 2356309; 624741, 2356330; 624795, 2356390; 624800, 2356466; 624811, 2356492; 624811, 2356493; 624734, 2356593; 624734, 2356594; 624733, 2356594; 624732, 2356594; 624709, 2356578; 624454, 2356409; return to starting point.

(ii) **Note:** Map 274 follows:

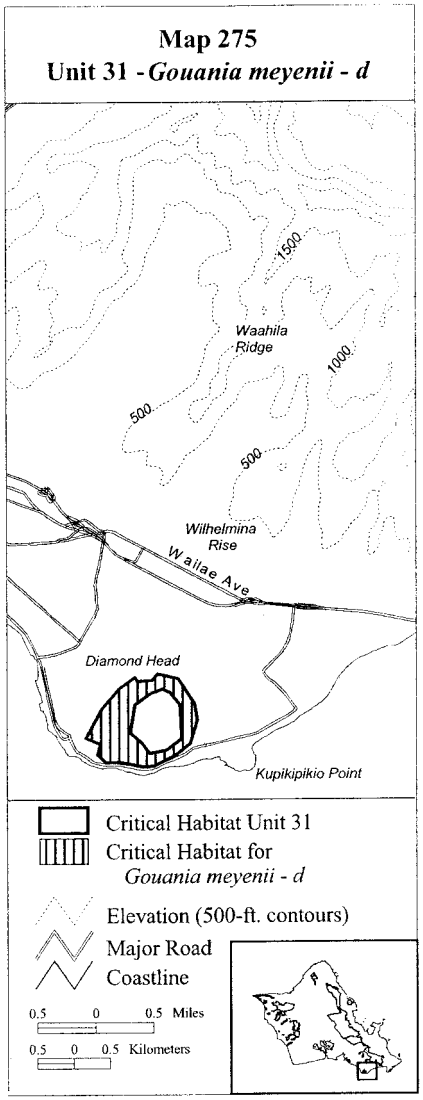
(275) Oahu 31—*Gouania meyenii*—d (116 ha; 286 ac)

(i) Unit consists of the following 22 boundary points: Start at 624109, 2351193; 624110, 2351193; 624344, 2351374; 624344, 2351375; 624322, 2351901; 624322, 2351902; 624173, 2352081; 624173, 2352082; 624049, 2352143; 624048, 2352143; 624047, 2352143; 623860, 2352077; 623615, 2351898; 623615, 2351897; 623614, 2351897; 623548, 2351462; 623548, 2351461; 623549, 2351460; 623733, 2351300; 623846, 2351144; 623846, 2351143; 623847, 2351143; return to starting point.

(ii) Excluding one area bounded by the following 22 points (59 ha, 146 ac): Start at 624110, 2351193; 624344, 2351374; 624344, 2351375; 624322, 2351901; 624322, 2351902; 624173, 2352081; 624173, 2352082; 624049, 2352143; 624048, 2352143; 624047, 2352143; 623860, 2352077; 623615, 2351898; 623615, 2351897; 623614,

2351897; 623548, 2351462; 623548, 2351461; 623549, 2351460; 623733, 2351300; 623846, 2351144; 623846, 2351143; 623847, 2351143; 624109, 2351193; return to starting point.

(iii) **Note:** Map 275 follows:

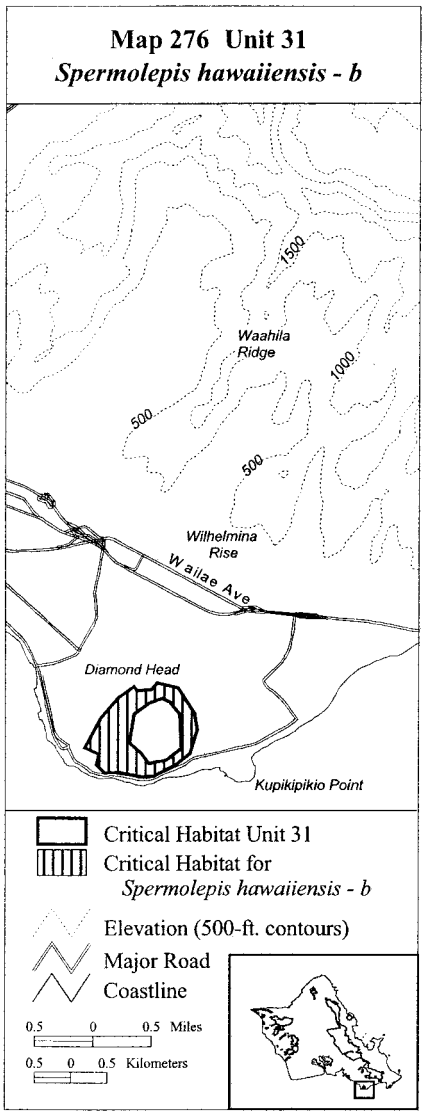


(276) Oahu 31—*Spermolepis hawaiiensis*—b (116 ha; 286 ac)

(i) Unit consists of the following 22 boundary points: Start at 624109, 2351193; 624110, 2351193; 624344, 2351374; 624344, 2351375; 624322, 2351901; 624322, 2351902; 624173, 2352081; 624173, 2352082; 624049, 2352143; 624048, 2352143; 624047, 2352143; 623860, 2352077; 623615, 2351898; 623615, 2351897; 623614, 2351897; 623548, 2351462; 623548, 2351461; 623549, 2351460; 623733, 2351300; 623846, 2351144; 623846, 2351143; 623847, 2351143; return to starting point.

(ii) Excluding one area bounded by the following 22 points (59ha, 146ac): Start at 624110, 2351193; 624344, 2351374; 624344, 2351375; 624322, 2351901; 624322, 2351902; 624173, 2352081; 624173, 2352082; 624049, 2352143; 624048, 2352143; 624047, 2352143; 623860, 2352077; 623615, 2351898; 623615, 2351897; 623614, 2351897; 623548, 2351462; 623548, 2351461; 623549, 2351460; 623733, 2351300; 623846, 2351144; 623846, 2351143; 623847, 2351143; 624109, 2351193; return to starting point.

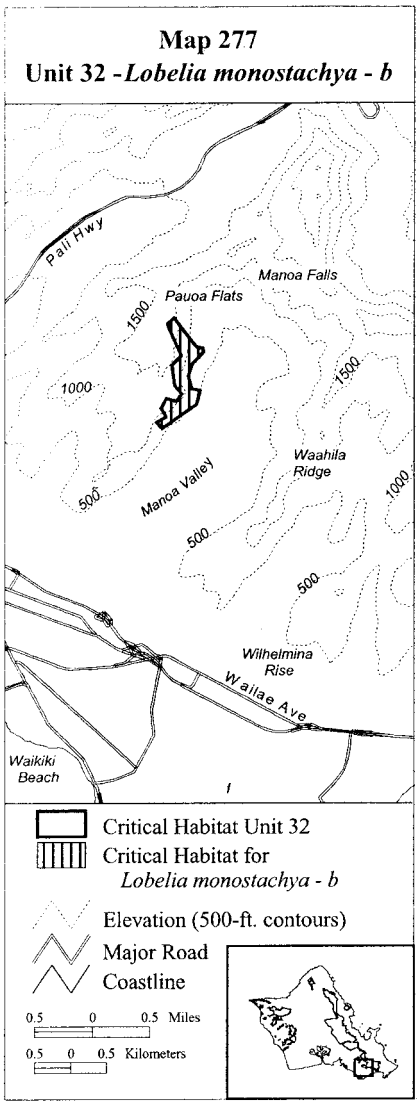
(iii) **Note:** Map 276 follows:



(277) Oahu 32—*Lobelia monostachya*—b (47 ha; 115 ac)

(i) Unit consists of the following 35 boundary points: Start at 623244, 2359774; 623355, 2359864; 623692, 2359434; 623717, 2359408; 623802, 2359404; 623814, 2359345; 623641, 2359143; 623578, 2358957; 623633, 2358768; 623759, 2358742; 623756, 2358730; 623701, 2358521; 623169, 2358151; 623083, 2358237; 623230, 2358329; 623230, 2358330; 623230, 2358331; 623154, 2358462; 623236, 2358610; 623388, 2358571; 623389, 2358571; 623390, 2358571; 623390, 2358572; 623478, 2358682; 623478, 2358683; 623453, 2358712; 623368, 2358817; 623353, 2358925; 623325, 2359134; 623469, 2359270; 623469, 2359271; 623469, 2359272; 623466, 2359279; 623468, 2359282; 623359, 2359518; return to starting point.

(ii) **Note:** Map 277 follows:

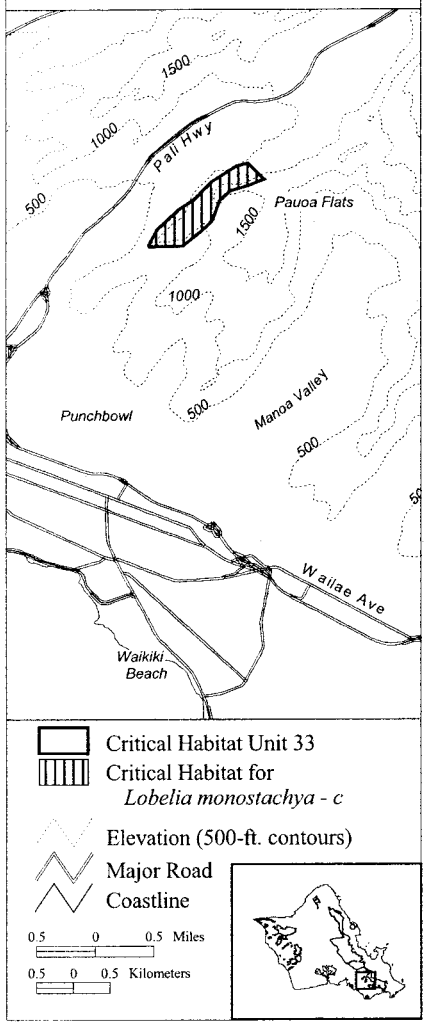


(278) Oahu 33—*Lobelia monostachya*—c (71 ha; 175 ac)

(i) Unit consists of the following 15 boundary points: Start at 621273, 2359524; 621269, 2359528; 621405, 2359780; 621744, 2360094; 621991, 2360258; 622260, 2360527; 622646, 2360763; 622811, 2360807; 623064, 2360560; 622811, 2360460; 622539, 2360384; 622376, 2360243; 622273, 2359934; 622138, 2359803; 621801, 2359537; return to starting point.

(ii) **Note:** Map 278 follows:

Map 278
Unit 33 -*Lobelia monostachya - c*

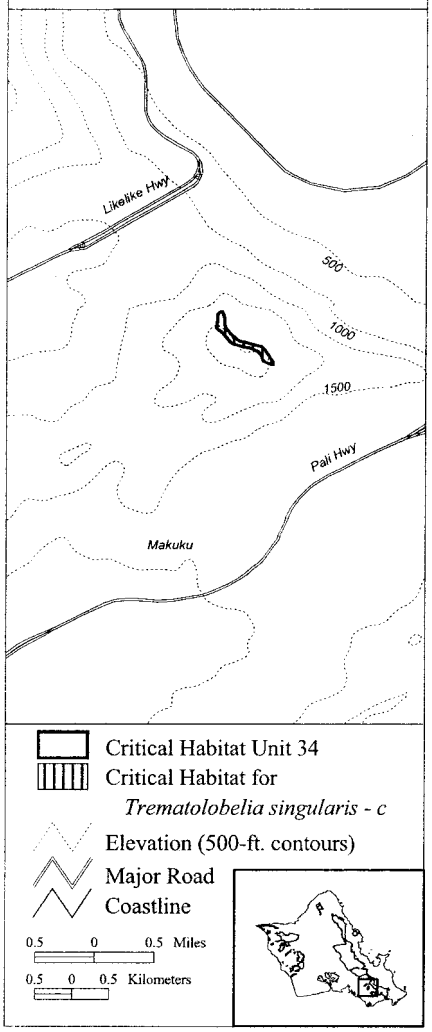


(279) Oahu 34—*Trematolobelia singularis*—c (2 ha; 5 ac)

(i) Unit consists of the following 32 boundary points: Start at 623343, 2363728; 623355, 2363728; 623364, 2363711; 623372, 2363677; 623371, 2363634; 623385, 2363607; 623414, 2363575; 623451, 2363542; 623476, 2363526; 623521, 2363513; 623563, 2363503; 623622, 2363488; 623649, 2363460; 623683, 2363405; 623700, 2363384; 623701, 2363365; 623686, 2363363; 623656, 2363376; 623636, 2363388; 623618, 2363424; 623600, 2363454; 623552, 2363477; 623493, 2363486; 623428, 2363505; 623409, 2363516; 623380, 2363554; 623357, 2363581; 623338, 2363598; 623319, 2363613; 623323, 2363648; 623326, 2363680; 623327, 2363707; return to starting point.

(ii) **Note:** Map 279 follows:

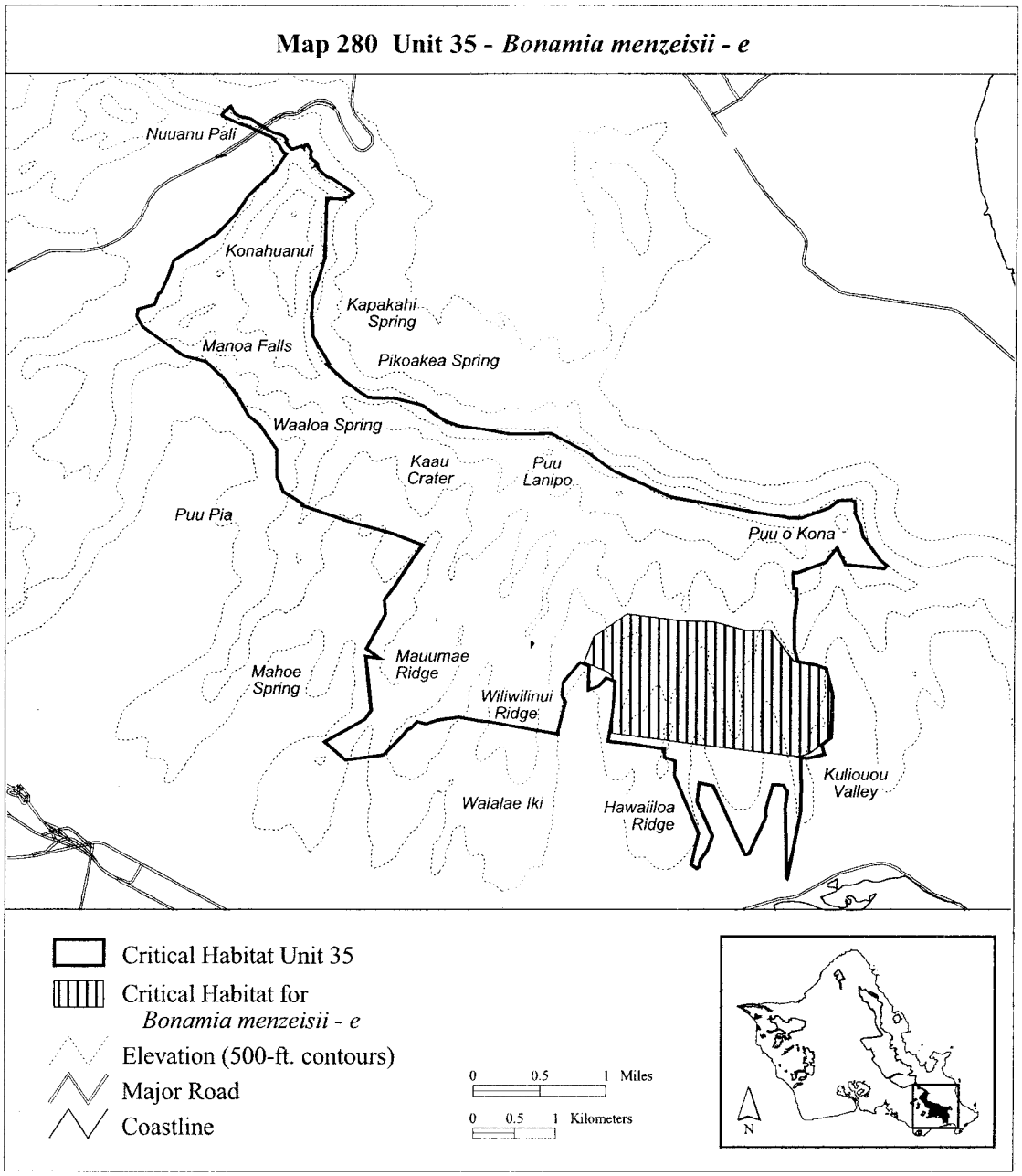
Map 279 Unit 34
Trematolobelia singularis - c



(280) Oahu 35—*Bonamia menziesii*—e (374 ha; 923 ac)

(i) Unit consists of the following 18 boundary points: Start at 629086, 2356780; 629201, 2357084; 629606, 2357366; 630257, 2357286; 630655, 2357272; 631038, 2357163; 631327, 2357170; 631609, 2356794; 631877, 2356751; 632000, 2356700; 632072, 2356404; 632058, 2355876; 631812, 2355681; 631674, 2355645; 630640, 2355768; 629404, 2355928; 629462, 2356549; 629375, 2356657; return to starting point.

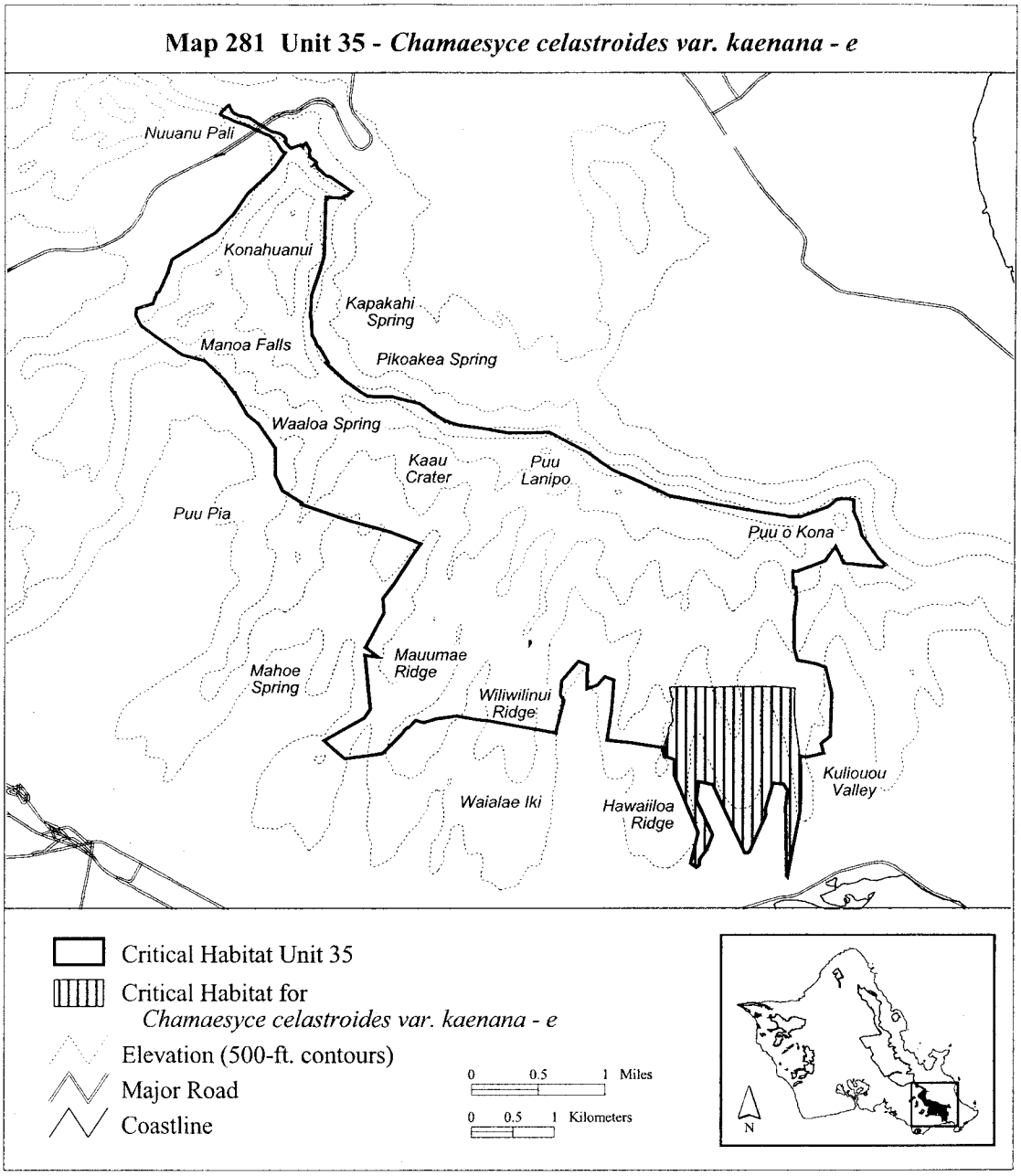
(ii) **Note:** Map 280 follows:



(281) Oahu 35—*Chamaesyce celastroides var. kaenana*—e (238 ha; 588 ac)

(i) Unit consists of the following 70 boundary points: Start at 630069, 2355613; 630055, 2355683; 630069, 2355782; 630115, 2355917; 630117, 2355972; 630168, 2356052; 630166, 2356126; 630151, 2356177; 630170, 2356314; 630142, 2356382; 630132, 2356461; 630142, 2356466; 630187, 2356468; 630387, 2356468; 630650, 2356466; 630903, 2356468; 631279, 2356468; 631394, 2356468; 631628, 2356449; 631621, 2356331; 631623, 2356148; 631638, 2355948; 631662, 2355818; 631694, 2355602; 631693, 2355601; 631693, 2355600; 631701, 2355280; 631697, 2354977; 631536, 2354177; 631533, 2354184; 631525, 2354596; 631529, 2354705; 631522, 2354734; 631518, 2354916; 631517, 2354919; 631511, 2355000; 631542, 2355222; 631516, 2355248; 631493, 2355297; 631363, 2355306; 631277, 2355000; 631285, 2354918; 631284, 2354916; 631283, 2354916; 631081, 2354472; 631034, 2354467; 630645, 2355292; 630645, 2355293; 630644, 2355293; 630484, 2355324; 630483, 2355324; 630482, 2355323; 630455, 2355102; 630455, 2355101; 630642, 2354688; 630575, 2354506; 630566, 2354490; 630493, 2354399; 630486, 2354322; 630453, 2354295; 630390, 2354343; 630473, 2354715; 630473, 2354716; 630187, 2355415; 630193, 2355589; 630102, 2355623; 630101, 2355624; 630101, 2355625; 630100, 2355625; 630099, 2355625; return to starting point.

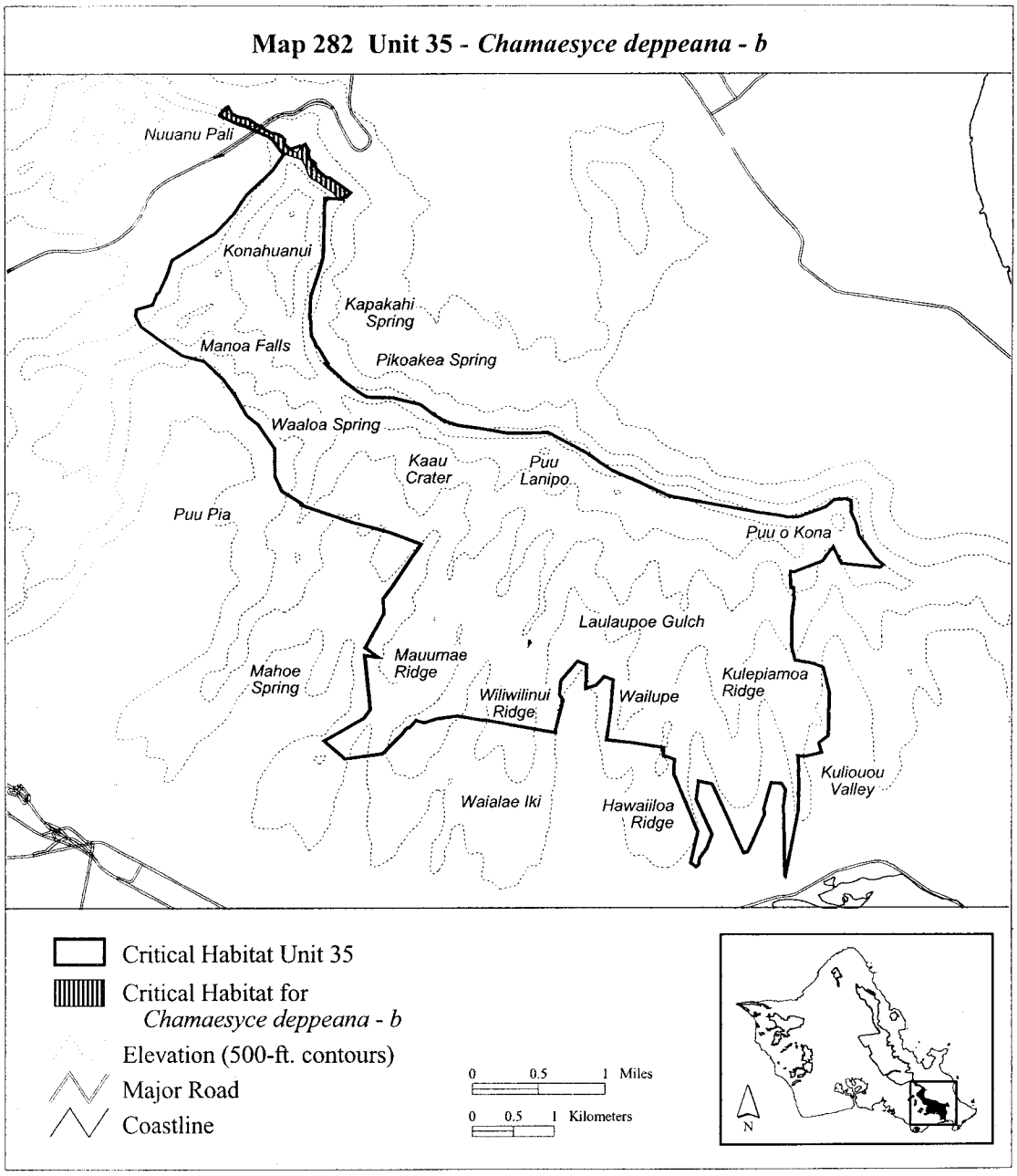
(ii) **Note:** Map 281 follows:



(282) Oahu 35—*Chamaesyce deppeana*—b (19 ha; 47 ac)

(i) Unit consists of the following 71 boundary points: Start at 624710, 2363371; 624704, 2363385; 624721, 2363406; 624754, 2363442; 624783, 2363468; 624809, 2363480; 624859, 2363397; 624925, 2363364; 624987, 2363347; 625052, 2363337; 625116, 2363295; 625176, 2363254; 625290, 2363182; 625335, 2363163; 625376, 2363161; 625417, 2363145; 625460, 2363118; 625486, 2363082; 625483, 2363045; 625510, 2363008; 625547, 2362971; 625588, 2362949; 625624, 2362933; 625650, 2362939; 625665, 2362968; 625690, 2362985; 625703, 2363013; 625729, 2363029; 625730, 2363028; 625777, 2362945; 625776, 2362902; 625784, 2362858; 625829, 2362823; 625853, 2362797; 625843, 2362776; 625853, 2362787; 625872, 2362725; 625896, 2362687; 625924, 2362659; 625955, 2362641; 625994, 2362628; 626024, 2362620; 626028, 2362620; 626279, 2362444; 626232, 2362397; 626194, 2362389; 626136, 2362372; 626088, 2362415; 626075, 2362435; 626062, 2362444; 625972, 2362510; 625888, 2362572; 625805, 2362613; 625771, 2362659; 625752, 2362715; 625733, 2362770; 625738, 2362766; 625724, 2362780; 625698, 2362830; 625671, 2362852; 625595, 2362871; 625540, 2362897; 625464, 2362918; 625438, 2362942; 625390, 2363018; 625328, 2363095; 625293, 2363123; 625231, 2363145; 625131, 2363190; 625004, 2363245; 624904, 2363282; return to starting point.

(ii) **Note:** Map 282 follows:

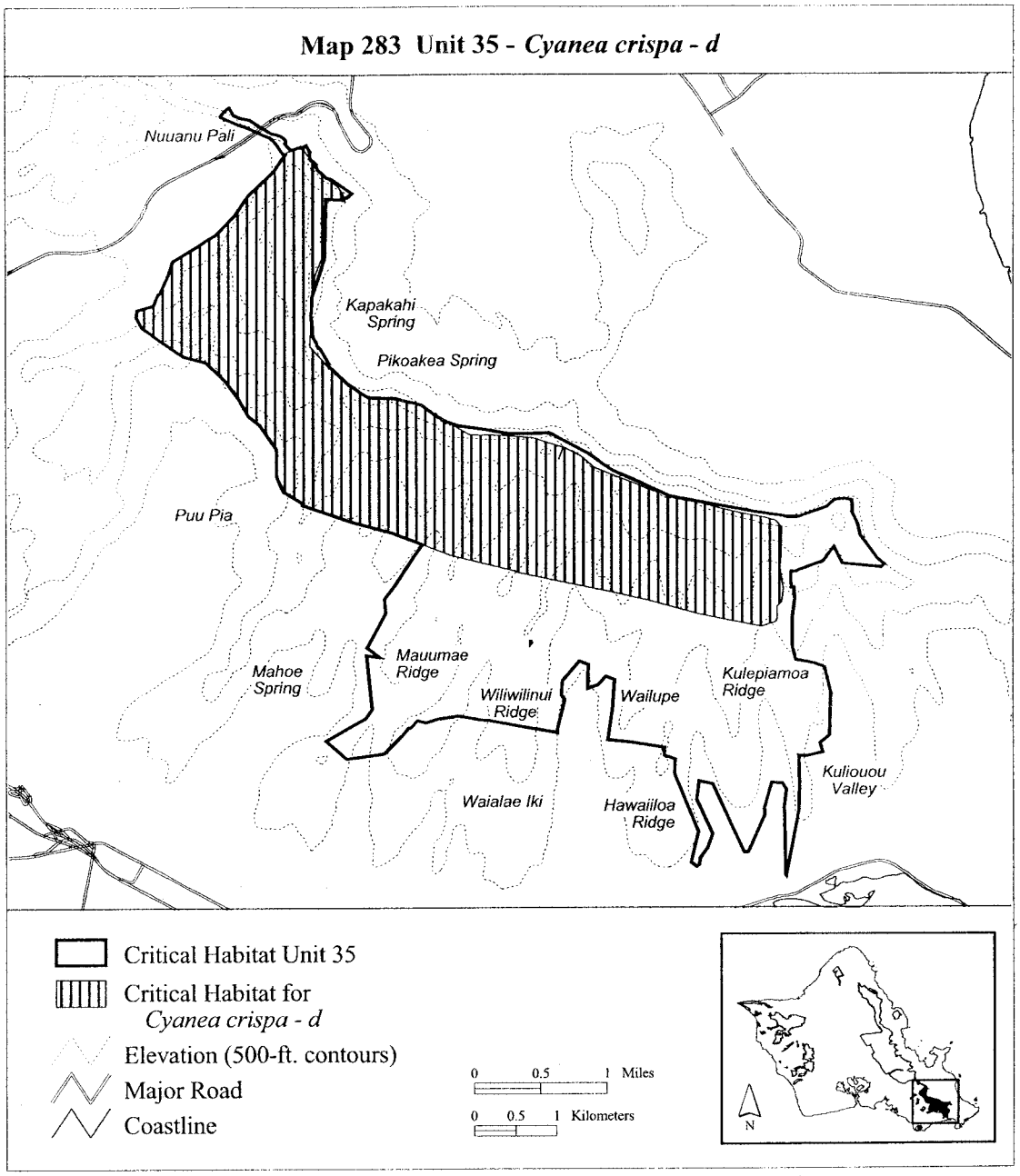


(283) Oahu 35—*Cyanea crispa*—d (1,336 ha; 3,301 ac)

(i) Unit consists of the following 98 boundary points: Start at 623944, 2361231; 623966, 2361243; 624062, 2361457; 624128, 2361633; 624397, 2361796; 624487, 2361853; 624497, 2361858; 624498, 2361858; 624502, 2361863; 624648, 2361955; 624873, 2362180; 625030, 2362416; 625040, 2362426; 625350, 2362723; 625502, 2362941; 625666, 2363011; 625734, 2362935; 625866, 2362736; 625998, 2362617; 626117, 2362524; 626170, 2362445; 626184, 2362366; 625959, 2362379; 625945, 2361955; 625945, 2361730; 625839, 2361465; 625800, 2361201; 625791, 2361007; 625783, 2360976; 625783, 2360975; 625789, 2360950; 625773, 2360605; 625998, 2360354; 626237, 2360115; 626475, 2359983; 626887, 2359949; 627102, 2359895; 627121, 2359883; 627282, 2359763; 627395, 2359699; 627408, 2359690; 627411, 2359689; 627473, 2359654; 627708, 2359529; 628098, 2359518; 628484, 2359486; 628840, 2359373; 628785, 2359224; 628843, 2359377; 629050, 2359268; 629218, 2359127; 629499, 2359010; 629714, 2358932; 629847, 2358866; 630108, 2358784; 630292, 2358725; 630510, 2358694; 630725, 2358631; 630998, 2358573; 631279, 2358518; 631412, 2358483; 631482, 2358393; 631478, 2358089; 631466, 2357898; 631506, 2357656; 631482, 2357496; 631431, 2357429; 631431, 2357293; 631412, 2357250; 631248, 2357195; 630826, 2357273; 630491, 2357343; 629874, 2357511; 629343, 2357636; 628949, 2357714; 628266, 2357862; 628269, 2357871; 627485, 2358059; 626771, 2358332; 626283, 2358472; 625686, 2358675; 625690, 2358695; 625455, 2358843; 625373, 2359027; 625376, 2359349; 625164, 2359653; 625032, 2359759; 624900, 2359996; 624754, 2360181; 624529, 2360406; 624245, 2360483; 623937, 2360701; 623750, 2360834; 623679, 2360963; 623691,

2361043; 623890, 2361096; 623891, 2361096; 623891, 2361097; return to starting point.

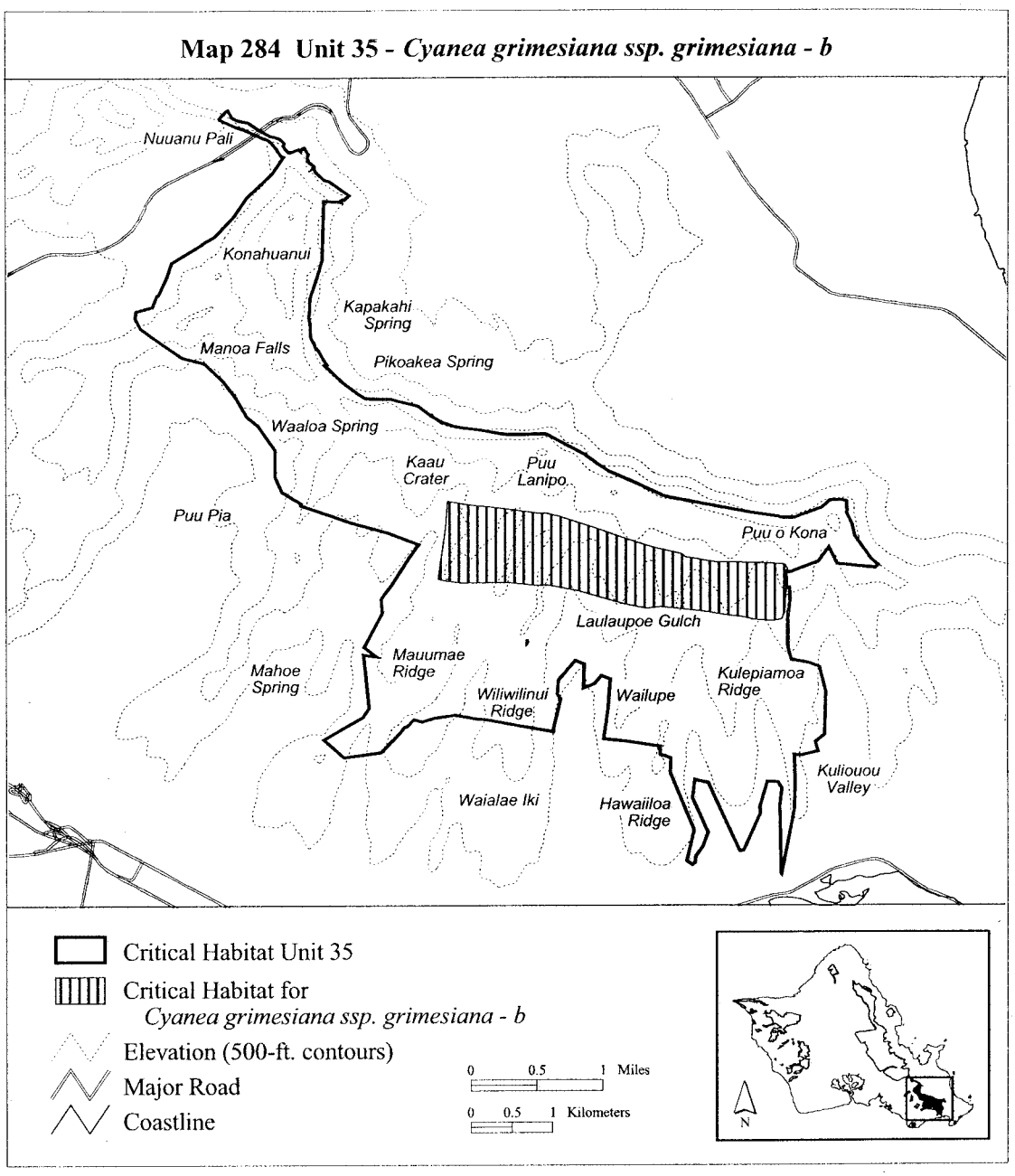
(ii) **Note:** Map 283 follows:



(284) Oahu 35—*Cyanea grimesiana* ssp. *grimesiana*—b (329 ha; 813 ac)

(i) Unit consists of the following 43 boundary points: Start at 627482, 2358725; 627502, 2358723; 627743, 2358682; 628029, 2358650; 628580, 2358576; 628682, 2358576; 628842, 2358539; 628841, 2358537; 629315, 2358380; 629642, 2358266; 629985, 2358159; 630320, 2358086; 630369, 2358045; 630745, 2357984; 631011, 2357980; 631198, 2357972; 631415, 2357968; 631582, 2357955; 631611, 2357898; 631595, 2357837; 631599, 2357682; 631587, 2357502; 631574, 2357371; 631542, 2357285; 631439, 2357265; 631223, 2357277; 631080, 2357310; 630888, 2357330; 630602, 2357379; 630214, 2357420; 630067, 2357432; 629900, 2357412; 629614, 2357473; 629078, 2357628; 628693, 2357706; 628690, 2357694; 628547, 2357698; 628241, 2357731; 627906, 2357732; 627645, 2357732; 627428, 2357760; 627367, 2357780; 627450, 2358384; return to starting point.

(ii) **Note:** Map 284 follows:

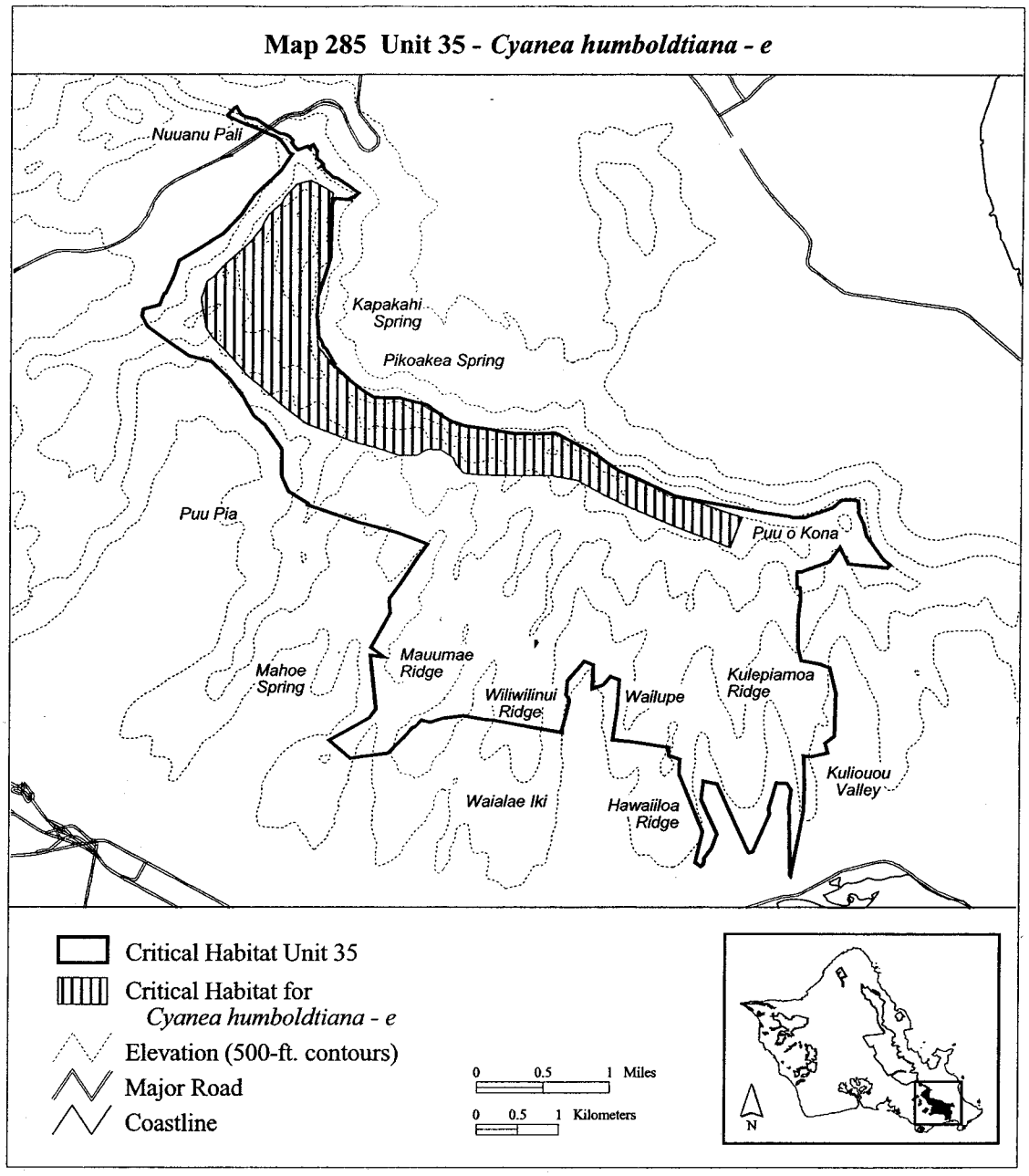


(285) Oahu 35—*Cyanea humboltiana*—e (539 ha; 1,333 ac)

(i) Unit consists of the following 96 boundary points: Start at 625951, 2361660; 625886, 2361457; 625799, 2361195; 625784, 2360979; 625783, 2360976; 625783, 2360975; 625784, 2360974; 625779, 2360900; 625799, 2360606; 625965, 2360402; 626198, 2360174; 626389, 2360033; 626480, 2359983; 626479, 2359983; 626675, 2359975; 626782, 2359975; 626986, 2359924; 627140, 2359829; 627393, 2359697; 627405, 2359693; 627408, 2359690; 627415, 2359689; 627568, 2359634; 627871, 2359597; 628136, 2359543; 628188, 2359542; 628197, 2359540; 628198, 2359540; 628255, 2359541; 628348, 2359539; 628418, 2359542; 628664, 2359545; 628664, 2359537; 628705, 2359530; 628764, 2359501; 629131, 2359305; 629261, 2359211; 629448, 2359086; 629801, 2358933; 630060, 2358809; 630083, 2358796; 630084, 2358796; 630088, 2358795; 630104, 2358787; 630273, 2358739; 630294, 2358740; 630929, 2358526; 630785, 2358154; 630110, 2358417; 629634, 2358615; 629593, 2358630; 629241, 2358804; 628925, 2358974; 628655, 2359024; 628655, 2359028; 628240, 2359032; 627767, 2359036; 627559, 2359057; 627468, 2359169; 627431, 2359244; 627285, 2359340; 627119, 2359352; 626999, 2359273; 626783, 2359277; 626546, 2359356; 626219, 2359447; 625982, 2359539; 625680, 2359657; 625675, 2359655; 625662, 2359664; 625654, 2359667; 625657, 2359669; 625351, 2359896; 625110, 2360116; 624957, 2360240; 624824, 2360394; 624674, 2360560; 624537, 2360693; 624454, 2360826; 624417, 2361017; 624392, 2361170; 624463, 2361382; 624546, 2361436; 624670, 2361573; 624795, 2361685; 624990, 2361855; 625102, 2362000; 625201, 2362179; 625347, 2362308; 625405, 2362407; 625550, 2362557; 625704, 2362598; 625870, 2362511; 625974, 2362449; 625970,

2362364; 625969, 2362363; return to starting point.

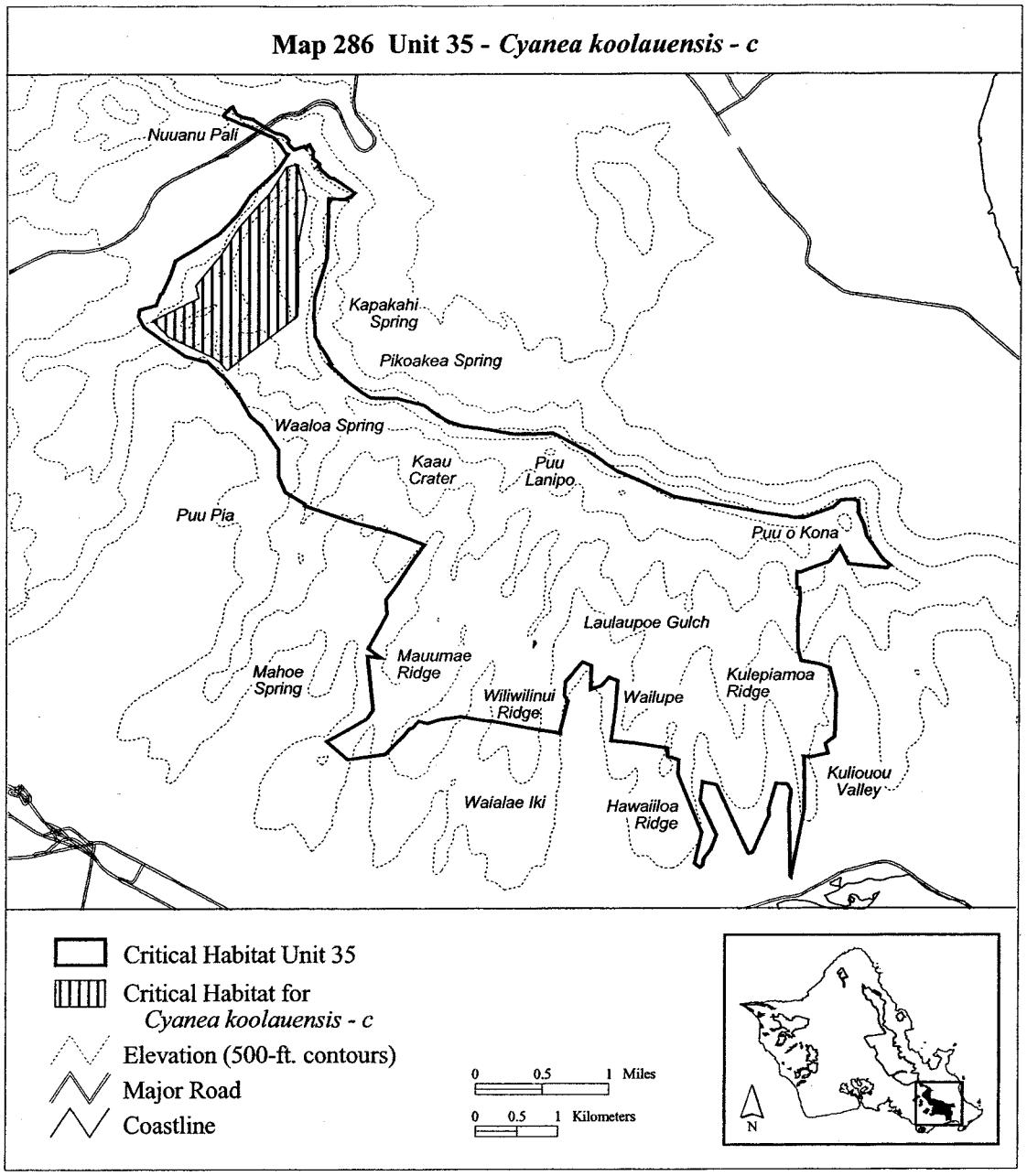
(ii) **Note:** Map 285 follows:



(286) Oahu 35—*Cyanea koolauensis*—c (209 ha; 517 ac)

(i) Unit consists of the following 16 boundary points: Start at 623850, 2360912; 624406, 2361184; 624371, 2361338; 624678, 2361692; 624891, 2362035; 625258, 2362438; 625459, 2362757; 625589, 2362792; 625695, 2362378; 625601, 2361834; 625601, 2361113; 625594, 2360964; 624749, 2360309; 624669, 2360404; 624595, 2360462; 624039, 2360722; return to starting point.

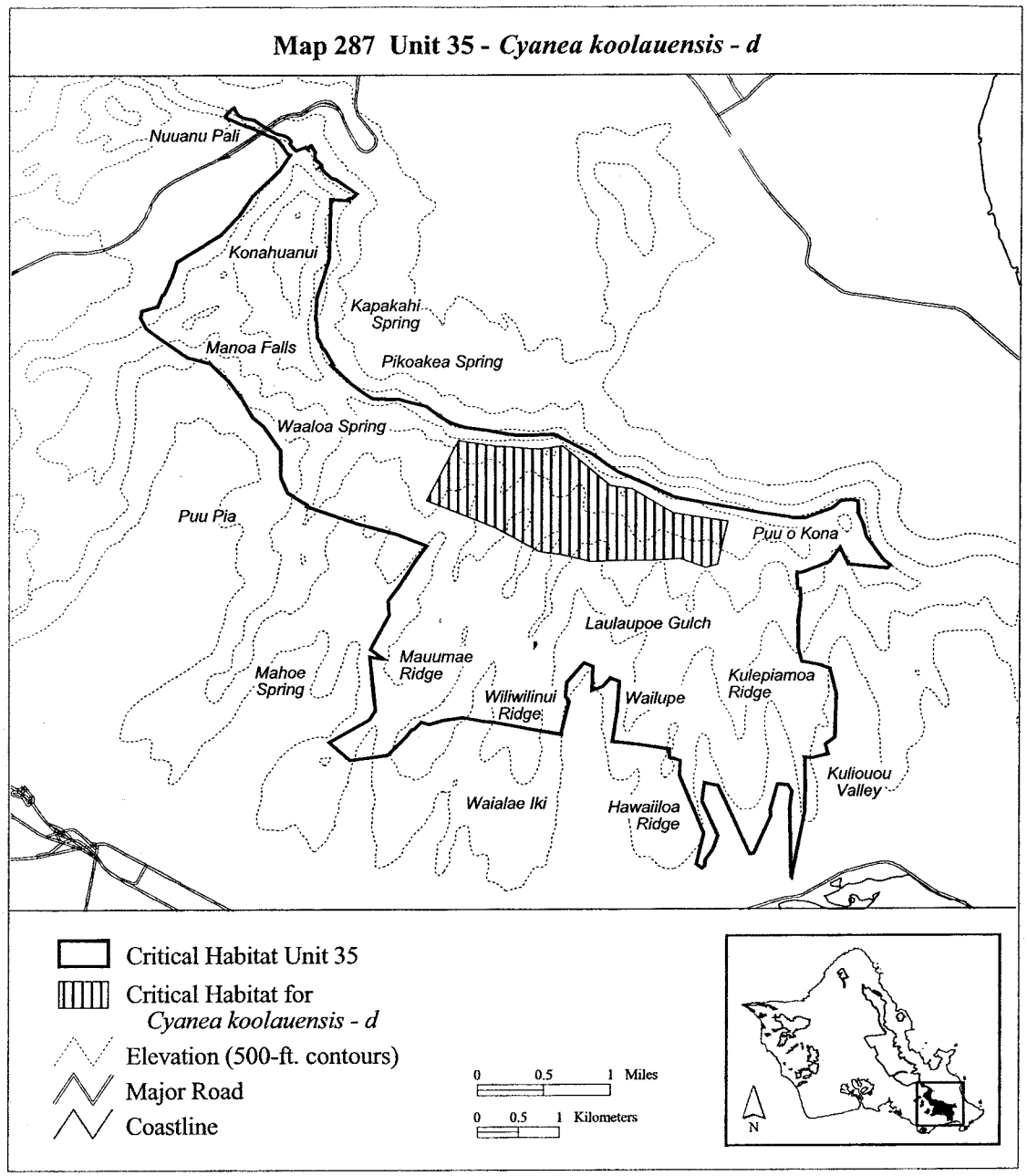
(ii) **Note:** Map 286 follows:



(287) Oahu 35—*Cyanea koolauensis*—d (312 ha; 770 ac)

(i) Unit consists of the following 18 boundary points: Start at 627127, 2358746; 627509, 2359475; 627960, 2359406; 628481, 2359371; 628776, 2359406; 629349, 2358920; 629609, 2358885; 630095, 2358590; 630755, 2358486; 630633, 2357965; 630494, 2357930; 630182, 2358035; 629835, 2358017; 629349, 2358017; 629123, 2358000; 628759, 2358087; 628498, 2358121; 627960, 2358416; return to starting point.

(ii) **Note:** Map 287 follows:

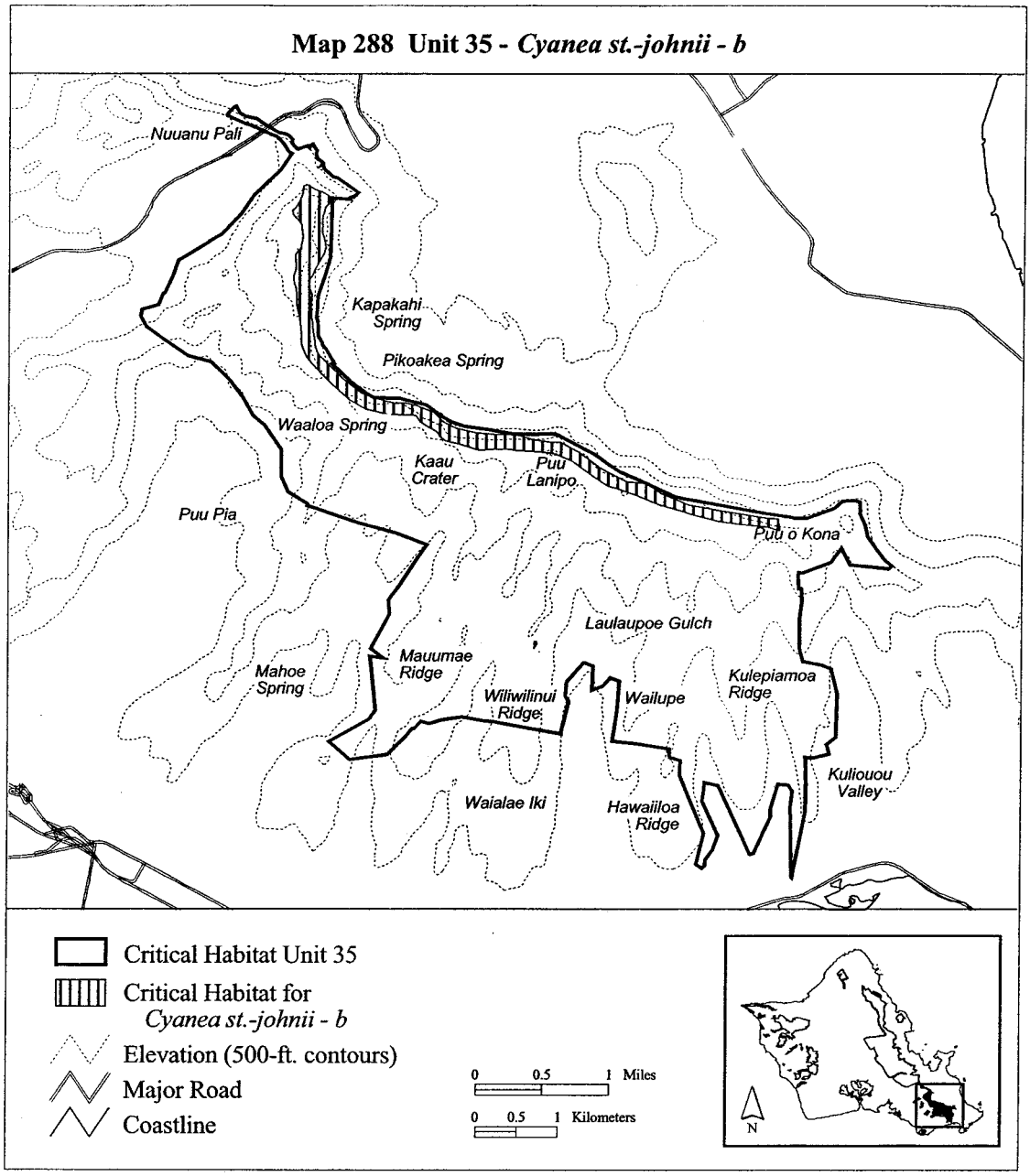


(288) Oahu 35—*Cyanea st.-johnii*—b (135 ha; 333 ac)

(i) Unit consists of the following 130 boundary points: Start at 631368, 2358369; 631225, 2358417; 630942, 2358443; 630644, 2358485; 630309, 2358568; 630157, 2358621; 629922, 2358689; 629644, 2358804; 629414, 2358882; 629294, 2358919; 629105, 2359045; 628875, 2359217; 628671, 2359301; 628498, 2359322; 628211, 2359343; 628211, 2359338; 628130, 2359359; 627971, 2359359; 627800, 2359353; 627739, 2359353; 627541, 2359413; 627345, 2359461; 627279, 2359509; 627240, 2359564; 627120, 2359633; 627042, 2359681; 626985, 2359765; 626894, 2359771; 626654, 2359774; 626368, 2359843; 626188, 2359951; 625986, 2360138; 625854, 2360255; 625791, 2360325; 625791, 2360324; 625782, 2360335; 625770, 2360348; 625770, 2360349; 625743, 2360381; 625674, 2360463; 625620, 2360580; 625604, 2360637; 625601, 2360766; 625589, 2360905; 625550, 2361094; 625550, 2361199; 625544, 2361295; 625517, 2361365; 625511, 2361434; 625535, 2361527; 625535, 2361575; 625529, 2361692; 625598, 2361783; 625617, 2361903; 625605, 2362059; 625604, 2362059; 625556, 2362125; 625505, 2362177; 625493, 2362228; 625532, 2362258; 625562, 2362309; 625607, 2362414; 625623, 2362519; 625662, 2362540; 625689, 2362525; 625755, 2362489; 625848, 2362450; 625929, 2362408; 625956, 2362378; 625935, 2362312; 625887, 2362264; 625875, 2362219; 625857, 2362161; 625854, 2362080; 625851, 2362080; 625857, 2361951; 625881, 2361867; 625896, 2361774; 625869, 2361698; 625830, 2361629; 625773, 2361539; 625737, 2361449; 625698, 2361392; 625701, 2361298; 625731, 2361220; 625728, 2361151; 625719, 2361061; 625722, 2361004; 625722, 2360947; 625737, 2360896; 625749, 2360781; 625764, 2360664; 625764, 2360607; 625788, 2360550; 625815,

2360502; 625815, 2360499; 625875, 2360436; 626007, 2360306; 626104, 2360210; 626209, 2360129; 626338, 2360033; 626437, 2359991; 626636, 2359930; 626708, 2359918; 626744, 2359906; 626786, 2359912; 626867, 2359912; 626973, 2359891; 627201, 2359801; 627324, 2359681; 627466, 2359615; 627721, 2359552; 628004, 2359530; 628189, 2359539; 628189, 2359542; 628191, 2359541; 628409, 2359474; 628618, 2359442; 628734, 2359448; 628922, 2359343; 629000, 2359296; 629210, 2359134; 629398, 2359034; 629534, 2358966; 629754, 2358945; 629932, 2358830; 630262, 2358684; 630670, 2358610; 631214, 2358526; 631349, 2358518; return to starting point.

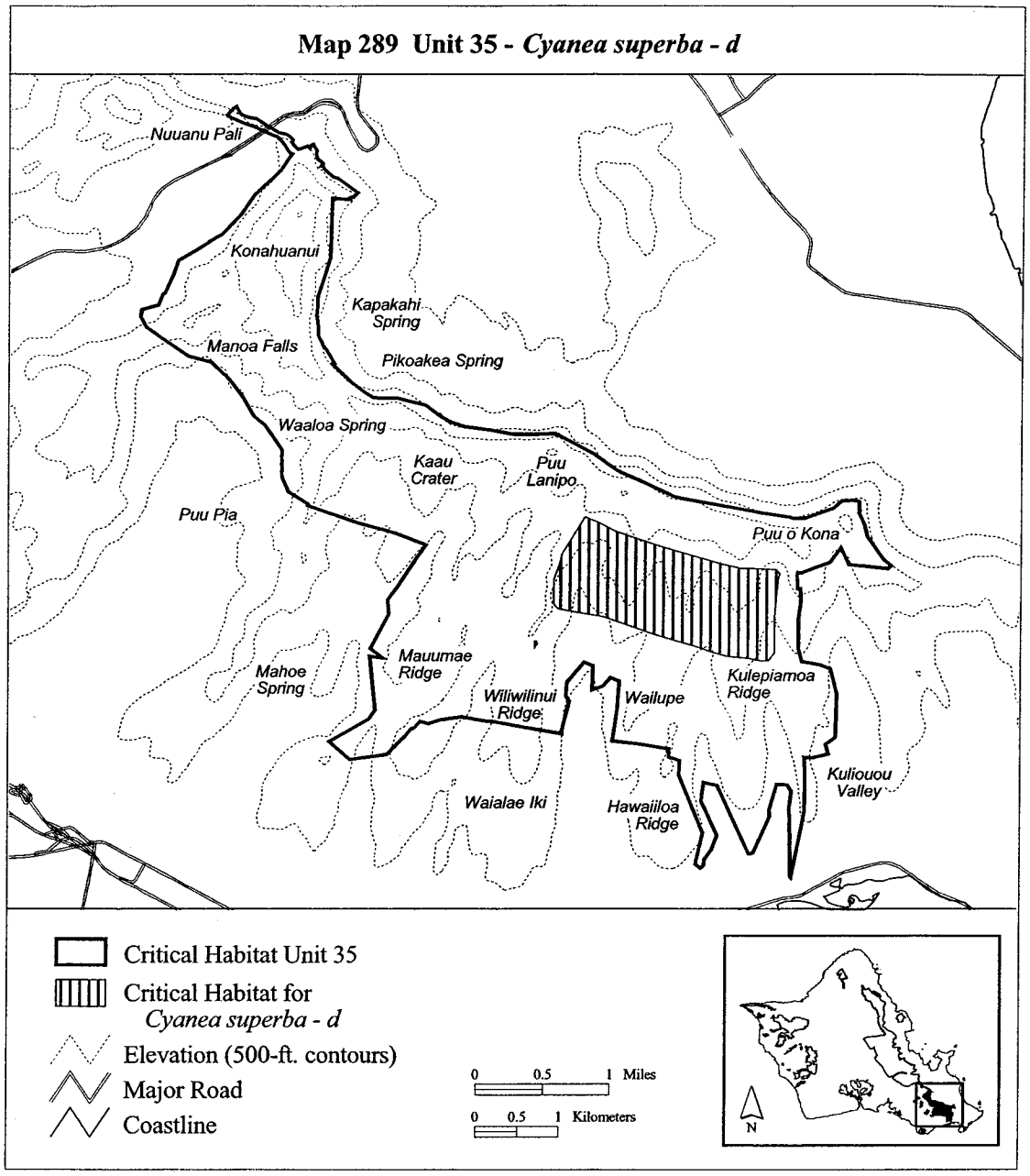
(ii) **Note:** Map 288 follows:



(289) Oahu 35—*Cyanea superba*—d (282 ha; 697 ac)

(i) Unit consists of the following 38 boundary points: Start at 629040, 2358537; 629196, 2358469; 629405, 2358358; 629686, 2358265; 629978, 2358173; 630357, 2358061; 630692, 2357969; 630926, 2357915; 631052, 2357911; 631241, 2357906; 631348, 2357901; 631387, 2357847; 631373, 2357799; 631363, 2357706; 631343, 2357517; 631329, 2357327; 631329, 2357114; 631329, 2356890; 631261, 2356798; 631169, 2356793; 631023, 2356822; 630911, 2356837; 630765, 2356846; 630561, 2356905; 630372, 2356968; 630109, 2357046; 629866, 2357118; 629536, 2357235; 629254, 2357332; 628943, 2357386; 628714, 2357425; 628666, 2357488; 628666, 2357585; 628666, 2357687; 628666, 2357770; 628695, 2357852; 628744, 2357979; 628763, 2358081; return to starting point.

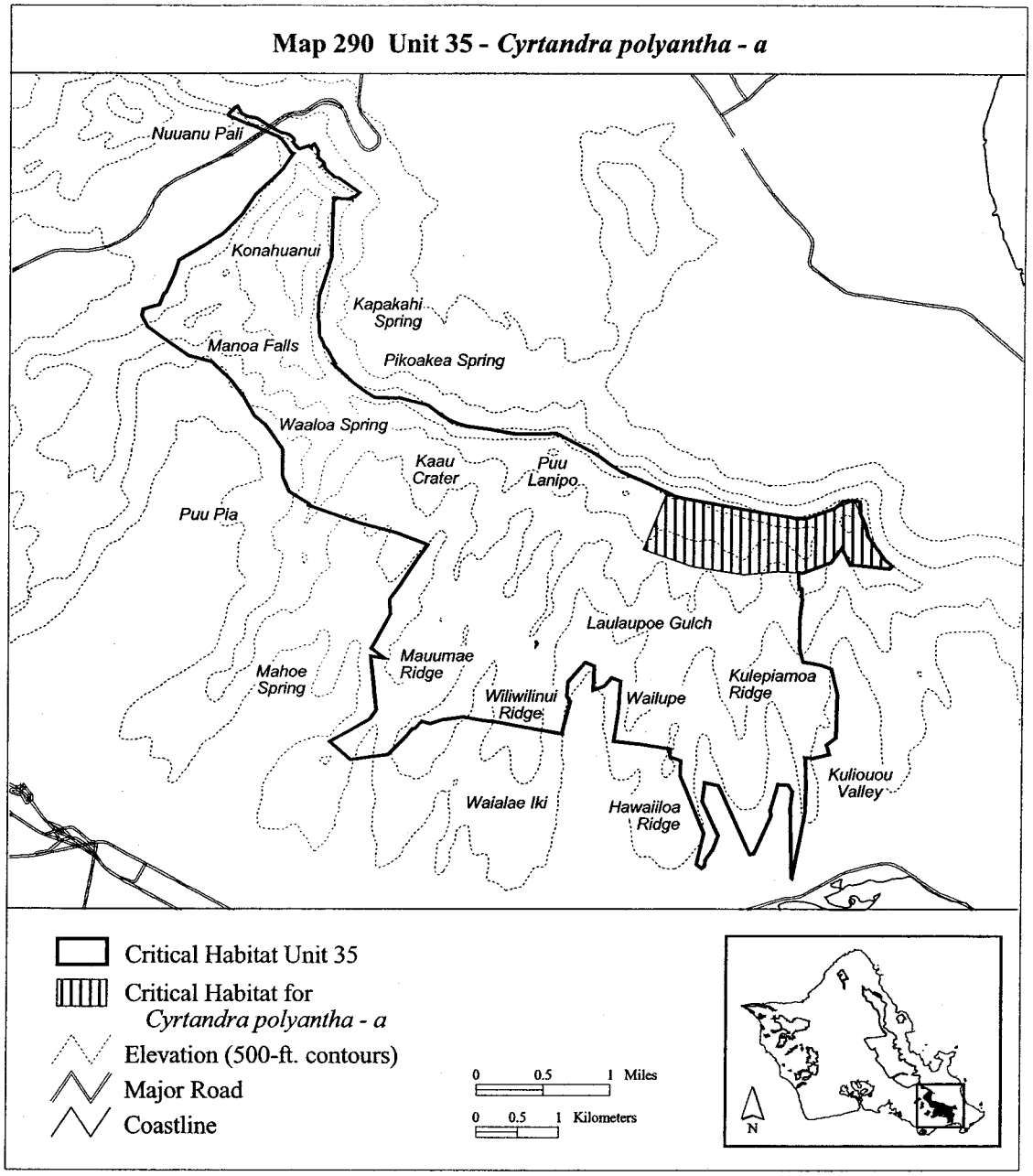
(ii) **Note:** Map 289 follows:



(290) Oahu 35—*Cyrtandra polyantha*—a (190 ha; 469 ac)

(i) Unit consists of the following 21 boundary points: Start at 632692, 2357913; 632214, 2357962; 632118, 2358162; 631987, 2357985; 631642, 2357861; 631352, 2357878; 630945, 2357838; 630320, 2357935; 629723, 2358144; 629995, 2358800; 630879, 2358635; 631175, 2358587; 631506, 2358538; 631537, 2358522; 631694, 2358524; 632037, 2358651; 632266, 2358737; 632397, 2358444; 632436, 2358300; 632639, 2358025; 632725, 2357947; return to starting point.

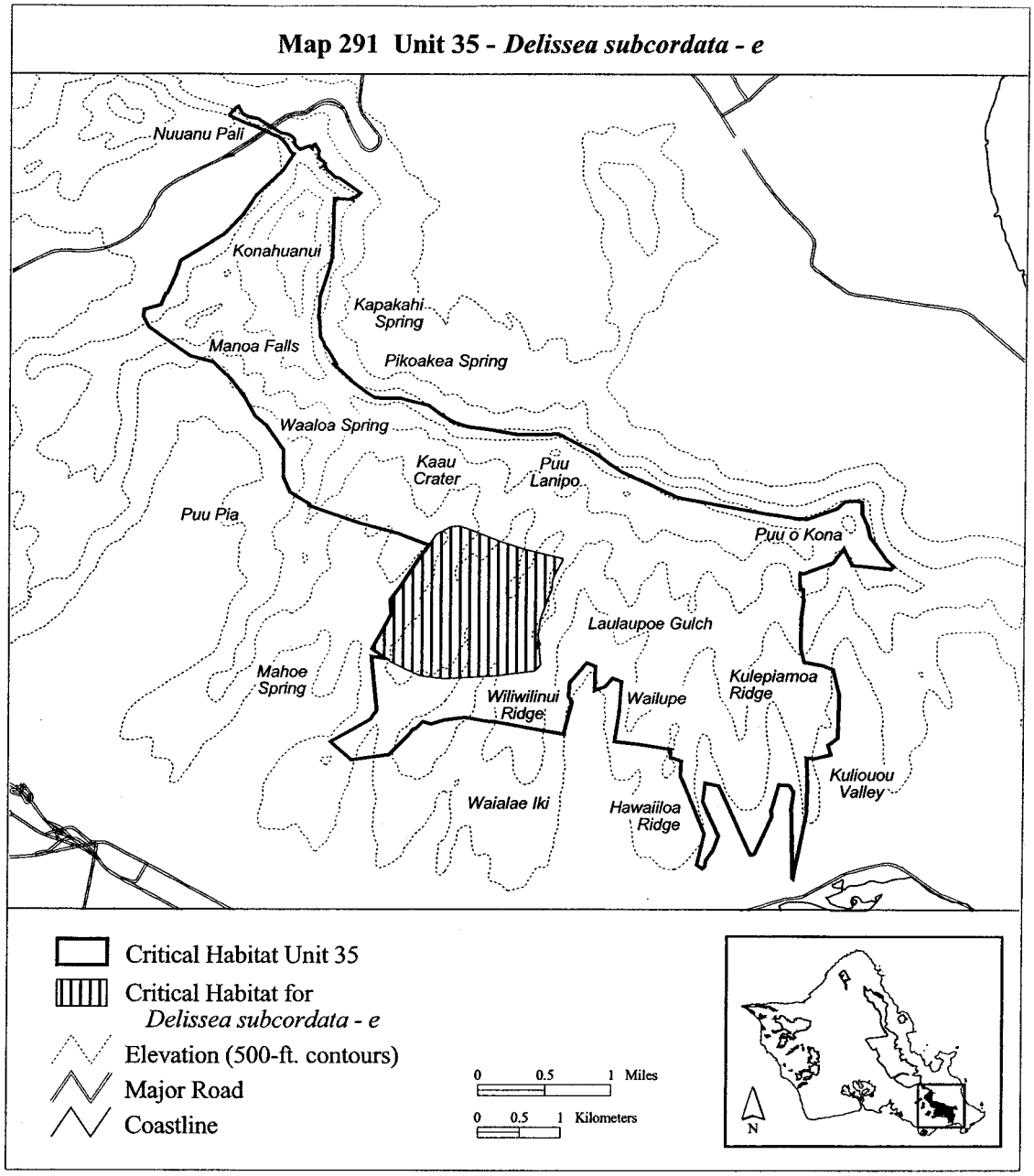
(ii) **Note:** Map 290 follows:



(291) Oahu 35—*Delissea subcordata*—e (292 ha; 721 ac)

(i) Unit consists of the following 25 boundary points: Start at 626664, 2357534; 626795, 2357704; 627029, 2358053; 627224, 2358336; 627392, 2358423; 627502, 2358427; 627630, 2358379; 627953, 2358255; 628276, 2358149; 628736, 2358038; 628729, 2357998; 628614, 2357777; 628604, 2357670; 628469, 2357323; 628440, 2357112; 628469, 2356746; 628407, 2356682; 627935, 2356616; 627308, 2356585; 627034, 2356621; 626808, 2356718; 626676, 2356789; 626455, 2356942; 626679, 2357357; 626679, 2357358; return to starting point.

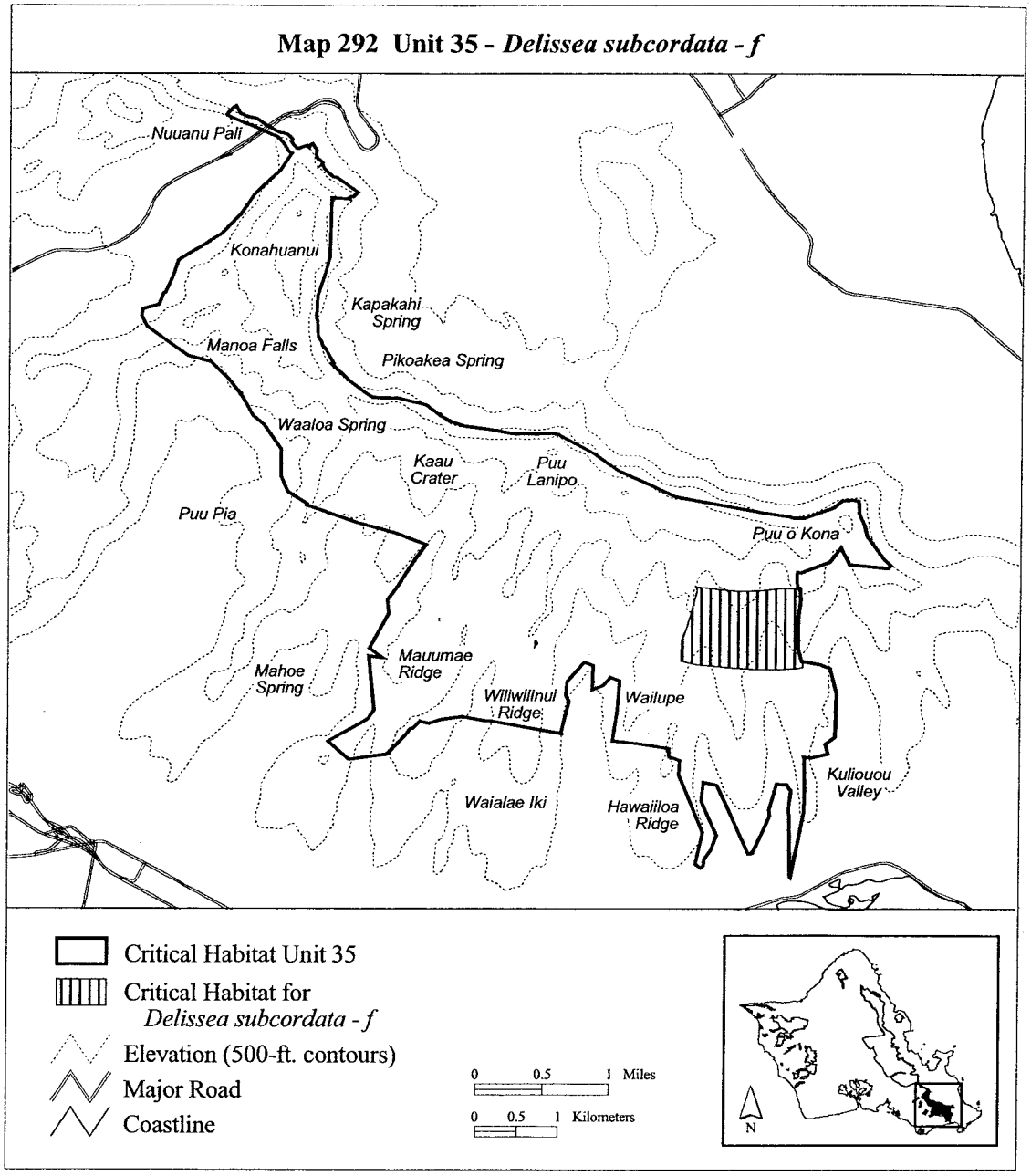
(ii) **Note:** Map 291 follows:



(292) Oahu 35—*Delissea subcordata*—f (129 ha; 318 ac)

(i) Unit consists of the following 25 boundary points: Start at 630377, 2357689; 630601, 2357663; 630893, 2357636; 631140, 2357641; 631405, 2357672; 631635, 2357672; 631639, 2357530; 631617, 2357300; 631617, 2357133; 631616, 2357125; 631616, 2357124; 631617, 2357123; 631617, 2357097; 631613, 2356938; 631666, 2356743; 631666, 2356712; 631604, 2356699; 631374, 2356686; 631105, 2356686; 630791, 2356704; 630406, 2356739; 630195, 2356788; 630204, 2357034; 630272, 2357217; 630397, 2357642; return to starting point.

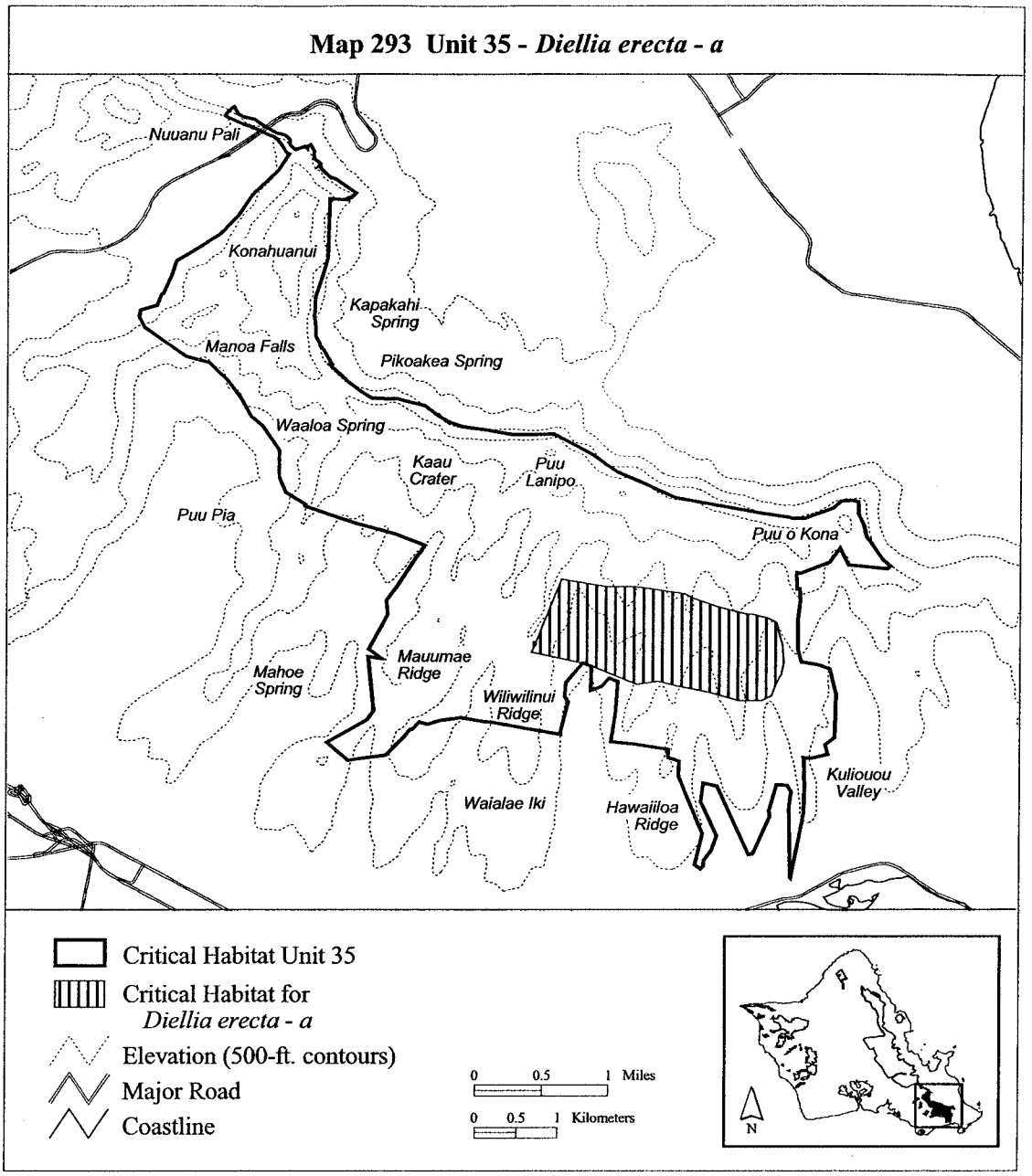
(ii) **Note:** Map 292 follows:



(293) Oahu 35—*Diellia erecta*—a (295 ha; 730 ac)

(i) Unit consists of the following 32 boundary points: Start at 629037, 2356776; 629036, 2356775; 629032, 2356777; 629030, 2356775; 628423, 2356903; 628417, 2356907; 628775, 2357794; 628842, 2357777; 629314, 2357699; 629642, 2357705; 629963, 2357653; 630249, 2357616; 630353, 2357564; 630664, 2357450; 630981, 2357372; 631080, 2357367; 631256, 2357320; 631355, 2357263; 631391, 2357118; 631433, 2356983; 631443, 2356765; 631417, 2356635; 631349, 2356511; 631298, 2356376; 631178, 2356319; 631043, 2356319; 630908, 2356319; 630540, 2356422; 630145, 2356505; 629943, 2356552; 629681, 2356520; 629147, 2356731; return to starting point.

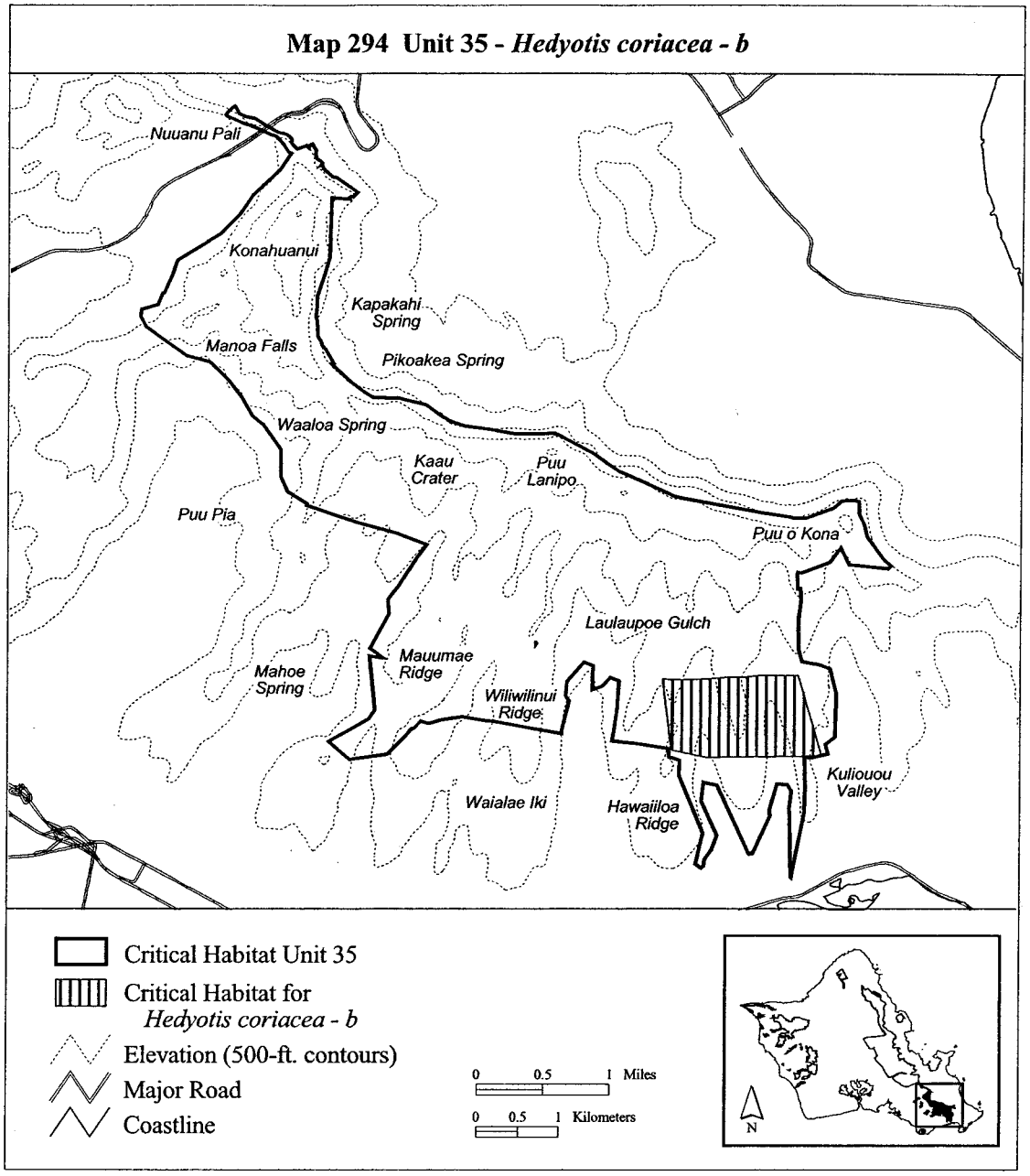
(ii) **Note:** Map 293 follows:



(294) Oahu 35—*Hedyotis coriacea*—b (163 ha; 403 ac)

(i) Unit consists of the following 13 boundary points: Start at 629982, 2356572; 630184, 2356567; 630523, 2356580; 630771, 2356596; 630972, 2356596; 631144, 2356617; 631391, 2356622; 631609, 2356622; 631611, 2356622; 631896, 2355651; 631866, 2355644; 630509, 2355630; 630091, 2355715; return to starting point.

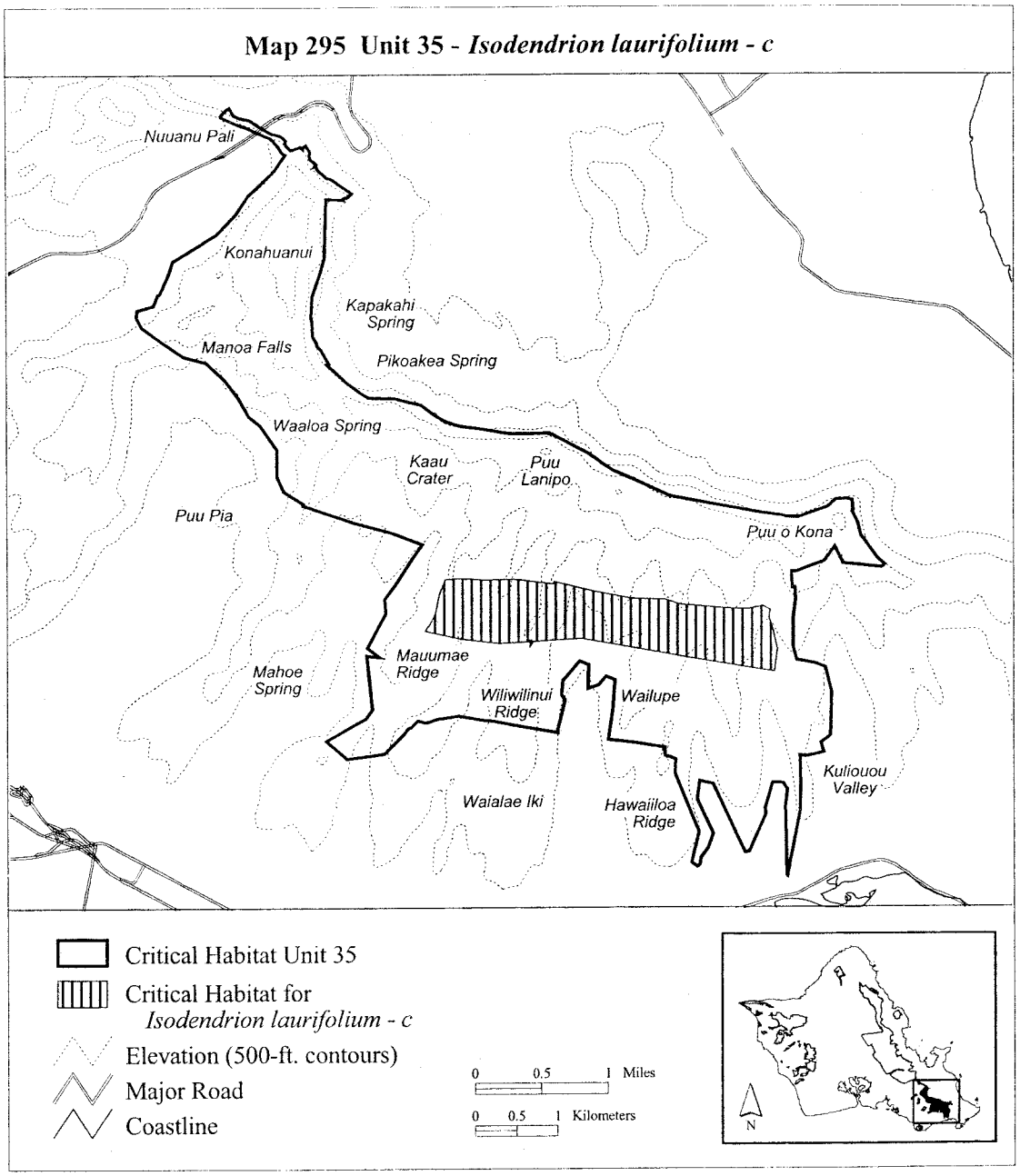
(ii) **Note:** Map 294 follows:



(295) Oahu 35—*Isodendrion laurifolium*—c (277 ha; 685 ac)

(i) Unit consists of the following 31 boundary points: Start at 628725, 2357745; 629204, 2357630; 629647, 2357539; 630066, 2357524; 630242, 2357463; 630696, 2357423; 630898, 2357413; 631089, 2357413; 631256, 2357443; 631336, 2357398; 631321, 2357302; 631377, 2357140; 631427, 2356914; 631397, 2356712; 631390, 2356646; 630446, 2356803; 629057, 2357055; 628070, 2356995; 627577, 2357056; 627161, 2357148; 627222, 2357227; 627293, 2357373; 627333, 2357585; 627409, 2357772; 627540, 2357782; 627691, 2357777; 627868, 2357767; 628201, 2357771; 6282611, 628553, 2357740; 628721, 2357717; return to starting point.

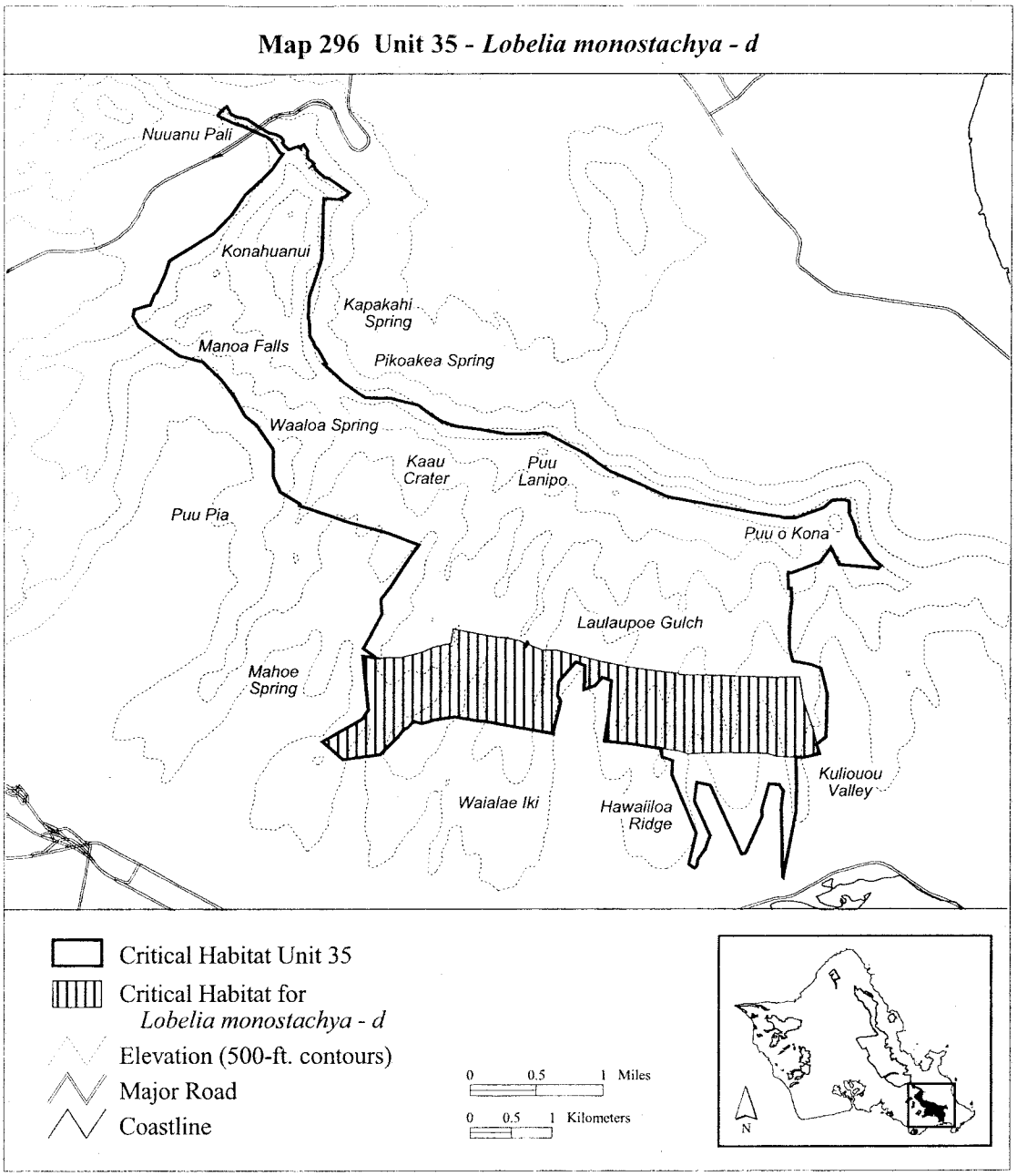
(ii) **Note:** Map 295 follows:



(296) Oahu 35—*Lobelia monostachya*—d (492 ha; 1,216 ac)

(i) Unit consists of the following 69 boundary points: Start at 628771, 2355914; 628330, 2355988; 627926, 2356061; 627899, 2356066; 627897, 2356061; 627827, 2356068; 627571, 2356120; 627329, 2356083; 627168, 2356034; 627070, 2356065; 627069, 2356065; 626983, 2355978; 626965, 2355973; 626932, 2355944; 626890, 2355885; 626668, 2355663; 626214, 2355601; 625964, 2355819; 626441, 2356092; 626441, 2356093; 626521, 2356196; 626521, 2356197; 626450, 2356847; 626599, 2356831; 626914, 2356839; 627171, 2356897; 627303, 2356956; 627519, 2357004; 627545, 2357180; 627996, 2357095; 628115, 2357076; 628205, 2357073; 628202, 2357063; 628341, 2357040; 628623, 2356927; 628796, 2356927; 629324, 2356786; 629687, 2356713; 629991, 2356676; 630266, 2356636; 630266, 2356629; 630905, 2356614; 631414, 2356592; 631733, 2356599; 631785, 2356317; 631898, 2355976; 631979, 2355672; 631786, 2355624; 631477, 2355638; 631352, 2355671; 631183, 2355675; 630849, 2355682; 630596, 2355679; 630365, 2355668; 630259, 2355709; 630259, 2355704; 629683, 2355793; 629380, 2355827; 629412, 2356050; 629470, 2356546; 629349, 2356595; 629262, 2356488; 629132, 2356446; 629144, 2356746; 629042, 2356789; 628826, 2356538; 628817, 2356371; 628855, 2356304; 628771, 2355955; return to starting point.

(ii) **Note:** Map 296 follows:

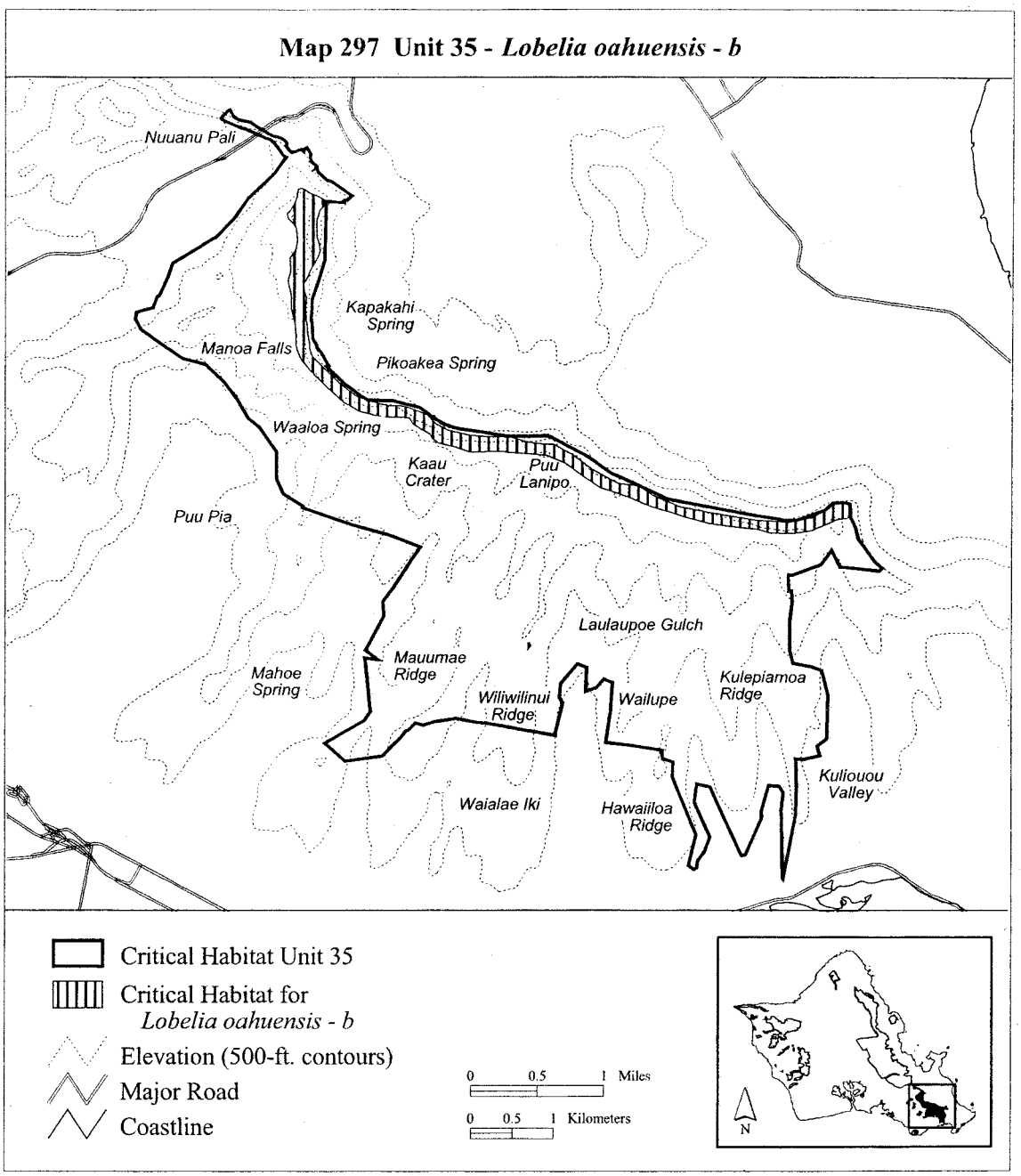


(297) Oahu 35—*Lobelia oahuensis*—b (151 ha; 373 ac)

(i) Unit consists of the following 140 boundary points: Start at 632026, 2358647; 632130, 2358731; 632266, 2358741; 632334, 2358725; 632340, 2358600; 632313, 2358547; 632193, 2358537; 631869, 2358401; 631670, 2358364; 631382, 2358364; 631225, 2358417; 630942, 2358443; 630644, 2358485; 630309, 2358568; 630157, 2358621; 629922, 2358689; 629644, 2358804; 629414, 2358882; 629294, 2358919; 629105, 2359045; 628875, 2359217; 628671, 2359301; 628498, 2359322; 628211, 2359343; 628211, 2359338; 628130, 2359359; 627971, 2359359; 627800, 2359353; 627739, 2359353; 627541, 2359413; 627345, 2359461; 627279, 2359509; 627240, 2359564; 627120, 2359633; 627042, 2359681; 626985, 2359765; 626894, 2359771; 626654, 2359774; 626368, 2359843; 626188, 2359951; 625986, 2360138; 625854, 2360255; 625791, 2360325; 625791, 2360324; 625782, 2360335; 625770, 2360348; 625770, 2360349; 625743, 2360381; 625674, 2360463; 625620, 2360580; 625604, 2360637; 625601, 2360766; 625589, 2360905; 625550, 2361094; 625550, 2361199; 625544, 2361295; 625517, 2361365; 625511, 2361434; 625535, 2361527; 625535, 2361575; 625529, 2361692; 625598, 2361783; 625617, 2361903; 625605, 2362059; 625604, 2362059; 625556, 2362125; 625505, 2362177; 625493, 2362228; 625532, 2362258; 625562, 2362309; 625607, 2362414; 625623, 2362519; 625662, 2362540; 625689, 2362525; 625755, 2362489; 625848, 2362450; 625929, 2362408; 625956, 2362378; 625935, 2362312; 625887, 2362264; 625875, 2362219; 625857, 2362161; 625854, 2362080; 625851, 2362080; 625857, 2361951; 625881, 2361867; 625896, 2361774; 625869, 2361698; 625830, 2361629; 625773, 2361539; 625737, 2361449; 625698, 2361392; 625701, 2361298; 625731, 2361220; 625728,

2361151; 625719, 2361061; 625722, 2361004; 625722, 2360947; 625737, 2360896; 625749, 2360781; 625764, 2360664; 625764, 2360607; 625788, 2360550; 625815, 2360502; 625815, 2360499; 625875, 2360436; 626007, 2360306; 626104, 2360210; 626209, 2360129; 626338, 2360033; 626437, 2359991; 626636, 2359930; 626708, 2359918; 626744, 2359906; 626786, 2359912; 626867, 2359912; 626973, 2359891; 627201, 2359801; 627324, 2359681; 627466, 2359615; 627721, 2359552; 628004, 2359530; 628189, 2359539; 628189, 2359542; 628191, 2359541; 628409, 2359474; 628618, 2359442; 628734, 2359448; 628922, 2359343; 629000, 2359296; 629210, 2359134; 629398, 2359034; 629534, 2358966; 629754, 2358945; 629932, 2358830; 630262, 2358684; 630670, 2358610; 631214, 2358526; 631607, 2358500; 631900, 2358563; return to starting point.

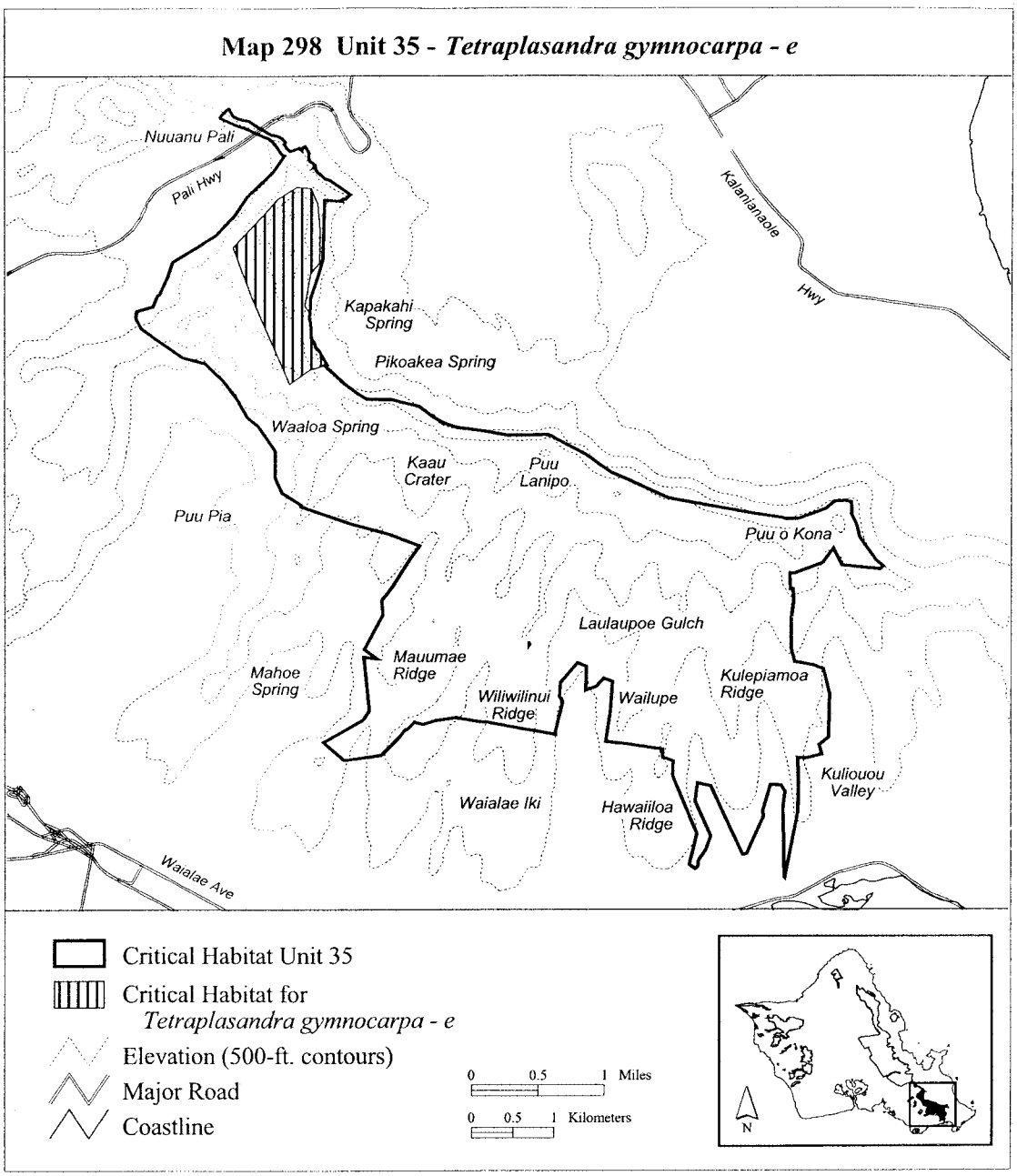
(ii) **Note:** Map 297 follows:



(298) Oahu 35—*Tetraplasandra gymnocarpa*—e (152 ha; 376 ac)

(i) Unit consists of the following 26 boundary points: Start at 625799, 2360900; 625804, 2360726; 625853, 2360646; 625861, 2360607; 625862, 2360607; 625910, 2360553; 626000, 2360395; 625793, 2360330; 625546, 2360155; 625079, 2361221; 625083, 2361221; 624866, 2361796; 624857, 2361800; 624927, 2361880; 625243, 2362209; 625408, 2362394; 625639, 2362532; 625810, 2362519; 625889, 2362334; 625916, 2361992; 625909, 2361622; 625797, 2361484; 625731, 2361115;

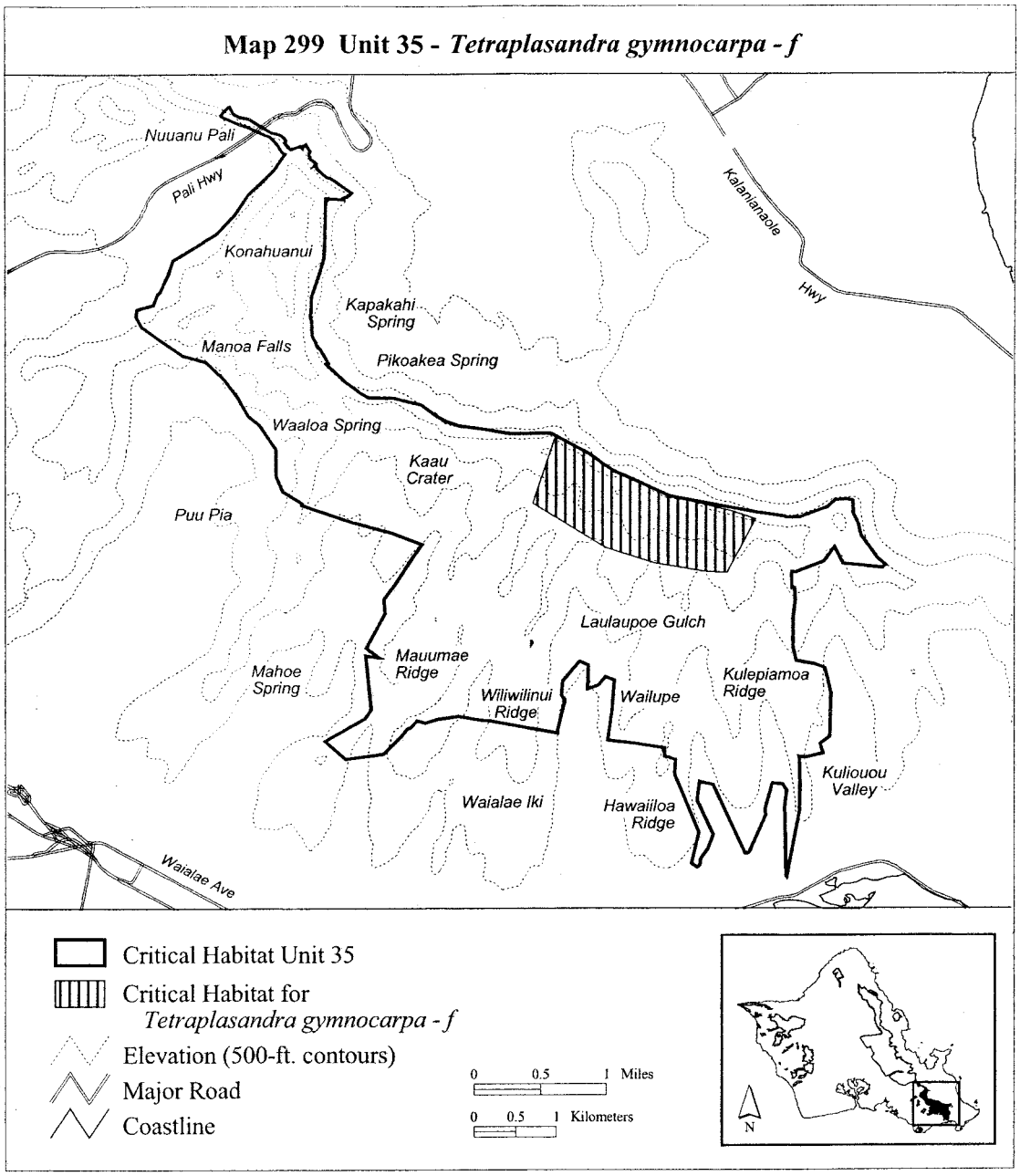
(ii) **Note:** Map 298 follows:



(299) Oahu 35—*Tetraplasnadra gymnocarpa*—f (214 ha; 528 ac)

(i) Unit consists of the following 12 boundary points: Start at 628462, 2358693; 628739, 2359501; 629145, 2359298; 629149, 2359295; 629426, 2359091; 630077, 2358784; 630872, 2358597; 631161, 2358501; 630812, 2357850; 630522, 2357874; 629956, 2357970; 629330, 2358163; return to starting point.

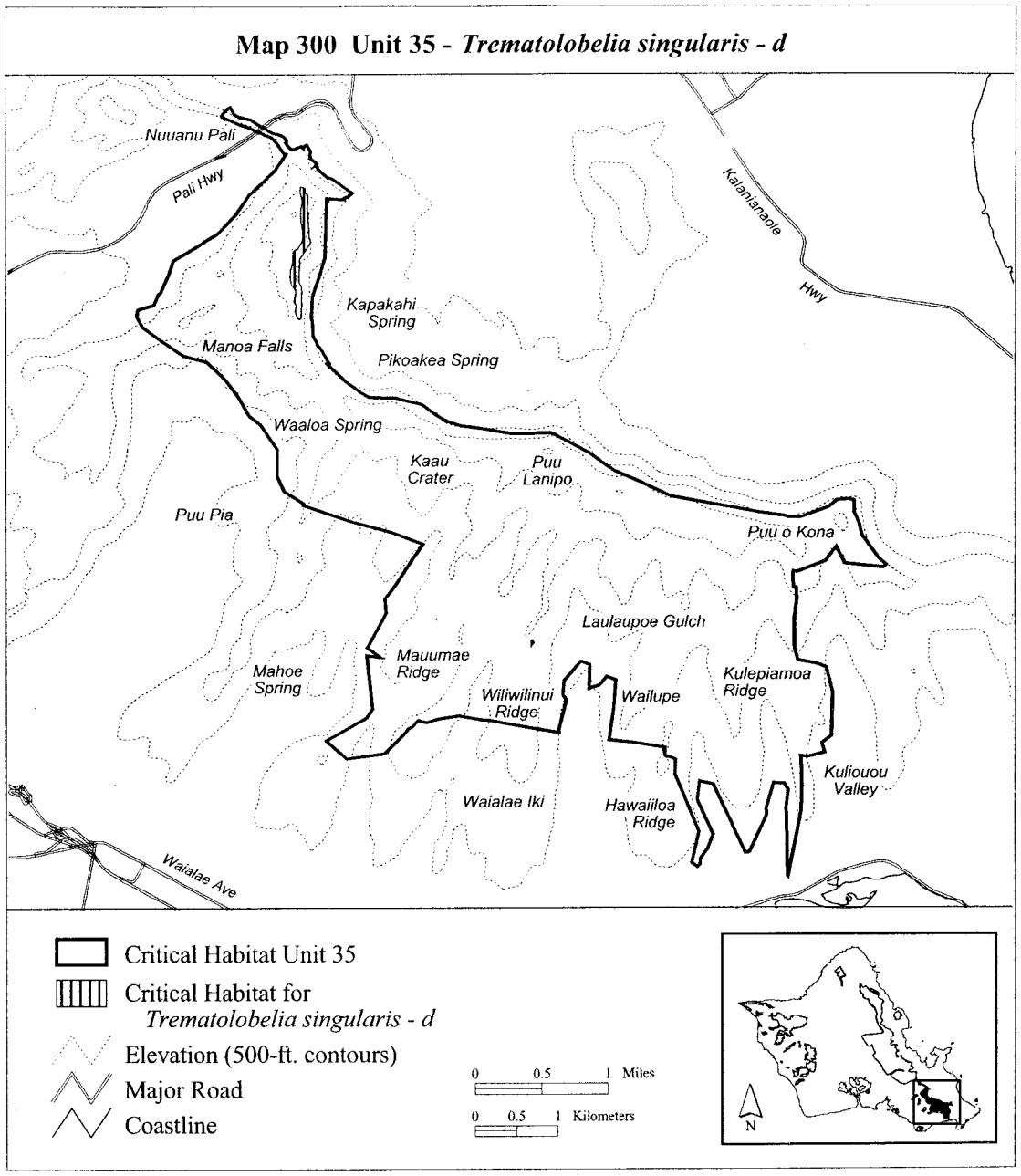
(ii) **Note:** Map 299 follows:



(300) Oahu 35—*Trematolobelia singularis*—d (14 ha; 33 ac)

(i) Unit consists of the following 52 boundary points: Start at 625675, 2362515; 625712, 2362499; 625712, 2362459; 625743, 2362418; 625743, 2362337; 625737, 2362257; 625750, 2362185; 625743, 2362126; 625759, 2362005; 625759, 2361924; 625778, 2361843; 625725, 2361759; 625690, 2361713; 625647, 2361644; 625641, 2361545; 625635, 2361458; 625635, 2361377; 625663, 2361327; 625669, 2361253; 625666, 2361153; 625672, 2361088; 625666, 2361057; 625666, 2360991; 625664, 2360972; 625659, 2360932; 625628, 2360932; 625600, 2360973; 625588, 2361019; 625603, 2361094; 625582, 2361122; 625579, 2361141; 625591, 2361212; 625597, 2361268; 625575, 2361299; 625544, 2361358; 625529, 2361427; 625526, 2361504; 625551, 2361554; 625566, 2361607; 625566, 2361682; 625569, 2361731; 625579, 2361747; 625625, 2361775; 625669, 2361849; 625684, 2361927; 625678, 2362005; 625663, 2362079; 625659, 2362157; 625659, 2362238; 625681, 2362341; 625653, 2362459; 625656, 2362521; return to starting point.

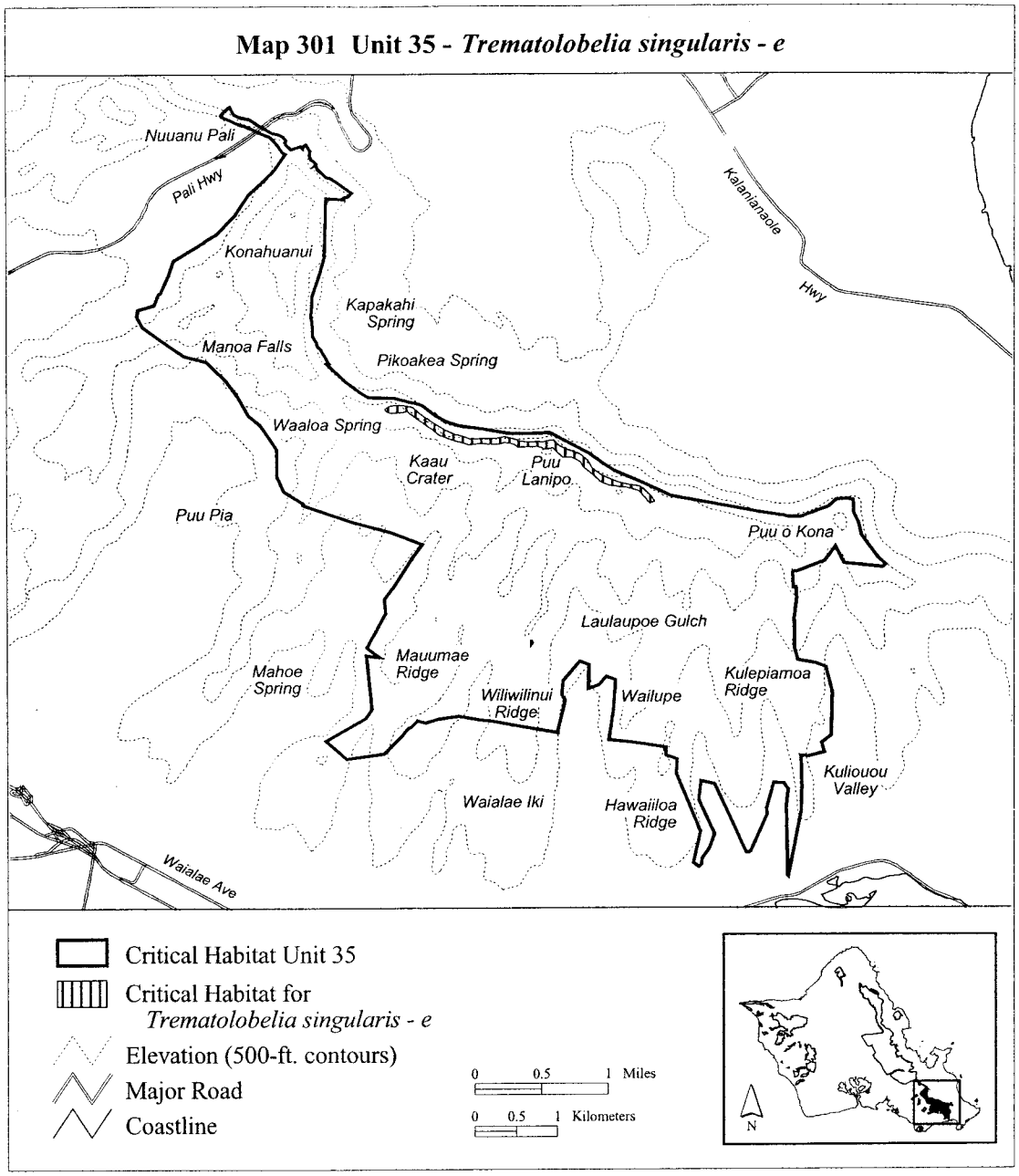
(ii) **Note:** Map 300 follows:



(301) Oahu 35—*Trematolobelia singularis*—e (14 ha; 33 ac)

(i) Unit consists of the following 52 boundary points: Start at 625675, 2362515; 625712, 2362499; 625712, 2362459; 625743, 2362418; 625743, 2362337; 625737, 2362257; 625750, 2362185; 625743, 2362126; 625759, 2362005; 625759, 2361924; 625778, 2361843; 625725, 2361759; 625690, 2361713; 625647, 2361644; 625641, 2361545; 625635, 2361458; 625635, 2361377; 625663, 2361327; 625669, 2361253; 625666, 2361153; 625672, 2361088; 625666, 2361057; 625666, 2360991; 625664, 2360972; 625659, 2360932; 625628, 2360932; 625600, 2360973; 625588, 2361019; 625603, 2361094; 625582, 2361122; 625579, 2361141; 625591, 2361212; 625597, 2361268; 625575, 2361299; 625544, 2361358; 625529, 2361427; 625526, 2361504; 625551, 2361554; 625566, 2361607; 625566, 2361682; 625569, 2361731; 625579, 2361747; 625625, 2361775; 625669, 2361849; 625684, 2361927; 625678, 2362005; 625663, 2362079; 625659, 2362157; 625659, 2362238; 625681, 2362341; 625653, 2362459; 625656, 2362521; return to starting point.

(ii) **Note:** Map 301 follows:

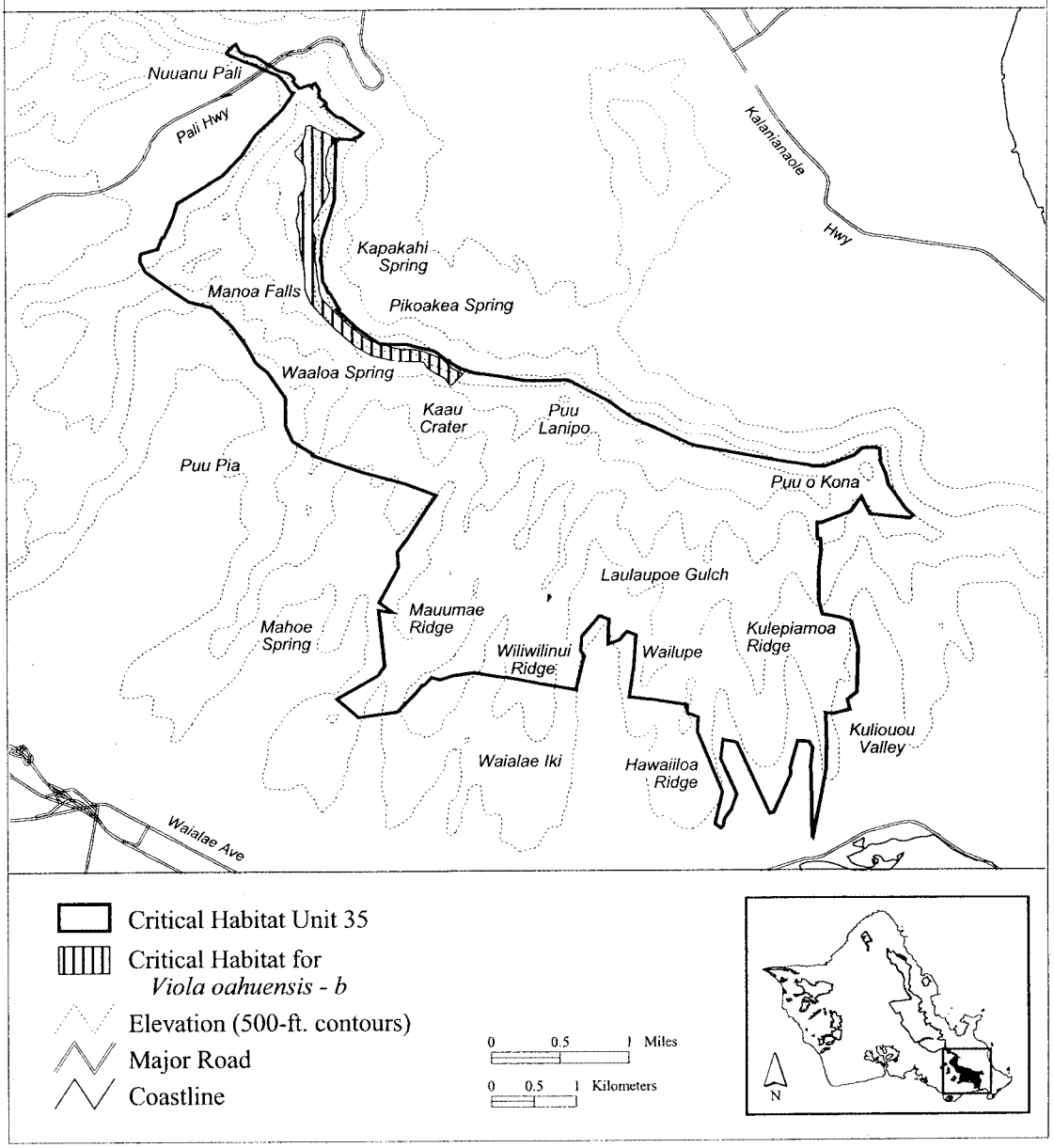


(302) Oahu 35—*Viola oahuensis*—b (75 ha; 186 ac)

(i) Unit consists of the following 90 boundary points: Start at 627315, 2359484; 627279, 2359509; 627240, 2359564; 627120, 2359633; 627042, 2359681; 626985, 2359765; 626894, 2359771; 626654, 2359774; 626368, 2359843; 626188, 2359951; 625986, 2360138; 625854, 2360255; 625791, 2360325; 625791, 2360324; 625782, 2360335; 625770, 2360348; 625770, 2360349; 625743, 2360381; 625674, 2360463; 625620, 2360580; 625604, 2360637; 625601, 2360766; 625589, 2360905; 625550, 2361094; 625550, 2361199; 625544, 2361295; 625517, 2361365; 625511, 2361434; 625535, 2361527; 625535, 2361575; 625529, 2361692; 625598, 2361783; 625617, 2361903; 625605, 2362059; 625604, 2362059; 625556, 2362125; 625505, 2362177; 625493, 2362228; 625532, 2362258; 625562, 2362309; 625607, 2362414; 625623, 2362519; 625662, 2362540; 625689, 2362525; 625755, 2362489; 625848, 2362450; 625929, 2362408; 625956, 2362378; 625935, 2362312; 625887, 2362264; 625875, 2362219; 625857, 2362161; 625854, 2362080; 625851, 2362080; 625857, 2361951; 625881, 2361867; 625896, 2361774; 625869, 2361698; 625830, 2361629; 625773, 2361539; 625737, 2361449; 625698, 2361392; 625701, 2361298; 625731, 2361220; 625728, 2361151; 625719, 2361061; 625722, 2361004; 625722, 2360947; 625737, 2360896; 625749, 2360781; 625764, 2360664; 625764, 2360607; 625788, 2360550; 625815, 2360502; 625815, 2360499; 625875, 2360436; 626007, 2360306; 626104, 2360210; 626209, 2360129; 626338, 2360033; 626437, 2359991; 626636, 2359930; 626708, 2359918; 626744, 2359906; 626786, 2359912; 626867, 2359912; 626973, 2359891; 627201, 2359801; 627324, 2359681; 627454, 2359620; return to starting point.

(ii) **Note:** Map 302 follows:

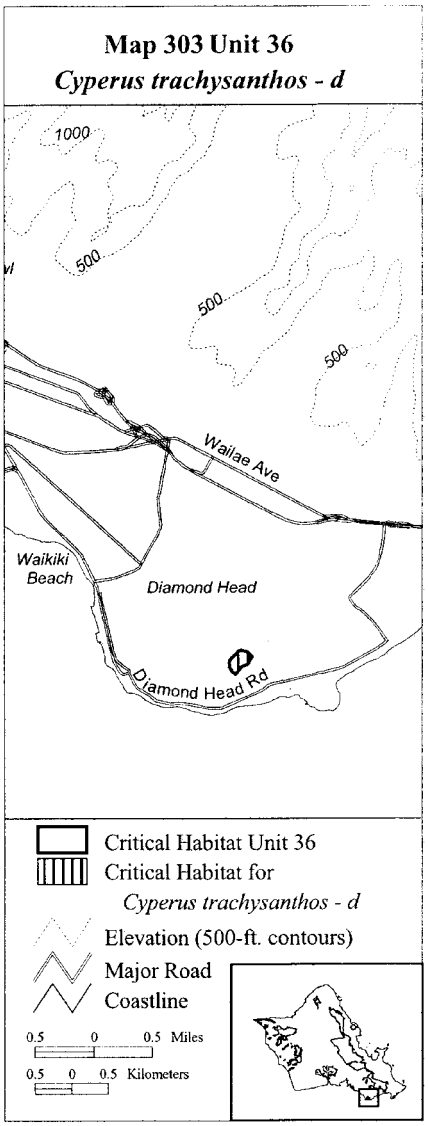
Map 302 Unit 35 - *Viola oahuensis - b*



(303) Oahu 36—*Cyperus trachysanthos*—d (5 ha; 13 ac)

(i) Unit consists of the following 12 boundary points: Start at 624088, 2351393; 624025, 2351406; 623980, 2351471; 623984, 2351554; 624095, 2351675; 624119, 2351675; 624179, 2351675; 624234, 2351635; 624272, 2351572; 624224, 2351497; 624161, 2351479; 624161, 2351478; return to starting point.

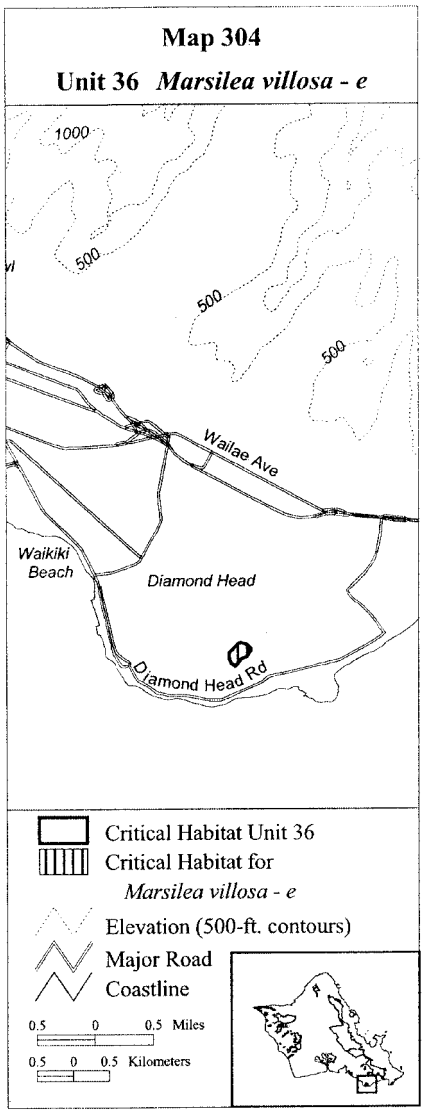
(ii) **Note:** Map 303 follows:



(304) Oahu 36—*Marsilea villosa*—e (6 ha; 14 ac)

(i) Unit consists of the following 13 boundary points: Start at 624140, 2351695; 624165, 2351693; 624226, 2351679; 624288, 2351612; 624292, 2351603; 624224, 2351497; 624161, 2351479; 624161, 2351478; 624071, 2351374; 624013, 2351406; 624000, 2351487; 624000, 2351571; 624112, 2351693; return to starting point.

(ii) **Note:** Map 304 follows:



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(305) TABLE OF PROTECTED SPECIES WITHIN EACH CRITICAL HABITAT UNIT FOR OAHU

Unit name	Species occupied	Species unoccupied
Oahu 4—*Abutilon sandwicense*—a	*Abutilon sandwicense*.	
Oahu 4—*Abutilon sandwicense*—b	*Abutilon sandwicense*.	
Oahu 4—*Abutilon sandwicense*—c	*Abutilon sandwicense*.	
Oahu 15—*Abutilon sandwicense*—d	*Abutilon sandwicense*.	
Oahu 15—*Abutilon sandwicense*—e	*Abutilon sandwicense*.	
Oahu 17—*Abutilon sandwicense*—f	*Abutilon sandwicense*.	
Oahu 20—*Adenophorus periens*—a		*Adenophorus periens.*
Oahu 4—*Alectryon macrococcus*—a	*Alectryon macrococcus*.	

(305) TABLE OF PROTECTED SPECIES WITHIN EACH CRITICAL HABITAT UNIT FOR OAHU—Continued

Unit name	Species occupied	Species unoccupied
Oahu 15—*Alectryon macrococcus*—b	*Alectryon macrococcus*.	
Oahu 4—*Alsinidendron obovatum*—a	*Alsinidendron obovatum*.	
Oahu 4—*Alsinidendron obovatum*—b	*Alsinidendron obovatum*	*Alsinidendron obovatum.*
Oahu 15—*Alsinidendron obovatum*—c		*Alsinidendron obovatum.*
Oahu 4—*Alsinidendron trinerve*—a	*Alsinidendron trinerve*.	
Oahu 2—*Bonamia menziesii*—a	*Bonamia menziesii*.	
Oahu 3—*Bonamia menziesii*—b	*Bonamia menziesii*.	
Oahu 4—*Bonamia menziesii*—c	*Bonamia menziesii*.	
Oahu 17—*Bonamia menziesii*—d	*Bonamia menziesii*.	
Oahu 35—*Bonamia menziesiiz*—e	*Bonamia menziesii*.	
Oahu 4—*Cenchrus agrimonioides*—a	*Cenchrus agrimonioides*.	
Oahu 4—*Cenchrus agrimonioides*—b	*Cenchrus agrimonioides*.	
Oahu 15—*Cenchrus agrimonioides*—c	*Cenchrus agrimonioides*.	
Oahu 15—*Cenchrus agrimonioides*—d	*Cenchrus agrimonioides*.	
Oahu 1—*Centaurium sebaeoides*—a		*Centaurium sebaeoides.*
Oahu 27—*Centaurium sebaeoides*—b		*Centaurium sebaeoides.*
Oahu 1—*Chamaesyce celastroides* var. *kaenana*—a	*Chamaesyce celastroides* var. *kaenana*.	
Oahu 3—*Chamaesyce celastroides* var. *kaenana*—b	*Chamaesyce celastroides* var. *kaenana*	
Oahu 4—*Chamaesyce celastroides* var. *kaenana*—c		*Chamaesyce celastroides* var. *kaenana.*
Oahu 5—*Chamaesyce celastroides* var. *kaenana*—d	*Chamaesyce celastroides* var. *kaenana*.	
Oahu 35—*Chamaesyce celastroides* var. *Kaenana*—e		*Chamaesyce celastroides* var. *kaenana.*
Oahu 20—*Chamaesyce deppeana*—a		*Chamaesyce deppeana.*
Oahu 35—*Chamaesyce deppeana*—b	*Chamaesyce deppeana*.	
Oahu 4—*Chamaesyce herbstii*—a	*Chamaesyce herbstii*.	
Oahu 15—*Chamaesyce herbstii*—b		*Chamaesyce herbstii.*
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Oahu15—*Chamaesyce herbstii*—c	*Chamaesyce herbstii*.	
Oahu 9—*Chamaesyce kuwaleana*—a	*Chamaesyce kuwaleana*.	
Oahu 11—*Chamaesyce kuwaleana*—b	*Chamaesyce kuwaleana*.	
Oahu 12—*Chamaesyce kuwaleana*—c	*Chamaesyce kuwaleana*.	
Oahu 15—*Chamaesyce kuwaleana*—d		*Chamaesyce kuwaleana.*
Oahu 22—*Chamaesyce kuwaleana*—e		*Chamaesyce kuwaleana.*
Oahu 23—*Chamaesyce kuwaleana*—f		*Chamaesyce kuwaleana.*
Oahu 26—*Chamaesyce kuwaleana*—g		*Chamaesyce kuwaleana.*
Oahu 20—*Chamaesyce rockii*—a	*Chamaesyce rockii*.	
Oahu 20—*Chamaesyce rockii—b*		*Chamaesyce rockii.*
Oahu 20—*Chamaesyce rockii*—c	*Chamaesyce rockii*.	
Oahu 4—*Colubrina oppositifolia*—a	*Colubrina oppositifolia*.	
Oahu 4—*Ctenitis squamigera*—a	*Ctenitis squamigera*.	
Oahu 4—*Cyanea acuminata*—a	*Cyanea acuminata*.	
Oahu 20—*Cyanea acuminata*—b	*Cyanea acuminata*.	
Oahu 20—*Cyanea crispa*—a	*Cyanea crispa*.	
Oahu 20—*Cyanea crispa*—b		*Cyanea crispa.*
Oahu 21—*Cyanea crispa*—c	*Cyanea crispa*.	
Oahu 35—*Cyanea crispa*—d	*Cyanea crispa*.	
Oahu 20—*Cyanea grimesiana* ssp. *grimesiana*—a		*Cyanea grimesiana* ssp. *grimesiana.*
Oahu 35—*Cyanea grimesiana* ssp. *grimesiana*—b	*Cyanea grimesiana* ssp. *grimesiana*.	
Oahu 4—*Cyanea grimesiana* ssp. *obatae*—a	*Cyanea grimesiana* ssp. *obatae*.	
Oahu 15—*Cyanea grimesiana* ssp. *obatae*—b	*Cyanea grimesiana* ssp. *obatae*.	
Oahu 15—*Cyanea grimesiana* ssp. *obatae*—c	*Cyanea grimesiana* ssp. *obatae*.	
Oahu 15—*Cyanea grimesiana* ssp. *obatae*—d	*Cyanea grimesiana* ssp. *obatae*.	
Oahu 20—*Cyanea humboltiana*—a	*Cyanea humboltiana*.	
Oahu 20—*Cyanea humboltiana*—b		*Cyanea humboltiana.*
Oahu 20—*Cyanea humboltiana*—c		*Cyanea humboltiana.*
Oahu 20—*Cyanea humboltiana*—d	*Cyanea humboltiana*.	
Oahu 35—*Cyanea humboltiana*—e	*Cyanea humboltiana*.	
Oahu 20—*Cyanea koolauensis*—a	*Cyanea koolauensis*.	
Oahu 20—*Cyanea koolauensis*—b	*Cyanea koolauensis*.	
Oahu 35—*Cyanea koolauensis*—c	*Cyanea koolauensis*.	
Oahu 35—*Cyanea koolauensis*—d	*Cyanea koolauensis*.	
Oahu 4—*Cyanea longiflora*—a	*Cyanea longiflora*.	
Oahu 4—*Cyanea longiflora*—b	*Cyanea longiflora*.	
Oahu 19—*Cyanea longiflora*—c		*Cyanea longiflora.*
Oahu 15—*Cyanea pinnatifida*—a		*Cyanea pinnatifida.*
Oahu 15—*Cyanea pinnatifida*—b		*Cyanea pinnatifida.*
Oahu 15—*Cyanea pinnatifida*—c		*Cyanea pinnatifida.*
Oahu 20—*Cyanea st.-johnii*—a	*Cyanea st.-johnii*.	
Oahu 35—*Cyanea st.-johnii*—b	*Cyanea st.-johnii*.	
Oahu 4—*Cyanea superba*—a		*Cyanea superba.*
Oahu 4—*Cyanea superba*—b		*Cyanea superba.*
Oahu 4—*Cyanea superba*—c		*Cyanea superba.*
Oahu 35—*Cyanea superba*—d		*Cyanea superba.*

(305) TABLE OF PROTECTED SPECIES WITHIN EACH CRITICAL HABITAT UNIT FOR OAHU—Continued

Unit name	Species occupied	Species unoccupied
Oahu 20—*Cyanea truncata*—a	*Cyanea truncata*.	
Oahu 21—*Cyanea truncata*—b	*Cyanea truncata*.	
Oahu 1—*Cyperus trachysanthos*—a	*Cyperus trachysanthos*.	
Oahu 28—*Cyperus trachysanthos*—b		*Cyperus trachysanthos*.
Oahu 29—*Cyperus trachysanthos*—c		*Cyperus trachysanthos*.
Oahu 36—*Cyperus trachysanthos*—d	*Cyperus trachysanthos*.	
Oahu 4—*Cyrtandra dentata*—a	*Cyrtandra dentata*.	
Oahu 35—*Cyrtandra polyantha*—a	*Cyrtandra polyantha*.	
Oahu 20—*Cyrtandra subumbellata*—a	*Cyrtandra subumbellata*.	
Oahu 20—*Cyrtandra subumbellata*—b		*Cyrtandra subumbellata*.
Oahu 20—*Cyrtandra viridiflora*—a	*Cyrtandra viridiflora*.	
Oahu 4—*Delissea subcordata*—a	*Delissea subcordata*.	
Oahu 15—*Delissea subcordata*—b	*Delissea subcordata*.	
Oahu 15—*Delissea subcordata*—c	*Delissea subcordata*.	
Oahu 15—*Delissea subcordata*—d	*Delissea subcordata*.	
Oahu 35—*Delissea subcordata*—e		*Delissea subcordata*.
Oahu 35—*Delissea subcordata*—f		*Delissea subcordata*.
Oahu 35—*Diellia erecta*—a	*Diellia erecta*.	
Oahu 4—*Diellia falcata*—a		*Diellia falcata*.
Oahu 4—*Diellia falcata*—b	*Diellia falcata*.	
Oahu 15—*Diellia falcata*—c	*Diellia falcata*.	
Oahu 15—*Diellia falcata*—d	*Diellia falcata*.	
Oahu 15—*Diellia unisora*—a	*Diellia unisora*.	
Oahu 4—*Diplazium molokaiense*—a		*Diplazium molokaiense*.
Oahu 4—*Dubautia herbstobatae*—a		*Dubautia herbstobatae*.
Oahu 4—*Dubautia herbstobatae*—b		*Dubautia herbstobatae*.
Oahu 7—*Dubautia herbstobatae*—c		*Dubautia herbstobatae*.
Oahu 4—*Eragrostis fosbergii*—a	*Eragrostis fosbergii*.	
Oahu 4—*Eugenia koolauensis*—a	*Eugenia koolauensis*.	
Oahu 19—*Eugenia koolauensis*—b	*Eugenia koolauensis*.	
Oahu 20—*Eugenia koolauensis*—c	*Eugenia koolauensis*.	
Oahu 3—*Euphorbia haeleeleana*—a	*Euphorbia haeleeleana*.	
Oahu 4—*Euphorbia haeleeleana*—b	*Euphorbia haeleeleana*.	
Oahu 4—*Flueggea neowawraea*—a	*Flueggea neowawraea*.	
Oahu 15—*Gardenia mannii*—a	*Gardenia mannii*.	
Oahu 20—*Gardenia mannii*—b	*Gardenia mannii*.	
Oahu 20—*Gardenia mannii*—c		*Gardenia mannii*.
Oahu 4—*Gouania meyenii*—a	*Gouania meyenii*.	
Oahu 4—*Gouania meyenii*—b	*Gouania meyenii*.	
Oahu 15—*Gouania meyenii*—c		*Gouania meyenii*.
Oahu 31—*Gouania meyenii*—d		*Gouania meyenii*.
Oahu 2—*Gouania vitifolia*—a		*Gouania vitifolia*.
Oahu 3—*Gouania vitifolia*—b		*Gouania vitifolia*.
Oahu 5—*Gouania vitifolia*—c		*Gouania vitifolia*.
Oahu 4—*Gouania vitifolia*—d		Gouania vitifolia.
Oahu 4—*Gouania vitifolia*—e		*Gouania vitifolia*.
Oahu 4—*Gouania vitifolia*—f	*Gouania vitifolia*.	
Oahu 4—*Gouania vitifolia*—g		*Gouania vitifolia*.
Oahu 8—*Gouania vitifolia*—h	*Gouania vitifolia*.	
Oahu 15—*Hedyotis coriacea*—a		*Hedyotis coriacea*.
Oahu 35—*Hedyotis coriacea*—b		*Hedyotis coriacea*.
Oahu 4—*Hedyotis degeneri*—a	*Hedyotis degeneri*.	
Oahu 4—*Hedyotis degeneri*—b	*Hedyotis degeneri*.	
Oahu 4—*Hedyotis parvula*—a	*Hedyotis parvula*.	
Oahu 15—*Hedyotis parvula*—b		*Hedyotis parvula*.
Oahu 15—*Hedyotis parvula*—c		*Hedyotis parvula*.
Oahu 15—*Hedyotis parvula*—d	*Hedyotis parvula*.	
Oahu 4—*Hesperomannia arborescens*—a	*Hesperomannia arborescens*.	
Oahu 20—*Hesperomannia arborescens*—b	Hesperomannia arborescens.	
Oahu 4—*Hesperomannia arbuscula*—a	*Hesperomannia arbuscula*.	
Oahu 4—*Hesperomannia arbuscula*—b	*Hesperomannia arbuscula*.	
Oahu 15—*Hesperomannia arbuscula*—c		*Hesperomannia arbuscula*.
Oahu 15—*Hesperomannia arbuscula*—d		*Hesperomannia arbuscula*.
Oahu 15—*Hesperomannia arbuscula*—e	*Hesperomannia arbuscula*.	
Oahu 1—*Hibiscus brackenridgei*—a	*Hibiscus brackenridgei*.	
Oahu 4—*Hibiscus brackenridgei*—b	*Hibiscus brackenridgei*.	
Oahu 5—*Hibiscus brackenridgei*—c	*Hibiscus brackenridgei*.	
Oahu 4—*Isodendrion laurifolium*—a	*Isodendrion laurifolium*.	
Oahu 4—*Isodendrion laurifolium*—b	*Isodendrion laurifolium*.	
Oahu 35—*Isodendrion laurifolium*—c		*Isodendrion laurifolium*.
Oahu 4—*Isodendrion longifolium*—a	*Isodendrion longifolium*.	
Oahu 20—*Isodendrion longifolium*—b		*Isodendrion longifolium*.

(305) TABLE OF PROTECTED SPECIES WITHIN EACH CRITICAL HABITAT UNIT FOR OAHU—Continued

Unit name	Species occupied	Species unoccupied
Oahu 5—*Isodendrion pyrifolium*—a	.....	*Isodendrion pyrifolium.*
Oahu 16—*Isodendrion pyrifolium*—b	.....	*Isodendrion pyrifolium.*
Oahu 17—*Isodendrion pyrifolium*—c	.....	*Isodendrion pyrifolium.*
Oahu 4—*Labordia cyrtandrae*—a	*Labordia cyrtandrae*.	
Oahu 20—*Labordia cyrtandrae*—b	.....	*Labordia cyrtandrae.*
Oahu 20—*Labordia cyrtandrae*—c	*Labordia cyrtandrae*.	
Oahu 4—*Lepidium arbuscula*—a	*Lepidium arbuscula*.	
Oahu 15—*Lepidium arbuscula*—b	*Lepidium arbuscula*.	
Oahu 15—*Lepidium arbuscula*—c	*Lepidium arbuscula*.	
Oahu 4—*Lipochaeta lobata* var. *leptophylla*—a	*Lipochaeta lobata* var. *leptophylla*.	
Oahu 15—*Lipochaeta lobata* var. *leptophylla*—b	*Lipochaeta lobata* var. *leptophylla*.	
Oahu 4—*Lipochaeta tenuifolia*—a	*Lipochaeta tenuifolia*.	
Oahu 4—*Lipochaeta tenuifolia*—b	*Lipochaeta tenuifolia*.	
Oahu 4—*Lipochaeta tenuifolia*—c	*Lipochaeta tenuifolia*.	
Oahu 20—*Lobelia gaudichaudii* ssp. *koolauensis*—a	*Lobelia gaudichaudii* ssp. *koolauensis*.	
Oahu 30—*Lobelia monostachya*—a	.....	*Lobelia monostachya.*
Oahu 22—*Lobelia monostachya*—b	*Lobelia monostachya*.	
Oahu 33—*Lobelia monostachya*—c	.....	*Lobelia monostachya.*
Oahu 35—*Lobelia monostachya*—d	.....	*Lobelia monostachya.*
Oahu 4—*Lobelia niihauensis*—a	*Lobelia niihauensis*.	
Oahu 17—*Lobelia niihauensis*—b	*Lobelia niihauensis*.	
Oahu 20—*Lobelia oahuensis*—a	*Lobelia oahuensis*.	
Oahu 35—*Lobelia oahuensis*—b	*Lobelia oahuensis*.	
Oahu 20—*Lysimachia filifolia*—a	*Lysimachia filifolia*.	
Oahu 4—*Mariscus pennatiformis*—a	.....	*Mariscus pennatiformis.*
Oahu 4—*Mariscus pennatiformis*—b	.....	*Mariscus1 pennatiformis.*
Oahu 13—*Marsilea villosa*—a	*Marsilea villosa*.	
Oahu 14—*Marsilea villosa*—b	*Marsilea villosa*.	
Oahu 28—*Marsilea villosa*—c	*Marsilea villosa*.	
Oahu 29—*Marsilea villosa*—d	.....	*Marsilea villosa.*
Oahu 36—*Marsilea villosa*—e	.....	*Marsilea villosa.*
Oahu 20—*Melicope lydgatei*—a	*Melicope lydgatei*.	
Oahu 4—*Melicope pallida*—a	.....	*Melicope pallida.*
Oahu 15—*Melicope pallida*—b	.....	*Melicope pallida.*
Oahu 15—*Melicope pallida*—c	.....	*Melicope pallida.*
Oahu 15—*Melicope pallida*—d	.....	*Melicope pallida.*
Oahu 15—*Melicope pallida*—e	*Melicope pallida*.	
Oahu 15—*Melicope saint-johnii*—a	*Melicope saint-johnii*.	
Oahu 15—*Melicope saint-johnii*—b	*Melicope saint-johnii*.	
Oahu 20—*Myrsine juddii*—a	*Myrsine juddii*.	
Oahu 3—*Neraudia angulata*—a	*Neraudia angulata*.	
Oahu 4—*Neraudia angulata*—b	*Neraudia angulata*.	
Oahu 4—*Neraudia angulata*—c	.....	*Neraudia angulata.*
Oahu 4—*Neraudia angulata*—d	*Neraudia angulata*.	
Oahu 4—*Neraudia angulata*—e	*Neraudia angulata*.	
Oahu 15—*Neraudia angulata*—f	*Neraudia angulata*.	
Oahu 3—*Nototrichium humile*—a	*Nototrichium humile*.	
Oahu 4—*Nototrichium humile*—b	*Nototrichium humile*.	
Oahu 4—*Nototrichium humile*—c	*Nototrichium humile*.	
Oahu 4—*Nototrichium humile*—d	*Nototrichium humile*.	
Oahu 4—*Peucedanum sandwicense*—a	*Peucedanum sandwicense*.	
Oahu 20—*Phlegmariurus nutans*—a	*Phlegmariurus nutans*.	
Oahu 4—*Phyllostegia hirsuta*—a	*Phyllostegia hirsuta*.	
Oahu 15—*Phyllostegia hirsuta*—b	*Phyllostegia hirsuta*.	
Oahu 15—*Phyllostegia hirsuta*—c	*Phyllostegia hirsuta*.	
Oahu 20—*Phyllostegia hirsuta*—d	*Phyllostegia hirsuta*.	
Oahu 4—*Phyllostegia kaalaensis*—a	*Phyllostegia kaalaensis*.	
Oahu 4—*Phyllostegia kaalaensis*—b	*Phyllostegia kaalaensis*.	
Oahu 4—*Phyllostegia kaalaensis*—c	*Phyllostegia* kaalaensis.	
Oahu 4—*Phyllostegia kaalaensis*—d	.....	*Phyllostegia kaalaensis.*
Oahu 4—*Phyllostegia kaalaensis*—e	*Phyllostegia kaalaensis*.	
Oahu 15—*Phyllostegia kaalaensis*—f	*Phyllostegia kaalaensis*.	
Oahu 15—*Phyllostegia mollis*—a	*Phyllostegia mollis*.	
Oahu 15—*Phyllostegia mollis*—b	*Phyllostegia mollis*.	
Oahu 15—*Phyllostegia parviflora*—a	.....	*Phyllostegia parviflora.*
Oahu 15—*Phyllostegia parviflora*—b	*Phyllostegia* parviflora.	
Oahu 15—*Phyllostegia parviflora*—c	*Phyllostegia parviflora*.	
Oahu 20—*Phyllostegia parviflora*—d	*Phyllostegia parviflora*.	
Oahu 4—*Plantago princeps*—a	*Plantago princeps*.	
Oahu 4—*Plantago princeps*—b	.....	*Plantago princeps.*
Oahu 15—*Plantago princeps*—c	*Plantago princeps*.	
Oahu 20—*Plantago princeps*—d	*Plantago princeps*.	

(305) TABLE OF PROTECTED SPECIES WITHIN EACH CRITICAL HABITAT UNIT FOR OAHU—Continued

Unit name	Species occupied	Species unoccupied
Oahu 20—*Plantago princeps*—e	...	*Plantago princeps.*
Oahu 20—*Platanthera holochila*—a	...	*Platanthera holochila.*
Oahu 20—*Platanthera holochila*—b	...	*Platanthera holochila.*
Oahu 20—*Pteris lidgatei*—a	*Pteris lidgatei.*	
Oahu 20—*Pteris lidgatei*—b	*Pteris lidgatei.*	
Oahu 20—*Pteris lidgatei*—c	*Pteris lidgatei.*	
Oahu 4—*Sanicula mariversa*—a	...	*Sanicula mariversa.*
Oahu 4—*Sanicula mariversa*—b	...	*Sanicula mariversa.*
Oahu 4—*Sanicula mariversa*—c	*Sanicula mariversa.*	
Oahu 6—*Sanicula mariversa*—d	*Sanicula mariversa.*	
Oahu 15—*Sanicula mariversa*—e	...	*Sanicula mariversa.*
Oahu 15—*Sanicula mariversa*—f	...	*Sanicula mariversa.*
Oahu 20—*Sanicula purpurea*—a	*Sanicula purpurea.*	
Oahu 3—*Schiedea hookeri*—a	*Schiedea hookeri.*	
Oahu 4—*Schiedea hookeri*—b	*Schiedea hookeri.*	
Oahu 4—*Schiedea hookeri*—c	*Schiedea hookeri.*	
Oahu 4—*Schiedea hookeri*—d	*Schiedea hookeri.*	
Oahu 15—*Schiedea hookeri*—e	*Schiedea hookeri.*	
Oahu 15—*Schiedea hookeri*—f	*Schiedea hookeri.*	
Oahu 15—*Schiedea hookeri*—g	*Schiedea hookeri.*	
Oahu 4—*Schiedea kaalae*—a	*Schiedea kaalae.*	
Oahu 15—*Schiedea kaalae*—b	*Schiedea kaalae.*	
Oahu 15—*Schiedea kaalae*—c	*Schiedea kaalae.*	
Oahu 15—*Schiedea kaalae*—d	*Schiedea kaalae.*	
Oahu 20—*Schiedea kaalae*—e	*Schiedea kaalae.*	
Oahu 21—*Schiedea kaalae*—f	*Schiedea kaalae.*	
Oahu 1—*Schiedea kealiae*—a	*Schiedea kealiae.*	
Oahu 4—*Schiedea nuttallii*—a	*Schiedea nuttallii.*	
Oahu 15—*Schiedea nuttallii*—b	...	*Schiedea nuttallii.*
Oahu 15—*Schiedea nuttallii*—c	...	*Schiedea nuttallii.*
Oahu 1—*Sesbania tomentosa*—a	*Sesbania tomentosa.*	
Oahu 18—*Sesbania tomentosa*—b	...	*Sesbania tomentosa.*
Oahu 4—*Silene lanceolata*—a	*Silene lanceolata.*	
Oahu 15—*Silene perlmanii*—a	...	*Silene perlmanii.*
Oahu 15—*Silene perlmanii*—b	...	*Silene perlmanii.*
Oahu 15—*Silene perlmanii*—c	...	*Silene perlmanii.*
Oahu 15—*Silene perlmanii*—d	...	*Silene perlmanii.*
Oahu 4—*Solanum sandwicense*—a	...	*Solanum sandwicense.*
Oahu 15—*Solanum sandwicense*—b	...	*Solanum sandwicense.*
Oahu 15—*Solanum sandwicense*—c	*Solanum sandwicense.*	
Oahu 5—*Spermolepis hawaiiensis*—a	*Spermolepis hawaiiensis.*	
Oahu 31—*Spermolepis hawaiiensis*—b	*Spermolepis hawaiiensis.*	
Oahu 15—*Stenogyne kanehoana*—a	*Stenogyne kanehoana.*	
Oahu 15—*Stenogyne kanehoana*—b	...	*Stenogyne kanehoana.*
Oahu 4—*Tetramolopium filiforme*—a	*Tetramolopium filiforme.*	
Oahu 4—*Tetramolopium filiforme*—b	*Tetramolopium filiforme.*	
Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—a	...	*Tetramolopium lepidotum* ssp. *lepidotum.*
Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—b	*Tetramolopium lepidotum* ssp. *lepidotum.*	
Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—c	...	*Tetramolopium lepidotum* ssp. *lepidotum.*
Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—d	...	*Tetramolopium lepidotum* ssp. *lepidotum.*
Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—e	...	*Tetramolopium lepidotum* ssp. *lepidotum.*
Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—f	...	*Tetramolopium lepidotum* ssp. *lepidotum.*
Oahu 20—*Tetraplasandra gymnocarpa*—a	*Tetraplasandra gymnocarpa.*	
Oahu 20—*Tetraplasandra gymnocarpa*—b	*Tetraplasandra gymnocarpa.*	
Oahu 20—*Tetraplasandra gymnocarpa*—c	*Tetraplasandra gymnocarpa.*	
Oahu 20—*Tetraplasandra gymnocarpa*—d	*Tetraplasandra gymnocarpa.*	
Oahu 35—*Tetraplasandra gymnocarpa*—e	*Tetraplasandra gymnocarpa.*	
Oahu 35—*Tetraplasandra gymnocarpa*—f	*Tetraplasandra gymnocarpa.*	
Oahu 20—*Trematolobelia singularis*—a	...	*Trematolobelia singularis.*
Oahu 20—*Trematolobelia singularis*—b	*Trematolobelia singularis.*	
Oahu 34—*Trematolobelia singularis*—c	...	*Trematolobelia singularis.*
Oahu 35—*Trematolobelia singularis*—d	*Trematolobelia singularis.*	
Oahu 35—*Trematolobelia singularis*—e	*Trematolobelia singularis.*	
Oahu 4—*Urera kaalae*—a	...	*Urera kaalae.*
Oahu 4—*Urera kaalae*—b	*Urera kaalae.*	
Oahu 15—*Urera kaalae*—c	*Urera kaalae.*	
Oahu 15—*Urera kaalae*—d	*Urera kaalae.*	
Oahu 15—*Urera kaalae*—e	*Urera kaalae.*	
Oahu 15—*Urera kaalae*—f	*Urera kaalae.*	
Oahu 1—*Vigna o-wahuensis*—a	...	*Vigna o-wahuensis.*
Oahu 24—*Vigna o-wahuensis*—b	...	*Vigna o-wahuensis*
Oahu 25—*Vigna o-wahuensis*—c	...	*Vigna o-wahuensis*

(305) TABLE OF PROTECTED SPECIES WITHIN EACH CRITICAL HABITAT UNIT FOR OAHU—Continued

Unit name	Species occupied	Species unoccupied
Oahu 26—*Vigna o-wahuensis*—d		*Vigna o-wahuensis*
Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—a		*Viola chamissoniana* ssp. *chamissoniana.*
Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—b		*Viola chamissoniana* ssp. *chamissoniana.*
Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—c	*Viola chamissoniana* ssp. *chamissoniana.*	
Oahu 10—*Viola chamissoniana* ssp. *chamissoniana*—d		*Viola chamissoniana* ssp. *chamissoniana.*
Oahu15—*Viola chamissoniana* ssp. *chamissoniana*—e		*Viola chamissoniana* ssp. *chamissoniana.*
Oahu 15—*Viola chamissoniana* ssp. *chamissoniana*—f	*Viola chamissoniana* ssp. *chamissoniana.*	
Oahu 20—*Viola Oahuensis*—a	*Viola Oahuensis.*	
Oahu 35—*Viola Oahuensis*—b		*Viola Oahuensis.*

(306) Critical habitat unit descriptions and maps, and a description of primary constituent elements, for Family Poacae: *Panicum faurei* var. *carteri* on the island of Oahu is provided in 50 CFR 17.96(a).

(j) *Plants on Oahu; Constituent elements.*

(1) *Flowering plants.*

Family Amaranthaceae: *Nototrichium humile* (kului)

Oahu 3—*Nototrichium humile*—a, Oahu 4—*Nototrichium humile*—b, Oahu 4—*Nototrichium humile*—c, and Oahu 4—*Nototrichium humile*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Nototrichium humile* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Cliff faces, gulches, stream banks, or steep slopes in dry or mesic forests often dominated by *Diospyros sandwicensis* or *Sapindus oahuensis* and containing one or more of the following associated native plant species: *Abutilon sandwicense, Alyxia oliviformis, Antidesma pulvinatum, Artemisia australis, Bidens cervicata, Canavalia* sp., *Carex wahuensis, Charpentiera* sp., *Dodonaea viscosa, Elaeocarpus bifidus, Erythrina sandwicensis, Eugenia reinwardtiana, Hibiscus* sp., *Melanthera tenuis, Metrosideros polymorpha, Myoporum sandwicense, Myrsine lanaiensis, Nestegis sandwicensis, Peperomia* sp., *Pisonia umbellifera, Pleomele* sp., *Pouteria sandwicensis, Psydrax odorata, Rauvolfia sandwicensis, Reynoldsia sandwicensis, Sicyos* sp., *Stenogyne* sp., *Streblus pendulinus*, or *Syzygium sandwicensis*; and

(ii) Elevations between 185 and 806 m (607 and 2,644 ft).

Family Apiacaeae: *Peucedanum sandwicense* (makou)

Oahu 4—*Peucedanum sandwicense*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Peucedanum sandwicense* on Oahu. Within this unit, currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Cliffs, slopes, or ridges in *Metrosideros polymorpha* lowland mesic forest containing one or more of the following associated native plant species: *Artemisia australis, Carex meyenii, Dianella sandwicensis, Dodonaea viscosa, Eragrostis* sp., *Lepidium bidentatum* var. *o-waihiense, Melanthera integrifolia, Osteomeles anthyllidifolia, Peperomia remyi, Pittosporum halophilum, Plechtranthus parviflorus, Plumbago zeylanica, Portulaca lutea, Reynoldsia sandwicensis, Santalum ellipticum, Scaevola sericea, Schiedea globosa, Senna gaudichaudii,* or *Sida fallax;* and

(ii) Elevations between 469 and 977 m (1,538 and 3,205 ft).

Family Apiaceae: *Sanicula mariversa* (NCN)

Oahu 4—*Sanicula mariversa*—a, Oahu 4—*Sanicula mariversa*—b, Oahu 4—*Sanicula mariversa*—c, Oahu 6—*Sanicula mariversa*—d, Oahu 15—*Sanicula mariversa*—e, and Oahu 15—*Sanicula mariversa*—f, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Sanicula mariversa* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Well-drained, dry slopes or rock faces in mesic shrublands or open grassy areas and containing one or more of the following associated native plant species: *Bidens torta, Carex meyenii, Doryopteris* sp., *Eragrostis* sp., *Metrosideros polymorpha,* or *Metrosideros tremuloides;* and

(ii) Elevations between 475 and 1,025 m (1,558 and 3,362 ft).

Family Apiaceae: *Sanicula purpurea* (NCN)

Oahu 20—*Sanicula purpurea*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Sanicula purpurea* on Oahu. Within this unit, currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Open *Metrosideros polymorpha* mixed montane bogs or windswept shrublands within the cloud zone containing one or more of the following associated native plant species: *Bidens* sp., *Cheirodendron* sp., *Dicanthelium koolauense, Gahnia beechyi, Leptecophylla tameiameiae, Lycopodium* sp., *Machaerina angustifolia, Plantago pachyphylla, Sadleria pallida,* or *Vaccinium* sp.; and

(ii) Elevations between 415 and 871 m (1,361 and 2,857 ft).

Family Apiaceae: *Spermolepis hawaiiensis* (NCN)

Oahu 5—*Spermolepis hawaiiensis*—a and Oahu 31—*Spermolepis hawaiiensis*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Spermolepis hawaiiensis* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep or vertical cliffs or the base of cliffs or ridges in coastal dry cliff vegetation containing one or more of the following associated native plant species: *Artemisia australis, Bidens* sp., *Dodonaea viscosa, Doryopteris* sp., *Heteropogon contortus, Santalum ellipticum,* or *Waltheria indica;* and

(ii) Elevations between 25 to 306 m (82 to 1,004 ft).

Family Araliaceae: *Tetraplasandra gymnocarpa* (oheohe)

Oahu 20—*Tetraplasandra gymnocarpa*—a, Oahu 20—*Tetraplasandra gymnocarpa*—b, Oahu 20—*Tetraplasandra gymnocarpa*—c, Oahu 20—*Tetraplasandra gymnocarpa*—d, Oahu 35—*Tetraplasandra gymnocarpa*—e and Oahu 35—*Tetraplasandra gymnocarpa*—f, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Tetraplasandra gymnocarpa* on Oahu.

Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Windswept summit ridges, slopes, or gullies in wet or sometimes mesic lowland forests or shrublands and containing one or more of the following associated native plant species: *Acacia koa, Antidesma platyphyllum, Bidens* sp., *Bobea elatior, Broussaisia arguta, Cheirodendron* sp., *Cibotium chamissoi, Cibotium* sp., *Cyanea humboltiana, Dicranopteris linearis, Diplopterygium pinnatum, Dubautia laxa, Freycinetia arborea, Hedyotis fosbergii, Hedyotis terminalis, Labordia* sp., *Lobelia hypoleuca, Machaerina angustifolia, Melicope* spp., *Metrosideros polymorpha, Myrsine fosbergii, Pouteria sandwicensis, Psychotria* spp., *Sadleria* sp., *Syzygium sandwicensis, Tetraplasandra oahuensis,* or *Wikstroemia* sp.; and

(ii) Elevations between 93 and 959 m (305 and 3,146 ft).

Family Asteraceae: *Dubautia herbstobatae* (naenae)

Oahu 4—*Dubautia herbstobatae*—a, Oahu 4—*Dubautia herbstobatae*—b, and Oahu 7—*Dubautia herbstobatae*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Dubautia herbstobatae* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Rock outcrops, ridges, moderate slopes, or vertical cliffs in dry or mesic shrubland containing one or more of the following associated native plant species: *Artemisia australis, Bidens torta, Carex meyenii, Chamaesyce celastroides, Dodonaea viscosa, Eragrostis variabilis, Metrosideros polymorpha,* or *Schiedea mannii;* and

(ii) Elevations between 473 and 975 m (1,551 and 3,198 ft).

Family Asteraceae: *Hesperomannia arborescens* (NCN)

Oahu 4—*Hesperomannia arborescens*—a and Oahu 20—*Hesperomannia arborescens*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Hesperomannia arborescens* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep slopes, ridge tops, or gulches in lowland wet forests or shrublands and containing one or more of the following associated native plant species: *Acacia koa, Antidesma platyphyllum, Bobea elatior, Broussaisia arguta, Cheirodendron* sp., *Cibotium* sp., *Coprosma* sp., *Dicranopteris linearis, Dubautia* sp., *Hedyotis terminalis, Hibiscus arnottianus, Labordia sessilis, Machaerina angustifolia, Melicope* sp., *Metrosideros polymorpha, Myrsine* sp., *Nestegis sandwicensis, Perrottetia sandwicensis, Pipturus* sp., *Psychotria mariniana, Scaevola glabra, Scaevola gaudichaudiana, Syzygium sandwicensis, Tetraplasandra oahuensis,* or *Wikstroemia* sp.; and

(ii) Elevations between 110 and 1,025 m (361 and 3,362 ft).

Family Asteraceae: *Hesperomannia arbuscula* (NCN)

Oahu 4—*Hesperomannia arbuscula*—a, Oahu 4—*Hesperomannia arbuscula*—b, Oahu 15—*Hesperomannia arbuscula*—c, Oahu 15—*Hesperomannia arbuscula*—d, and Oahu 15—*Hesperomannia arbuscula*—e, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Hesperomannia arbuscula* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Slopes or ridges in dry to wet forest dominated by *Acacia koa* or *Metrosideros polymorpha* containing one or more of the following associated native plant species: *Alyxia oliviformis, Antidesma* sp., *Bidens* sp., *Bobea elatior, Cyanea longiflora, Diospyros hillebrandii, Freycinetia arborea, Hedyotis terminalis, Hibiscus* sp., *Psychotria* sp., or *Syzygium sandwicensis;* and

(ii) Elevations between 370 and 1,053 m (1,214 and 3,454 ft).

Family Asteraceae: *Lipochaeta lobata* var. *leptophylla* (nehe)

Oahu 4—*Lipochaeta lobata* var. *leptophylla*—a and Oahu 15—*Lipochaeta lobata* var. *leptophylla*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Lipochaeta lobata* var. *leptophylla* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Cliffs, ridges, or slopes in dry or mesic shrubland containing one or more of the following associated native plant species: *Artemisia australis, Bidens* sp., *Carex meyenii, Diospyros* sp., *Dodonaea viscosa, Eragrostis* sp., *Melanthera tenuis, Peperomia* sp., *Psydrax odorata,* or *Stenogyne* sp.; and

(ii) Elevations between 256 and 978 m (840 and 3,208 ft).

Family Asteraceae: *Lipochaeta tenuifolia* (nehe)

Oahu 4—*Lipochaeta tenuifolia*—a, Oahu 4—*Lipochaeta tenuifolia*—b, and Oahu 4—*Lipochaeta tenuifolia*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Lipochaeta tenuifolia* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Ridgetops or bluffs in open areas or protected pockets of dry to mesic forests or shrublands or forests dominated by *Diospyros sandwicensis* and containing one or more of the following associated native plant species: *Artemisia australis, Bidens* sp., *Carex meyenii, Diospyros* sp., *Dodonaea viscosa, Doryopteris* sp., *Dubautia* sp., *Eragrostis* sp., *Myoporum sandwicense, Osteomeles anthyllidifolia, Psydrax odorata, Reynoldsia sandwicensis, Rumex* sp., *Sapindus oahuensis, Santalum* sp., or *Schiedea* sp.; and

(ii) Elevations between 110 and 978 m (361 and 3,208 ft).

Family Asteraceae: *Tetramolopium filiforme* (NCN)

Oahu 4—*Tetramolopium filiforme*—a and Oahu 4—*Tetramolopium filiforme*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Tetramolopium filiforme* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Dry cliff faces or ridges in dry or mesic forests containing one or more of the following associated native plant species: *Artemisia australis, Bidens torta, Carex meyenii, Dodonaea viscosa, Peperomia tetraphylla, Schiedea mannii, Schiedea* sp., or *Sida fallax;* and

(ii) Elevations between 352 and 978 m (1,155 and 3,208 ft).

Family Asteraceae: *Tetramolopium lepidotum* ssp. *lepidotum* (NCN)

Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—a, Oahu 4—*Tetramolopium lepidotum* ssp. *lepidotum*—b, Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—c, Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—d, Oahu 15—*Tetramolopium lepidotum* ssp. *lepidotum*—e, and Oahu 15—*Tetramolopium lepidotum* ssp.

lepidotum—f, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Tetramolopium lepidotum* ssp. *lepidotum* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Grassy ridgetops, slopes, or cliffs in windblown dry forests and containing one or more of the following associated native plant species: *Bidens* sp., *Carex wahuensis, Eragrostis* sp., or *Metrosideros polymorpha;* and

(ii) Elevations between 330 to 1,157 m (1,082 to 3,795 ft).

Family Brassicaceae: *Lepidium arbuscula* (anaunau)

Oahu 4—*Lepidium arbuscula*—a, Oahu 15—*Lepidium arbuscula*—b, and Oahu 15—*Lepidium arbuscula*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Lepidium arbuscula* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Exposed ridge tops and cliff faces in mesic and dry vegetation communities containing one or more of the following associated native plant species: *Artemisia australis, Bidens* sp., *Carex meyenii, Carex wahuensis, Chamaesyce multiformis, Dodonaea viscosa, Dryopteris unidentata, Dubautia* sp., *Eragrostis* sp., *Leptecophylla tameiameiae, Lysimachia hillebrandii, Metrosideros polymorpha, Peperomia* sp., *Psydrax odorata, Rumex albescens, Schiedea ligustrina, Sida fallax,* or *Sophora chrysophylla;* and

(ii) Elevations between 246 and 978 m (430 and 3,208 ft).

Family Campanulaceae: *Cyanea acuminata* (haha)

Oahu 4—*Cyanea acuminata*—a and Oahu 20—*Cyanea acuminata*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyanea acuminata* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Slopes, ridges, or stream banks in *Metrosideros polymorpha-Dicranopteris linearis* or *Acacia koa-Metrosideros polymorpha* wet or mesic forest or shrubland, or *Diospyros sandwicensis-Metrosideros polymorpha* lowland mesic forest, and containing one or more of the following associated native plant species: *Antidesma* sp., *Broussaisia arguta, Chamaesyce* sp., *Charpentiera* sp., *Cyrtandra* spp., *Diplazium sandwichianum, Dryopteris sandwicensis, Dubautia laxa, Freycinetia arborea, Hedyotis centranthoides, Hedyotis* sp., *Hibiscus* sp., *Ilex anomala, Labordia* sp., *Machaerina* sp., *Melicope* spp., *Perrottetia sandwicensis, Phyllostegia* sp., *Pipturus albidus, Pisonia* sp., *Psychotria* sp., *Sadleria* sp., *Syzygium sandwicensis, Touchardia latifolia,* or *Wikstroemia* sp.; and

(ii) Elevations between 216 and 1,208 m (708 and 3,962 ft).

Family Campanulaceae: *Cyanea crispa* (NCN)

Oahu 20—*Cyanea crispa*—a, Oahu 20—*Cyanea crispa*—b, Oahu 21—*Cyanea crispa*—c, and Oahu 35—*Cyanea crispa*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyanea crispa* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Slopes, moist gullies, or stream banks in open mesic forests or closed wet forests containing one or more of the following associated native plant species: *Antidesma platyphyllum, Boehmeria grandis, Broussaisia arguta, Christella cyatheoides, Cibotium chamissoi, Cyrtandra* spp., *Diospyros* sp., *Dubautia* sp., *Metrosideros polymorpha, Microsorum spectrum, Perrottetia sandwicensis, Pipturus albidus, Pisonia umbellifera, Psychotria* sp. or *Touchardia latifolia;* and

(ii) Elevations between 56 and 959 m (184 and 3,146 ft).

Family Campanulaceae: *Cyanea grimesiana* ssp. *grimesiana* (haha)

Oahu 20—*Cyanea grimesiana* ssp. *grimesiana*—a and Oahu 35—*Cyanea grimesiana* ssp. *grimesiana*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyanea grimesiana* ssp. *grimesiana* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Rocky or steep slopes of stream banks in mesic forest often dominated by *Metrosideros polymorpha* or *Metrosideros polymorpha* and *Acacia koa,* and containing one or more of the following associated native plant species: *Alyxia oliviformis, Antidesma* sp., *Bobea* sp., *Clermontia persicifolia, Coprosma* sp., *Cyanea angustifolia, Dicranopteris linearis, Diplazium sandwichianum, Joinvillea* sp., *Melicope* sp., *Myrsine* sp., *Nestegis sandwicensis, Psychotria* sp., *Syzygium sandwicensis,* or *Xylosma* sp.; and

(ii) Elevations between 114 and 746 m (374 and 2,447 ft).

Family Campanulaceae: *Cyanea grimesiana* ssp. *obatae* (haha)

Oahu 4—*Cyanea grimesiana* ssp. *obatae*—a, Oahu 15—*Cyanea grimesiana* ssp. *obatae*—b, Oahu 15—*Cyanea grimesiana* ssp. *obatae*—c, and Oahu 15—*Cyanea grimesiana* ssp. *obatae*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyanea grimesiana* ssp. *obatae* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep, moist, shaded slopes in diverse mesic to wet lowland forests containing one or more of the following associated native plant species: *Acacia koa, Antidesma platyphyllum, Chamaesyce* sp., *Charpentiera obovata, Cibotium chamissoi, Claoxylon sandwicense, Coprosma* sp., *Cyanea membranacea, Cyrtandra waianaeensis, Diplazium sandwichianum, Dryopteris unidentata, Dubautia* sp., *Freycinetia arborea, Hedyotis acuminata, Hedyotis terminalis, Metrosideros polymorpha, Myrsine lessertiana, Nothocestrum* sp., *Perrottetia sandwicensis, Pipturus albidus, Pisonia umbellifera, Pouteria sandwicensis, Psychotria hathewayi, Rumex* sp., *Selaginella arbuscula,* or *Streblus pendulinus;* and

(ii) Elevations between 404 and 1,092 m (1,325 and 3,528 ft).

Family Campanulaceae: *Cyanea humboltiana* (haha)

Oahu 20—*Cyanea humboltiana*—a, Oahu 20—*Cyanea humboltiana*—b, Oahu 20—*Cyanea humboltiana*—c, Oahu 20—*Cyanea humboltiana*—d, and Oahu 35—*Cyanea humboltiana*—e, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyanea humboltiana* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Wet *Metrosideros polymorpha-Dicranopteris linearis* lowland shrubland containing one or more of the following associated native plant species: *Acacia koa, Bobea elatior, Broussaisia arguta, Cibotium chamissoi, Dubautia laxa, Hedyotis terminalis, Ilex anomala, Machaerina angustifolia, Melicope* sp., *Phyllostegia* sp., *Psychotria mariniana, Sadleria* sp., *Scaevola mollis, Syzygium*

sandwicensis, Wikstroemia sp., or native ferns; and

(ii) Elevations between 319 and 959 m (856 and 3,146 ft).

Family Campanulaceae: *Cyanea koolauensise* (haha)

Oahu 20—*Cyanea koolauensis*—a, Oahu 20—*Cyanea koolauensis*—b, Oahu 35—*Cyanea koolauensis*—c, and Oahu 35—*Cyanea koolauensis*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyanea koolauensis* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Slopes, stream banks, and ridge crests in wet *Metrosideros polymorpha-Dicranopteris linearis* forest or shrubland containing one or more of the following associated native plant species: *Acacia koa, Antidesma platyphyllum, Bidens* sp., *Bobea elatior, Broussaisia arguta, Cibotium* sp., *Diplopterygium pinnatum, Dubautia* sp., *Hedyotis* sp., *Machaerina* sp., *Melicope* sp., *Pittosporum* sp., *Pritchardia martii, Psychotria mariniana, Sadleria* sp., *Scaevola* sp., *Syzygium sandwicensis,* or *Wikstroemia* sp.; and

(ii) Elevations between 280 and 959 m (535 and 3,146 ft).

Family Campanulaceae: *Cyanea longiflora* (haha)

Oahu 4—*Cyanea longiflora*—a, Oahu 4—*Cyanea longiflora*—b, and Oahu 19—*Cyanea longiflora*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyanea longiflora* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep slopes, bases of cliffs, or ridge crests in mesic *Acacia koa-Metrosideros polymorpha* lowland forest containing one or more of the following associated native plant species: *Antidesma* sp., *Cibotium* sp., *Coprosma* sp., *Dicranopteris linearis, Psychotria* sp., *Schiedea* sp., or *Syzygium sandwicensis;* and

(ii) Elevations between 146 and 1,191 m (479 and 3,906 ft).

Family Campanulaceae: *Cyanea pinnatifida* (haha)

Oahu 15—*Cyanea pinnatifida*—a, Oahu 15—*Cyanea pinnatifida*—b, and Oahu 15—*Cyanea pinnatifida*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyanea pinnatifida* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep, wet, rocky slopes in diverse mesic forest containing one or more of the following associated native plant species: *Canavalia* sp., *Diplazium sandwichianum, Pipturus albidus, Pisonia sandwicensis, Pisonia umbellifera, Psychotria* sp., *Strongylodon ruber,* or native ferns; and

(ii) Elevations between 450 and 881 m (1,476 and 2,890 ft).

Family Campanulaceae: *Cyanea st.-johnii* (haha)

Oahu 20—*Cyanea st.-johnii*—a and Oahu 35—*Cyanea st.-johnii*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyanea st.-johnii* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Wet, windswept slopes and ridges in *Metrosideros polymorpha* mixed lowland shrubland or *Metrosideros polymorpha-Dicranopteris linearis* lowland shrubland and containing one or more of the following associated native plant species: *Alyxia oliviformis, Antidesma* sp., *Bidens macrocarpa, Broussaisia arguta, Chamaesyce clusiifolia, Cibotium* sp., *Dubautia laxa, Freycinetia arborea, Hedyotis* sp., *Labordia* sp., *Machaerina angustifolia, Melicope* sp., *Psychotria* sp., *Sadleria pallida, Scaevola mollis, or Syzygium sandwicensis;* and

(ii) Elevations between 461 and 959 m (1,512 and 3,146 ft).

Family Campanulaceae: *Cyanea superba* (NCN)

Oahu 4—*Cyanea superba*—a, Oahu 4—*Cyanea superba*—b, Oahu 4—*Cyanea superba*—c, and Oahu 35—*Cyanea superba*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyanea superba* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Sloping terrain on a well drained rocky substrate within mesic forest containing one or more of the following associated native plant species: *Diospyros* sp., *Hedyotis terminalis, Metrosideros polymorpha, Nestegis sandwicensis, Pisonia brunoniana, Psychotria* sp., or *Xylosma* sp.; and

(ii) Elevations between 232 and 872 m (761 and 2,991 ft).

Family Campanulaceae: *Cyanea truncata* (haha)

Oahu 20—*Cyanea truncata*—a and Oahu 21—*Cyanea truncata*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyanea truncata* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Windward slopes and stream banks in mesic to wet forests containing one or more of the following associated native plant species: *Cibotium chamissoi, Cyrtandra calpidicarpa, Cyrtandra laxiflora, Cyrtandra propinqua, Diospyros sandwicensis, Hibiscus arnottianus, Metrosideros polymorpha, Neraudia melastomifolia, Pipturus albidus,* or *Pisonia umbellifera;* and

(ii) Elevations between 54 and 705 m (177 and 2,312 ft).

Family Campanulaceae: *Delissea subcordata* (oha)

Oahu 4—*Delissea subcordata*—a, Oahu 15—*Delissea subcordata*—b, Oahu 15—*Delissea subcordata*—c, Oahu 15—*Delissea subcordata*—d, Oahu 35—*Delissea subcordata*—e, and Oahu 35—*Delissea subcordata*—f, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Delissea subcordata* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Moderate to steep gulch slopes in mixed mesic forests containing one or more of the following associated native plant species: *Acacia koa, Alyxia oliviformis, Antidesma* sp., *Bobea* sp., *Claoxylon sandwicense, Chamaesyce multiformis, Charpentiera obovata, Diospyros hillebrandii, Diospyros sandwicensis, Hedyotis acuminata, Metrosideros polymorpha, Myrsine lanaiensis, Nestegis sandwicensis, Pisonia* sp., *Pouteria sandwicensis, Psychotria hathewayi, Psydrax odorata,* or *Streblus pendulinus;* and

(ii) Elevations between 179 and 928 m (587 and 3,044 ft).

Family Campanulaceae: *Lobelia gaudichaudii* ssp. *koolauensis* (NCN)

Oahu 20—*Lobelia gaudichaudii* ssp. *koolauensis*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Lobelia gaudichaudii* ssp. *koolauensis* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not

limited to, the habitat components provided by:

(i) Moderate to steep slopes in *Metrosideros polymorpha* lowland wet shrublands or bogs and containing one or more of the following associated native plant species: *Bidens* sp., *Broussaisia arguta, Cibotium* sp., *Dicanthelium koolauense, Isachne distichophylla, Machaerina angustifolia, Melicope* sp., *Sadleria pallida, Scaevola* sp., or *Vaccinium dentatum;* and

(ii) Elevations between 383 and 867 m (1,256 and 2,844 ft).

Family Campanulaceae: *Lobelia monostachya* (NCN)

Oahu 30—*Lobelia monostachya*—a, Oahu 22—*Lobelia monostachya*—b, Oahu 33—*Lobelia monostachya*—c, and Oahu 35—*Lobelia monostachya*—d, identified in the legal descriptions in paragraph (i) of this section, constitutes critical habitat for *Lobelia monostachya* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep, sparsely vegetated cliffs in mesic shrubland containing one or more of the following associated native plant species: *Artemisia australis, Carex meyenii, Eragrostis* sp., or *Psilotum nudum;* and

(ii) Elevation between 79 and 592 m (259 to 1,942 ft).

Family Campanulaceae: *Lobelia niihauensis* (NCN)

Oahu 4—*Lobelia niihauensis*—a and Oahu 17—*Lobelia niihauensis*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Lobelia niihauensis* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Exposed mesic or dry cliffs or ledges and containing one or more of the following associated native plant species: *Artemisia* sp., *Bidens* sp., *Carex meyenii, Dodonaea viscosa, Doryopteris* sp., *Eragrostis* sp., *Leptecophylla tameiameiae, Melanthera tenuis, Osteomeles anthyllidifolia, Plectranthus parviflorus, Schiedea mannii,* or *Sida fallax;* and

(ii) Elevations between 407 to 926 m (1,335 to 3,037 ft).

Family Campanulaceae: *Lobelia oahuensis* (NCN)

Oahu 20—*Lobelia oahuensis*—a and Oahu 35—*Lobelia oahuensis*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Lobelia oahuensis* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep slopes on summit cliffs in cloudswept wet forests or in lowland wet shrubland that are frequently exposed to heavy wind and rain and containing one or more of the following associated native plant species: *Bidens* sp., *Broussaisia arguta, Cheirodendron trigynum, Cibotium* sp., *Dicranopteris linearis, Dubautia laxa, Freycinetia arborea, Hedyotis* sp., *Labordia hosakana, Lycopodium* sp., *Machaerina angustifolia, Melicope* sp., *Metrosideros polymorpha, Peperomia* sp., *Phyllostegia* sp., *Sadleria squarrosa, Scaevola* sp., *Syzygium sandwicensis, Vaccinium* sp., or *Wikstroemia* sp.; and

(ii) Elevations between 415 and 959 m (1,361 and 3,146 ft).

Family Campanulaceae: *Trematolobelia singularis* (NCN)

Oahu 20—*Trematolobelia singularis*—a, Oahu 20—*Trematolobelia singularis*—b, Oahu 34—*Trematolobelia singularis*—c, Oahu 35—*Trematolobelia singularis*—d, and Oahu 35—*Trematolobelia singularis*—e, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Trematolobelia singularis* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep, windswept cliff faces or slopes in *Metrosideros polymorpha-Dicranopteris linearis* lowland wet shrubland and containing one or more of the following associated native plant species: *Broussaisia arguta, Cibotium* sp., *Dubautia laxa, Eugenia* sp., *Melicope* sp., *Sadleria* sp., or *Wikstroemia* sp.; and

(ii) Elevations between 545 and 953 m (1,788 and 3,126 ft).

Family Caryophyllaceae: *Alsinidendron obovatum* (NCN)

Oahu 4—*Alsinidendron obovatum*—a, Oahu 4—*Alsinidendron obovatum*—b, and Oahu 15—*Alsinidendron obovatum*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Alsinidendron obovatum* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Ridges and slopes in lowland diverse mesic forest dominated by *Acacia koa* and *Metrosideros polymorpha* and containing one or more of the following associated native plant species: *Alyxia oliviformis, Antidesma platyphyllum, Bidens torta, Cibotium chamissoi, Coprosma* sp., *Cyanea longiflora, Hedyotis terminalis, Ilex anomala, Machaerina* sp., *Peperomia* sp., *Perrottetia sandwicensis, Pipturus* sp., or *Psydrax odorata;* and

(ii) Elevations between 477 and 943 m (1,565 and 3,093 ft).

Family Caryophyllaceae: *Alsinidendron trinerve* (NCN)

Oahu 4—*Alsinidendron trinerve*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Alsinidendron trinerve* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Slopes in wet forest or the wetter portions of diverse mesic forest dominated by *Metrosideros polymorpha* or *Ilex anomala* and *Metrosideros polymorpha* montane wet forest and containing one or more of the following associated native plant species: *Broussaisia arguta, Coprosma ochracea, Diplazium sandwichianum, Gunnera* sp., *Hedyotis* sp., *Machaerina* sp., *Nothoperanema rubiginosa, Peperomia* sp., *Perrottetia sandwicensis, Phyllostegia* sp., *Pipturus albidus,* or *Vaccinium* sp.; and

(ii) Elevations between 833 and 1,233 m (2,732 and 4,044 ft).

Family Caryophyllaceae: *Schiedea hookeri* (NCN)

Oahu 3—*Schiedea hookeri*—a, Oahu 4—*Schiedea hookeri*—b, Oahu 4—*Schiedea hookeri*—c, Oahu 4—*Schiedea hookeri*—d, Oahu 15—*Schiedea hookeri*—e, Oahu 15—*Schiedea hookeri*—f, and Oahu 15—*Schiedea hookeri*—g, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Schiedea hookeri* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Slopes, cliffs or cliff bases, rock walls, or ledges in diverse mesic or dry lowland forest often dominated by *Metrosideros polymorpha, Diospyros sandwicensis,* or *Diospyros hillebrandii,* and containing one or more of the following associated native plant species: *Acacia koa, Alyxia oliviformis, Antidesma pulvinatum, Artemisia australis, Bidens torta, Carex meyenii, Carex wahuensis, Charpentiera tomentosa, Dodonaea viscosa, Elaeocarpus bifidus, Eragrostis grandis, Hibiscus* sp., *Leptecophylla*

tameiameiae, Melanthera tenuis, Pisonia sandwicensis, Pouteria sandwicensis, Psydrax odorata, Sida fallax, or *Stenogyne* sp.; and

(ii) Elevations between 238 and 978 m (781 and 3,208 ft).

Family Caryophyllaceae: *Schiedea kaalae* (maolioli)

Oahu 4—*Schiedea kaalae*—a, Oahu 15—*Schiedea kaalae*—b, Oahu 15—*Schiedea kaalae*—c, Oahu 15—*Schiedea kaalae*—d, Oahu 20—*Schiedea kaalae*—e, and Oahu 21—*Schiedea kaalae*—f, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Schiedea kaalae* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep slopes, cliffs, stream banks, or deep shade in diverse mesic or wet forests and containing one or more of the following associated native plant species: *Alyxia oliviformis, Boehmeria grandis, Charpentiera* sp., *Claoxylon sandwicense, Cyrtandra calpidicarpa, Cyrtandra laxiflora, Diospyros hillebrandii, Diplazium arnottii, Diplazium sandwichianum, Dryopteris unidentata, Freycinetia arborea, Hedyotis acuminata, Nothocestrum longifolium, Pipturus albidus, Pisonia sandwicensis, Pisonia umbellifera, Pouteria sandwicensis, Psychotria hathewayi, Selaginella arbuscula,* or *Xylosma hawaiiense;* and

(ii) Elevations between 64 and 904 m (210 and 2,965 ft).

Family Caryophyllaceae: *Schiedea kealiae* (maolioli)

Oahu 1—*Schiedea kealiae*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Schiedea kealiae* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep slopes or cliff faces or bases in dry remnant *Erythrina sandwicensis* forest and containing one or more of the following associated native plant species: *Bidens* sp., *Hibiscus arnottianus, Lepidium bidentatum, Melanthera remyi, Myoporum sandwicense, Plumbago zeylanica, Psydrax odorata, Sicyos* sp., or *Sida fallax;* and

(ii) Elevations between 47 and 341 m (154 and 1,118 ft)

Family Caryophyllaceae: *Schiedea nuttallii* (NCN)

Oahu 4—*Schiedea nuttallii*—a, Oahu 15—*Schiedea nuttallii*—b, and Oahu 15—*Schiedea nuttallii*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Schiedea nuttallii* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Rock walls, forested slopes, or steep walls in *Acacia koa-Metrosideros polymorpha* lowland mesic forest or *Metrosideros polymorpha-Dodonaea viscosa* forest and containing one or more of the following associated native plant species: *Alyxia oliviformis, Antidesma platyphyllum, Bidens torta, Cibotium chamissoi, Coprosma* sp., *Cyanea longiflora, Hedyotis terminalis, Ilex anomala, Machaerina* sp., *Peperomia* sp., *Perrottetia sandwicensis, Pipturus* sp., or *Psydrax odorata;* and

(ii) Elevations between 408 and 1072 m (1,338 and 3,516 ft).

Family Caryophyllaceae: *Silene lanceolata* (NCN)

Oahu 4—*Silene lanceolata*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Silene lanceolata* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Cliff faces or ledges of gullies in dry to mesic shrubland or cliff communities and containing one or more of the following associated native plant species: *Artemisia australis, Bidens* sp., *Carex* sp., *Chamaesyce* sp., *Dodonaea viscosa, Lysimachia* sp., *Osteomeles anthyllidifolia, Schiedea mannii,* or *Tetramolopium filiforme;* and

(ii) Elevations between 328 to 978 m (1,076 to 3,208 ft).

Family Caryophyllaceae: *Silene perlmanii* (NCN)

Oahu 15—*Silene perlmanii*—a, Oahu 15—*Silene perlmanii*—b, Oahu 15—*Silene perlmanii*—c, and Oahu 15—*Silene perlmanii*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Silene perlmanii* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep rocky slopes in *Acacia koa-Metrosideros polymorpha* lowland mesic forest; and

(ii) Elevations between 382 and 926 m (1,253 and 3,037 ft).

Family Convolvulaceae: *Bonamia menziesii* (NCN)

Oahu 2—*Bonamia menziesii*—a, Oahu 3—*Bonamia menziesii*—b, Oahu 4—*Bonamia menziesii*—c, Oahu 17—*Bonamia menziesii*—d, and Oahu 35—*Bonamia menziesii*—e, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Bonamia menziesii* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep slopes or level ground in dry or mesic forest in open or closed canopy and containing one or more of the following associated native plant species: *Acacia koa, Alyxia oliviformis, Dianella sandwicensis, Diospyros sandwicensis, Dodonaea viscosa, Erythrina sandwicensis, Hedyotis terminalis, Leptecophylla tameiameiae, Melicope* sp., *Metrosideros polymorpha, Myoporum sandwicensis, Nestegis sandwicensis, Pisonia* sp., *Pittosporum* sp., *Pleomele* sp., *Pouteria sandwicensis, Psydrax odorata, Rauvolfia sandwicensis, Sapindus oahuensis, Sicyos* sp., *Sida fallax,* or *Waltheria indica;* and

(ii) Elevations between 81 and 658 m (266 and 2,158 ft).

Family Cyperaceae: *Cyperus trachysanthos* (puukaa)

Oahu 1—*Cyperus trachysanthos*—a, Oahu 28—*Cyperus trachysanthos*—b, Oahu 29—*Cyperus trachysanthos*—c, and Oahu 36—*Cyperus trachysanthos*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyperus trachysanthos* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Mud flats, wet clay soil, seasonal ponds, wet cliff seeps on seepy flats, coastal cliffs, or talus slopes containing *Hibiscus tiliaceus;* and

(ii) Elevations between 6 and 194 m (20 and 636 ft).

Family Cyperaceae: *Mariscus pennatiformis* (NCN)

Oahu 4—*Mariscus pennatiformis*—a and Oahu 4—*Mariscus pennatiformis*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Mariscus pennatiformis* on Oahu. Within these units, the currently known primary constituent elements of critical habitat

include, but are not limited to, the habitat components provided by:

(i) Mesic and wet *Metrosideros polymorpha* forest and *Metrosideros polymorpha-Acacia koa* forest; and

(ii) Elevations between 424 and 1,032 m (1,391 and 3,385 ft).

Family Euphorbiaceae: *Chamaesyce celastroides* var. *kaenana* (akoko)

Oahu 1—*Chamaesyce celastroides* var. *kaenana*—a, Oahu 3—*Chamaesyce celastroides* var. *kaenana*—b, Oahu 4—*Chamaesyce celastroides* var. *kaenana*—c, Oahu 5—*Chamaesyce celastroides* var. *kaenana*—d, and Oahu 35—*Chamaesyce celastroides* var. *kaenana*—e, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Chamaesyce celastroides* var. *kaenana* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Windward talus slopes, leeward rocky cliffs, open grassy slopes, or vegetated cliff faces in coastal dry shrubland and containing one or more of the following associated native plant species: *Artemisia australis, Boerhavia* sp., *Chamaesyce celastroides* var. *amplectans, Dodonaea viscosa, Gossypium tomentosum, Heteropogon contortus, Jacquemontia ovalifolia* ssp. *sandwicensis, Lipochaeta lobata, Myoporum sandwicense, Plumbago zeylanica, Psilotum nudum, Psydrax odorata, Santalum freycinetianum, Sida fallax* or *Waltheria indica;* and

(ii) Elevations between 1 and 862 m (3 and 2,827 ft).

Family Euphorbiaceae: *Chamaesyce deppeana* (akoko)

Oahu 20—*Chamaesyce deppeana*—a and Oahu 35—*Chamaesyce deppeana*—b, identified in the legal description in paragraph (i) of this section, constitute critical habitat for *Chamaesyce deppeana* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Windward-facing ridge crests, cliff faces, and mixed native cliffs and containing one or more of the following associated native plant species: *Bidens sandvicensis* or *Metrosideros polymorpha*; and

(ii) Elevations from 274 to 661 m (899 to 2,168 ft).

Family Euphorbiaceae: *Chamaesyce herbstii* (akoko)

Oahu 4—*Chamaesyce herbstii*—a, Oahu 15—*Chamaesyce herbstii*—b, and Oahu15—*Chamaesyce herbstii*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Chamaesyce herbstii* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Shaded gulch bottoms and slopes in mesic *Acacia koa-Metrosideros polymorpha* lowland forests or diverse mesic forests and containing one or more of the following associated native plant species: *Antidesma platyphyllum, Coprosma* sp., *Diplazium sandwichianum, Hedyotis* sp., *Hibiscus arnottianus* var. *arnottianus, Melicope* sp., *Morinda trimera, Pipturus albidus, Pouteria sandwicensis, Pteralyxia* sp., *Urera glabra*, or *Xylosma* sp.; and

(ii) Elevations between 433 and 928 m (1,420 and 3,044 ft).

Family Euphorbiaceae: *Chamaesyce kuwaleana* (akoko)

Oahu 9—*Chamaesyce kuwaleana*—a, Oahu 11—*Chamaesyce kuwaleana*—b, Oahu 12—*Chamaesyce kuwaleana*—c, Oahu 15—*Chamaesyce kuwaleana*—d, Oahu 22—*Chamaesyce kuwaleana*—e, Oahu 23—*Chamaesyce kuwaleana*—f, and Oahu 26—*Chamaesyce kuwaleana*—g, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Chamaesyce kuwaleana* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Thin guano soil on basaltic rock; arid, exposed volcanic cliffs; dry or mesic rocky ridges; or sparsely vegetated slopes and containing one or more of the following associated native plant species: *Artemisia* sp., *Bidens* sp., *Carex* sp., *Chamaesyce* sp., *Dodonaea viscosa, Heteropogon contortus, Plectranthus parviflorus, Schiedea* sp., or *Sida fallax*; and

(ii) Elevations between 0 and 596 m (0 and 1,955 ft).

Family Euphorbiaceae: *Chamaesyce rockii* (akoko)

Oahu 20—*Chamaesyce rockii*—a, Oahu 20—*Chamaesyce rockii*—b, and Oahu 20—*Chamaesyce rockii*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Chamaesyce rockii* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Gulch slopes, gulch bottoms, and ridge crests in wet *Metrosideros polymorpha-Dicranopteris linearis* forest and shrubland and containing one or more of the following associated native plant species: *Antidesma platyphyllum, Bidens* sp., *Broussaisia arguta, Cibotium* sp., *Coprosma longifolia, Diplopterygium pinnatum, Dubautia laxa, Hedyotis terminalis, Machaerina* sp., *Melicope* spp., *Myrsine juddii, Psychotria fauriei, Psychotria* spp., or *Wikstroemia* sp.; and

(ii) Elevations between 208 and 867 m (682 and 2,844 ft).

Family Euphorbiaceae: *Euphorbia haeleeleana* (akoko)

Oahu 3—*Euphorbia haeleeleana*—a and Oahu 4—*Euphorbia haeleeleana*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Euphorbia haeleeleana* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Dry forest dominated by *Diospyros* sp. and containing one or more of the following associated native plant species: *Dodonaea viscosa, Erythrina sandwicensis, Pleomele* sp., *Psydrax odorata, Reynoldsia sandwicensis*, or *Sapindus oahuensis*; and

(ii) Elevations between 156 and 526 m (512 and 1,725 ft).

Family Euphorbiaceae: *Flueggea neowawraea* (mehamehame)

Oahu 4—*Flueggea neowawraea*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Flueggea neowawraea* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Gulch slopes, ridge crests, or near streams in dry or mesic forest and containing one or more of the following associated native plant species: *Alyxia oliviformis, Antidesma platyphyllum, Antidesma pulvinatum, Bobea* sp., *Chamaesyce herbstii, Chamaesyce multiformis, Charpentiera* sp., *Claoxylon sandwicense, Diospyros hillebrandii, Diospyros sandwicensis, Erythrina sandwicensis, Hedyotis terminalis, Hibiscus arnottianus, Metrosideros polymorpha, Morinda trimera, Myoporum sandwicense, Myrsine* sp., *Nestegis sandwicensis, Pipturus albidus, Pisonia sandwicensis, Pisonia umbellifera, Pittosporum* sp., *Pleomele* sp., *Psydrax odorata, Pteralyxia* sp., *Rauvolfia sandwicensis, Sapindus oahuensis*, or *Streblus pendulina*; and

(ii) Elevations between 335 to 1,006 m (1,099 to 3,300 ft).

Family Fabaceae: *Sesbania tomentosa* (ohai)

Oahu 1—*Sesbania tomentosa*—a and Oahu 18—*Sesbania tomentosa*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Sesbania tomentosa* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Cliff faces, broken basalt, or sand dunes with rock outcrops in *Scaevola sericea* coastal dry shrubland or *Sporobolus virginicus* mixed grasslands and containing one or more of the following associated native plant species: *Heliotropium* sp., *Jacquemontia ovalifolia* ssp. *sandwicensis, Melanthera* sp., *Myoporum sandwicense*, or *Sida fallax*; and

(ii) Elevations between sea level and 152 m (0 and 499 ft).

Family Fabaceae: *Vigna o-wahuensis* (NCN)

Oahu 1—*Vigna o-wahuensis*—a, Oahu 24—*Vigna o-wahuensis*—b, Oahu 25—*Vigna o-wahuensis*—c, and Oahu 26—*Vigna o-wahuensis*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Vigna o-wahuensis* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Open dry fossil reef, with shrubs or grasses or fairly steep slopes; and

(ii) Elevations between 0 and 301 m (0 and 987 ft).

Family Gentianaceae: *Centaurium sebaeoides* (awiwi)

Oahu 1—*Centaurium sebaeoides*—a and Oahu 27—*Centaurium sebaeoides*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Centaurium sebaeoides* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Volcanic or clay soils or cliffs in arid coastal areas or on coral plains and containing one or more of the following associated native plant species: *Artemisia* sp., *Bidens* sp., *Jacquemontia ovalifolia* ssp. *sandwicensis, Lipochaeta succulenta*, or *Lysimachia* sp.; and

(ii) Elevations between 1 and 161 m (3 and 528 ft).

Family Gesneriaceae: *Cyrtandra dentata* (haiwale)

Oahu 4—*Cyrtandra dentata*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Cyrtandra dentata* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Gulches, slopes, stream banks, or ravines in mesic or wet forest and containing one or more of the following associated native plant species: *Acacia koa, Metrosideros polymorpha, Pipturus albidus, Pisonia sandwicensis, Pisonia umbellifera, Pouteria sandwicensis, Syzygium sandwicensis*, or *Urera glabra*; and

(ii) Elevations between 319 and 880 m (1,046 and 2,886 ft).

Family Gesneriaceae: *Cyrtandra polyantha* (haiwale)

Oahu 35—*Cyrtandra polyantha*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Cyrtandra polyantha* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Ridges of valleys in *Metrosideros polymorpha* mesic or wet forests and containing one or more of the following associated native plant species: *Broussaisia arguta, Coprosma foliosa, Dicranopteris linearis, Machaerina angustifolia*, or *Psychotria* sp.; and

(ii) Elevations between 312 and 783 m (1,023 and 2,568 ft).

Family Gesneriaceae: *Cyrtandra subumbellata* (haiwale)

Oahu 20—*Cyrtandra subumbellata*—a and Oahu 20—*Cyrtandra subumbellata*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cyrtandra subumbellata* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Moist slopes or gulch bottoms in wet forest dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha-Dicranopteris linearis-Acacia koa* and containing one or more of the following associated native plant species: *Boehmeria grandis, Broussaisia arguta, Machaerina* sp., or *Thelypteris* sp.; and

(ii) Elevations between 167 and 841 m (548 and 2,758 ft).

Family Gesneriaceae: *Cyrtandra viridiflora* (haiwale)

Oahu 20—*Cyrtandra viridiflora*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Cyrtandra viridiflora* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Wind blown ridge tops in cloud-covered wet forest or shrubland and containing one or more of the following associated native plant species: *Broussaisia arguta, Cheirodendron platyphyllum, Dicranopteris linearis, Diplopterygium pinnatum, Dubautia* sp., *Freycinetia arborea, Hedyotis* sp., *Ilex anomala, Machaerina* sp., *Melicope* sp., *Metrosideros polymorpha, Metrosideros rugosa, Psychotria* sp., or *Syzygium sandwicensis*; and

(ii) Elevations between 443 and 867 m (1,453 and 2,844 ft).

Family Lamiaceae: *Phyllostegia hirsuta* (NCN)

Oahu 4—*Phyllostegia hirsuta*—a, Oahu 15—*Phyllostegia hirsuta*—b, Oahu 15—*Phyllostegia hirsuta*—c, and Oahu 20—*Phyllostegia hirsuta*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Phyllostegia hirsuta* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep, shaded slopes, cliffs, ridges, gullies, or stream banks in mesic or wet forests dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha* and *Dicranopteris linearis* and containing one or more of the following associated native plant species: *Antidesma platyphyllum, Astelia* sp., *Broussaisia arguta, Chamaesyce multiformis, Cibotium* sp., *Claoxylon sandwicense, Clermontia kakeana, Coprosma longifolia, Cyanea membranacea, Cyrtandra waianaeensis, Diplazium sandwichianum, Dryopteris unidentata, Dubautia laxa, Dubautia sherffiana, Elaeocarpus bifidus, Freycinetia arborea, Hedyotis schlectendahliana, Hedyotis terminalis, Hibiscus* sp., *Ilex anomala, Labordia kaalae, Liparis hawaiiensis, Lysimachia hillebrandii, Machaerina angustifolia, Melicope* sp., *Myrsine lessertiana, Myrsine sandwicensis, Neraudia* sp., *Nothocestrum* sp., *Perrottetia sandwicensis, Phyllostegia grandiflora, Pipturus* sp., *Pisonia* sp., *Pleomele* sp., *Pouteria sandwicensis, Psychotria* sp., *Rumex albescens, Scaevola*

gaudichaudiana, Streblus pendulinus, Zanthoxylum kauaense, or native ferns; and

(ii) Elevations between 195 and 1,202 m (640 and 3,943 ft).

Family Lamiaceae: *Phyllostegia kaalaensis* (NCN)

Oahu 4—*Phyllostegia kaalaensis*—a, Oahu 4—*Phyllostegia kaalaensis*—b, Oahu 4—*Phyllostegia kaalaensis*—c, Oahu 4—*Phyllostegia kaalaensis*—d, Oahu 4—*Phyllostegia kaalaensis*—e, and Oahu 15—*Phyllostegia kaalaensis*—f, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Phyllostegia kaalaensis* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Gulch slopes or bottoms or almost vertical rock faces in mesic forest or *Sapindus oahuensis* forest and containing one or more of the following associated native plant species: *Antidesma platyphyllum, Claoxylon sandwicense, Diplazium sandwichianum, Freycinetia arborea, Hibiscus* sp., *Myrsine lanaiensis, Myrsine lessertiana, Neraudia melastomifolia, Pipturus albidus, Pouteria sandwicensis, Psychotria hathewayi, Streblus pendulinus*, or *Urera glabra*; and

(ii) Elevations between 248 and 878 m (813 and 2,880 ft).

Family Lamiaceae: *Phyllostegia mollis* (NCN)

Oahu 15—*Phyllostegia mollis*—a and Oahu 15—*Phyllostegia mollis*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Phyllostegia mollis* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep slopes or gulches in diverse mesic to wet forests and containing one or more of the following associated native plant species: *Acacia koa, Alyxia oliviformis, Antidesma platyphyllum, Carex meyenii, Chamaesyce multiformis, Claoxylon sandwicense, Diospyros hillebrandii, Dryopteris unidentata, Metrosideros polymorpha, Myrsine* sp., *Pipturus albidus, Pisonia umbellifera, Pouteria sandwicensis, Psychotria hathewayi*, or *Urera glabra*; and

(ii) Elevations between 519 to 928 m (1,702 to 3,044 ft).

Family Lamiaceae: *Phyllostegia parviflora* (NCN)

Oahu 20—*Phyllostegia parviflora*—d, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Phyllostegia parviflora* var. *lydgatei* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Moderate to steep slopes in mesic forest and containing one or more of the following associated native plant species: *Antidesma platyphyllum, Chamaesyce multiformis, Claoxylon sandwicense, Coprosma foliosa, Dryopteris unidentata, Myrsine lessertiana, Pipturus albidus, Pouteria sandwicensis, Selaginella arbuscula*, or *Xylosma hawaiiense*; and

(ii) Elevations between 529 to 881 m (1,800 to 2,890 ft).

Oahu 15—*Phyllostegia parviflora*—a, Oahu 15—*Phyllostegia parviflora*—b, and Oahu 15—*Phyllostegia parviflora*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Phyllostegia parviflora* var. *parviflora* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Metrosideros polymorpha* mixed lowland wet forest and containing one or more of the following associated native plant species: *Antidesma* sp., *Broussaisia arguta, Cheirodendron* sp., *Cibotium* sp., *Cyrtandra* sp., *Dicranopteris linearis, Melicope* sp., *Phyllostegia glabra, Pipturus* sp., *Pritchardia* sp., *Tetraplasandra* sp., *Touchardia latifolia,* or *Syzygium sandwicensis;* and

(ii) Elevations between 232 to 881 m (761 to 2,890 ft).

Family Lamiaceae: *Stenogyne kanehoana* (NCN)

Oahu 15—*Stenogyne kanehoana*—a and Oahu 15—*Stenogyne kanehoana*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Stenogyne kanehoana* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Lowland mesic forest and containing one or more of the following associated native plant species: *Acacia koa, Alyxia oliviformis, Bidens* sp., *Chamaesyce* sp., *Cibotium* sp., *Freycinetia arborea, Metrosideros polymorpha, Psychotria* sp., or *Scaevola* sp.; and

(ii) Elevations between 559 and 1,168 m (1,834 and 3,831 ft).

Family Loganiaceae: *Labordia cyrtandrae* (kamakahala)

Oahu 4—*Labordia cyrtandrae*—a, Oahu 20—*Labordia cyrtandrae*—b, and Oahu 20—*Labordia cyrtandrae*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Labordia cyrtandrae* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Shady gulches, slopes, or glens in mesic to wet forests and shrublands dominated by *Metrosideros polymorpha, Diplopterygium pinnatum,* and/or *Acacia koa* and containing one or more of the following associated native plant species: *Antidesma* sp., *Artemisia australis, Bidens torta, Boehmeria grandis, Broussaisia arguta, Chamaesyce* sp., *Coprosma* sp., *Cyrtandra* sp., *Dicranopteris linearis, Diplazium sandwichianum, Dubautia plantaginea, Lysimachia hillebrandii, Peperomia membranacea, Perrottetia sandwicensis, Phyllostegia* sp., *Pipturus albidus, Pouteria sandwicensis, Psychotria* sp., or *Rumex* sp.; and

(ii) Elevations between 232 and 1,233 m (761 and 4,044 ft).

Family Malvaceae: *Abutilon sandwicense* (NCN)

Oahu 4—*Abutilon sandwicense*—a, Oahu 4—*Abutilon sandwicense*—b, Oahu 4—*Abutilon sandwicense*—c, Oahu 15—*Abutilon sandwicense*—d, Oahu 15—*Abutilon sandwicense*—e, and Oahu 17—*Abutilon sandwicense*—f, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Abutilon sandwicense* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep slopes or gulches in dry to mesic lowland forest and containing one or more of the following associated native plant species: *Antidesma pulvinatum, Diospyros sandwicensis, Elaeocarpus bifidus, Eugenia reinwardtiana, Hibiscus arnottianus, Metrosideros polymorpha, Myrsine lanaiensis, Nestegis sandwicensis, Pipturus albidus, Pisonia* sp., *Pittosporum* sp., *Pleomele* sp., *Psydrax odorata, Rauvolfia sandwicensis, Reynoldsia sandwicensis,* or *Sapindus oahuensis;* and

(ii) Elevations between 215 and 725 m (705 and 2,378 ft).

Family Malvaceae: *Hibiscus brackenridgei* (mao hau hele)

(i) Oahu 1—*Hibiscus brackenridgei*—a and Oahu 4—*Hibiscus brackenridgei*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Hibiscus brackenridgei* ssp. *mokuleianus* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(A) Slopes, cliffs, or arid ledges in lowland dry forest or shrubland and containing one or more of the following associated native plant species: *Bidens amplectens, Chamaesyce* sp., *Diospyros hillebrandii, Dodonaea viscosa, Doryopteris* sp., *Erythrina sandwicensis, Heteropogon contortus, Lepidium bidentatum, Melanthera remyi, Pleomele halapepe, Psydrax odorata, Reynoldsia sandwicensis, Sida fallax,* or *Waltheria indica;* and

(B) Elevations between 32 to 490 m (105 to 1,607 ft).

(ii) Oahu 5—*Hibiscus brackenridgei*—c, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Hibiscus brackenridgei* ssp. *molokaiana* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(A) Dry shrublands containing one or more of the following associated native plant species: *Doryopteris sp., Dodonaea viscosa, Heteropogon contortus, Sida fallax,* or *Waltheria indica;* and

(B) Elevations between 32 to 490 m (105 to 1,607 ft).

Family Myrsinaceae: *Myrsine juddii* (kolea)

Oahu 20—*Myrsine juddii*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Myrsine juddii* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Ridge crests or gulch slopes in wet forests or shrublands dominated by *Metrosideros polymorpha* or a mixture of *Metrosideros polymorpha* and *Dicranopteris linearis* and containing one or more of the following associated native plant species: *Cheirodendron platyphyllum, Cheirodendron trigynum, Machaerina* sp., *Melicope clusiifolia, Psychotria mariniana,* or *Syzygium sandwicensis;* and

(ii) Elevations between 384 and 867 m (1,260 and 2,844 ft).

Family Myrtaceae: *Eugenia koolauensis* (nioi)

Oahu 4—*Eugenia koolauensis*—a, Oahu 19—*Eugenia koolauensis*—b, and Oahu 20—*Eugenia koolauensis*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Eugenia koolauensis* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Gentle to steep slopes or ridges in mesic or dry forests dominated by *Metrosideros polymorpha* or *Diospyros* sp. and containing one or more of the following associated native plant species: *Alyxia oliviformis, Bobea elatior, Carex meyenii, Dicranopteris linearis, Leptecophylla tameiameiae, Myrsine lessertiana, Nestegis sandwicensis, Pleomele halapepe, Pouteria sandwicensis, Psydrax odorata,* or *Rauvolfia sandwicensis;* and

(ii) Elevations between 57 to 437 m (187 to 1,433 ft).

Family Orchidaceae: *Platanthera holochila* (NCN)

Oahu 20—*Platanthera holochila*—a and Oahu 20—*Platanthera holochila*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Platanthera holochila* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) *Metrosideros polymorpha-Dicranopteris linearis* wet forest or *Metrosideros polymorpha* mixed shrubland and containing one or more of the following associated native plant species: *Broussaisia arguta, Cibotium* sp., *Clermontia* sp., *Coprosma* sp., *Dubautia* sp., *Gahnia* sp., *Leptecophylla tameiameiae, Luzula hawaiiensis, Lycopodiella cernua, Lythrum maritimum, Polypodium pellucidum, Sadleria* sp., *Scaevola* sp., *Vaccinium reticulatum,* or *Wikstroemia* sp.; and

(ii) Elevations between 448 and 848 m (1,469 and 2,781 ft).

Family Plantaginaceae: *Plantago princeps* (laukahi kuahiwi)

(i) Oahu 20—*Plantago princeps*—d and Oahu 20—*Plantago princeps*—e, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Plantago princeps* var. *longibracteata* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(A) Sides of waterfalls or wet rock faces and containing one or more of the following associated native plant species: *Bidens* sp., *Coprosma granadensis, Eugenia* sp., *Lobelia gaudichaudii, Metrosideros rugosa,* or *Scaevola glabra;* and

(B) Elevations between 211 and 885 m (692 and 2,903 ft).

(ii) Oahu 4—*Plantago princeps*—a, Oahu 4—*Plantago princeps*—b, and Oahu 15—*Plantago princeps*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Plantago princeps* var. *princeps* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(A) Slopes or ledges in *Metrosideros polymorpha* lowland mesic forests or shrublands and containing one or more of the following associated native plant species: *Artemisia australis, Bidens* sp., *Chamaesyce* sp., *Dubautia plantaginea, Eragrostis* sp., *Lysimachia* sp., *Pilea peploides,* or *Viola* sp.; and

(B) Elevations between 110 and 1,064 m (361 and 3,490 ft).

Family Poaceae: *Cenchrus agrimonioides* (kamanomano)

Oahu 4—*Cenchrus agrimonioides*—a, Oahu 4—*Cenchrus agrimonioides*—b, Oahu 15—*Cenchrus agrimonioides*—c, and Oahu 15—*Cenchrus agrimonioides*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Cenchrus agrimonioides* var. *agrimonioides* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Dry ridges, upper slopes, or ridges in lowland mixed mesic forest and containing one or more of the following associated native plant species: *Acacia koa, Alyxia oliviformis, Bobea* sp., *Carex wahuensis, Chamaesyce multiformis, Coprosma foliosa, Diospyros sandwicensis, Eragrostis variabilis, Gahnia beecheyi, Leptecophylla tameiameiae, Metrosideros polymorpha, Nestegis sandwicensis, Psychotria* sp., or *Psydrax odorata;* and

(ii) Elevations between 357 and 874 m (1,171 and 2,867 ft).

Family Poaceae: *Eragrostis fosbergii* (Fosberg's love grass)

Oahu 4—*Eragrostis fosbergii*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Eragrostis fosbergii* on Oahu. Within this unit, the currently known primary constituent elements of

critical habitat include, but are not limited to, the habitat components provided by:

(i) Ridge crests or moderate slopes in dry or mesic forests and containing one or more of the following associated native plant species: *Acacia koa, Alyxia oliviformis, Bidens* sp., *Chamaesyce* sp., *Dodonaea viscosa, Doodia* sp., *Eragrostis grandis, Melicope* sp., *Metrosideros polymorpha, Nephrolepis exaltata, Psydrax odorata,* or *Sphenomeris* sp.; and

(ii) Elevations between 578 and 941 m (1,896 and 3,086 ft).

Family Primulaceae: *Lysimachia filifolia* (NCN)

Oahu 20—*Lysimachia filifolia*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Lysimachia filifolia* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Mossy banks at the base of cliff faces within the spray zone of waterfalls or along streams in lowland wet forests and containing one or more of the following associated native plant species: Mosses, ferns, liverworts, or *Pilea peploides;* and

(ii) Elevations between 65 and 798 m (213 and 2,617 ft).

Family Rhamnaceae: *Colubrina oppositifolia* (kauila)

Oahu 4—*Colubrina oppositifolia*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Colubrina oppositifolia* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Lowland dry or mesic forests dominated by *Diospyros sandwicensis* and containing one or more of the following associated native plant species: *Alyxia oliviformis, Nestegis sandwicensis, Psydrax odorata, Reynoldsia sandwicensis,* or *Sapindus oahuensis;* and

(ii) Elevations between 255 and 761 m (909 and 2,496 ft).

Family Rhamnaceae: *Gouania meyenii* (NCN)

Oahu 4—*Gouania meyenii*—a, Oahu 4—*Gouania meyenii*—b, Oahu 15—*Gouania meyenii*—c, and Oahu 31—*Gouania meyenii*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Gouania meyenii* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Moderate to steep slopes in dry shrubland or mesic lowland forest and containing one or more of the following associated native plant species: *Alyxia oliviformis*, *Bidens* sp., *Canavalia* sp., *Carex meyenii*, *Chamaesyce* sp., *Charpentiera* sp., *Diospyros sandwicensis*, *Diospyros* sp., *Dodonaea viscosa*, *Dryopteris unidentata*, *Dubautia sherffiana*, *Eragrostis* sp., *Hedyotis* sp., *Hibiscus* sp., *Lysimachia* sp., *Melicope* sp., *Myrsine* sp., *Nestegis sandwicensis*, *Pisonia* sp., *Psychotria* sp., *Psydrax odorata*, *Sapindus oahuensis*, *Schiedea* sp., *Senna gaudichaudii*, *Sida fallax*, or *Sophora chrysophylla*; and

(ii) Elevations between 468 to 916 m (1,535 to 3,004 ft).

Family Rhamnaceae: *Gouania vitifoliae* (NCN)

Oahu 2—*Gouania vitifolia*—a, Oahu 3—*Gouania vitifolia*—b, Oahu 5—*Gouania vitifolia*—c, Oahu 4—*Gouania vitifolia*—d, Oahu 4—*Gouania vitifolia*—e, Oahu 4—*Gouania vitifolia*—f, Oahu 4—*Gouania vitifolia*—g, and Oahu 8—*Gouania vitifolia*—h, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Gouania vitifolia* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Sides of ridges or gulches in dry to mesic forests and containing one or more of the following associated native plant species: *Bidens* sp., *Carex meyenii*, *Chamaesyce* sp., *Diospyros sandwicensis*, *Dodonaea viscosa*, *Erythrina sandwicensis*, *Hedyotis* sp., *Hibiscus arnottianus*, *Melicope* sp., *Nestegis sandwicensis*, *Pipturus albidus*, *Psychotria* sp., or *Urera glabra*; and

(ii) Elevations between 50 to 944 m (164 to 3,096 ft).

Family Rubiaceae: *Gardenia manniie* (nanu)

Oahu 15—*Gardenia mannii*—a, Oahu 20—*Gardenia mannii*—b, and Oahu 20—*Gardenia mannii*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Gardenia mannii* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Moderate to moderately steep gulch slopes, ridge crests, gulch bottoms, and stream banks in mesic or wet forests and containing one or more of the following associated native plant species: *Acacia koa*, *Alyxia oliviformis*, *Antidesma platyphyllum*, *Bobea* sp., *Boehmeria grandis*, *Broussaisia arguta*, *Cheirodendron* sp., *Cibotium* sp., *Coprosma foliosa*, *Dicranopteris linearis*, *Elaeocarpus* sp., *Freycinetia arborea*, *Hedyotis acuminata*, *Ilex anomala*, *Melicope* sp., *Metrosideros polymorpha*, *Perrottetia* sp., *Pipturus* sp., *Pisonia* sp., *Pouteria sandwicensis*, *Psychotria mariniana*, *Syzygium sandwicensis*, or *Thelypteris* sp.; and

(ii) Elevations between 239 and 1,050 m (784 and 3,444 ft).

Family Rubiaceae: *Hedyotis coriaceae* (kioele)

Oahu 15—*Hedyotis coriacea*—a and Oahu 35—*Hedyotis coriacea*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Hedyotis coriacea* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep, rocky slopes in dry to mesic *Dodonaea viscosa* dominated shrublands or forests and containing one or more of the following associated native plant species: *Alyxia oliviformis*, *Leptecophylla tameiameiae*, or *Metrosideros polymorpha*; and

(ii) Elevations between 78 and 836 m (256 and 2,742 ft).

Family Rubiaceae: *Hedyotis degeneri* (NCN)

Oahu 4—*Hedyotis degeneri*—a and Oahu 4—*Hedyotis degeneri*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Hedyotis degeneri* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Ridge crests in diverse mesic forest and containing one or more of the following associated native plant species: *Alyxia oliviformis*, *Carex meyenii*, *Chamaesyce multiformis*, *Cocculus* sp., *Dicranopteris linearis*, *Diospyros sandwicensis*, *Dodonaea viscosa*, *Gahnia* sp., *Hedyotis terminalis*, *Leptecophylla tameiameiae*, *Lysimachia hillebrandii*, *Lobelia yuccoides*, *Metrosideros polymorpha*, *Pleomele* sp., *Psydrax odorata*, *Psychotria hathewayi*, or Wikstroemia oahuensis; and

(ii) Elevations between 360 and 1,083 m (1,181 and 3,552 ft).

Family Rubiaceae: *Hedyotis parvula* (NCN)

Oahu 4—*Hedyotis parvula*—a, Oahu 15—*Hedyotis parvula*—b, Oahu 15—*Hedyotis parvula*—c, and Oahu 15—*Hedyotis parvula*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for Hedyotis parvula on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Cliff faces or their bases, rock outcrops, or ledges in mesic habitat and containing one or more of the following associated native plant species: *Bidens* sp., *Carex* sp., *Chamaesyce* sp., *Dodonaea viscosa*, *Eragrostis* sp., *Metrosideros polymorpha*, *Metrosideros tremuloides*, *Plectranthus parviflorus*, *Psydrax odorata*, or *Rumex* sp.; and

(ii) Elevations between 427 and 1,165 m (1,401 and 3,821 ft).

Family Rutaceae: *Melicope lydgatei* (alani)

Oahu 20—*Melicope lydgatei*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for Melicope lydgatei on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Ridges in mesic or wet forests containing one or more of the following associated native plant species: *Acacia koa*, *Bobea elatior*, *Dicranopteris linearis*, M*etrosideros polymorpha*, *Psychotria* sp., or *Syzygium sandwicensis*; and

(ii) Elevations between 101 and 671 m (331 and 2,201 ft).

Family Rutaceae: *Melicope pallida* (alani)

Oahu 4—*Melicope pallida*—a, Oahu 15—*Melicope pallida*—b, Oahu 15—*Melicope pallida*—c, Oahu 15—*Melicope pallida*—d, and Oahu 15—*Melicope pallida*—e, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Melicope pallida* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep rock faces in lowland dry or mesic forests containing one or more of the following associated native plant species: *Abutilon sandwicense, Acacia koa*, *Alyxia oliviformis*, *Bobea elatior*, *Cibotium* sp., *Dryopteris* sp., *Metrosideros polymorpha*, *Pipturus albidus*, *Psychotria mariniana*, *Sapindus oahuensis*, *Syzygium sandwicensis*, *Tetraplasandra* sp., *Wikstroemia oahuensis*, or *Xylosma hawaiiense*; and

(ii) Elevations between 234 to 841 m (768 to 2,758 ft).

Family Rutaceae: *Melicope saint-johnii* (alani)

Oahu 15—*Melicope saint-johnii*—a and Oahu 15—*Melicope saint-johnii*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Melicope saint-johnii* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Ridges or gulch bottoms in mesic forest containing one or more of the following associated native plant species: *Alyxia oliviformis*, *Artemisia australis*, *Bidens torta*, *Carex wahuensis*, *Coprosma longifolia*, *Eragrostis* sp., *Hedyotis schlechtendahliana*, *Labordia kaalae*, *Lysimachia hillebrandii*, *Metrosideros polymorpha*, *Panicum beechyi*, *Pittosporum* sp., *Pipturus albidus*, *Pleomele halapepe*, *Psychotria hathewayi*, or *Rumex albescens*; and

(ii) Elevations between 494 and 943 m (1,620 and 3,093 ft).

Family Sapindaceae: *Alectryon macrococcus* (mahoe)

Oahu 4—*Alectryon macrococcus*—a and Oahu 15—*Alectryon macrococcus*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Alectryon macrococcus* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Slopes, ridges, or gulches within mesic lowland forests containing one or more of the following associated native plant species: *Alyxia oliviformis*, *Antidesma platyphyllum*, *Canavalia* sp., *Charpentiera* sp., *Claoxylon sandwicense*, *Diospyros hillebrandii*, *Diospyros sandwicensis*, *Diplazium sandwichianum*, *Elaeocarpus bifidus*, *Hibiscus arnottianus*, *Metrosideros polymorpha*, *Myrsine lanaiensis*, *Neraudia* sp., *Nestegis sandwicensis*, *Pipturus albidus*, *Pisonia sandwicensis*, *Pisonia umbellifera*, *Pouteria sandwicensis*, *Psychotria hathewayi*, *Psydrax odorata*, *Streblus pendulinus*, or *Xylosma* sp.; and

(ii) Elevations between 476 and 820 m (1,561 and 2,690 ft).

Family Solanaceae: *Solanum sandwicense* (aiakeaakua, popolo)

Oahu 4—*Solanum sandwicense*—a, Oahu 15—*Solanum sandwicense*—b, and Oahu 15—*Solanum sandwicense*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Solanum sandwicense* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Talus slopes or streambeds in open, sunny areas containing one or more of the following associated native plant species: *Pisonia* sp. or *Psychotria* sp.; and

(ii) Elevations between 471 and 1,006 m (1,545 and 3,300 ft).

Family Urticaceae: *Neraudia angulata* (NCN)

(i) Oahu 3—*Neraudia angulata*—a, Oahu 4—*Neraudia angulata*—b, Oahu 4—*Neraudia angulata*—c, Oahu 4—*Neraudia angulata*—d, Oahu 4—*Neraudia angulata*—e, and Oahu 15—*Neraudia angulata*—f, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Neraudia angulata* var. *angulata* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(A) Slopes, ledges, or gulches in lowland mesic or dry forest containing one or more of the following associated native plant species: *Artemisia australis*, *Bidens* sp., *Carex meyenii*, *Diospyros* sp., *Dodonaea viscosa*, *Hibiscus* sp., *Nestegis sandwicensis*, *Pisonia sandwicensis*, *Psydrax odorata*, or *Sida fallax*; and

(B) Elevations between 134 and 881 m (440 and 2,890 ft).

(ii) Oahu 3—*Neraudia angulata*—a, Oahu 4—*Neraudia angulata*—b, Oahu 4—*Neraudia angulata*—c, Oahu 4—*Neraudia angulata*—d, Oahu 4—*Neraudia angulata*—e, and Oahu 15—*Neraudia angulata*—f, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Neraudia angulata* var. *dentata* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(A) Cliffs, rock embankments, gulches, or slopes in mesic or dry forests containing one or more of the following associated native plant species: *Alyxia oliviformis*, *Antidesma pulvinatum*, *Artemisia australis*, *Bidens torta*,

Canavalia sp., *Carex* sp., *Charpentiera* sp., *Diospyros hillebrandii*, *Diospyros sandwicensis*, *Dodonaea viscosa*, *Eragrostis* sp., *Hibiscus* sp., *Metrosideros polymorpha*, *Myrsine lanaiensis*, *Nestegis sandwicensis*, *Pisonia* sp., *Psydrax odorata*, *Rauvolfia sandwicensis*, *Sapindus oahuensis*, *Sida fallax*, or *Streblus pendulinus*; and

(B) Elevations between 134 and 881 m (440 and 2,890 ft).

Family Urticaceae: *Urera kaalae (opuhe)*

Oahu 4—*Urera kaalae*—a, Oahu 4—*Urera kaalae*—b, Oahu 15—*Urera kaalae*—c, Oahu 15—*Urera kaalae*—d, Oahu 15—*Urera kaalae*—e, and Oahu 15—*Urera kaalae*—f, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Urera kaalae* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Slopes or gulches in diverse mesic forest containing one or more of the following associated native plant species: *Alyxia oliviformis*, *Antidesma platyphyllum*, *Asplenium kaulfusii*, *Athyrium* sp., *Canavalia* sp., *Chamaesyce* sp., *Charpentiera* sp., *Claoxylon sandwicense*, *Diospyros hillebrandii*, *Doryopteris* sp., *Freycinetia arborea*, *Hedyotis acuminata*, *Hibiscus* sp., *Nestegis sandwicensis*, *Pipturus albidus*, *Pleomele* sp., *Pouteria sandwicensis*, *Psychotria* sp., *Senna gaudichaudii*, *Streblus pendulinus*, *Urera glabra*, or *Xylosma hawaiiense*; and

(ii) Elevations between 439 and 995 m (1,440 and 3,264 ft).

Family Violaceae: *Isodendrion laurifolium (aupaka)*

Oahu 4—*Isodendrion laurifolium*—a, Oahu 4—*Isodendrion laurifolium*—b, and Oahu 35—*Isodendrion laurifolium*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Isodendrion laurifolium* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Gulch slopes, ravines, or ridges in diverse mesic or dry forest dominated by *Metrosideros polymorpha*, *Acacia koa*, *Eugenia reinwardtiana*, or *Diospyros sandwicensis* and containing one or more of the following associated native plant species: *Alyxia oliviformis*, *Antidesma platyphyllum*, *Antidesma pulvinatum*, *Carex wahuensis*, *Charpentiera tomentosa*, *Doodia* sp., *Dryopteris unidentata*, *Hedyotis terminalis*, *Hibiscus arnottianus*, *Nestegis sandwicensis*, *Pisonia* sp., *Pouteria sandwicensis*, *Psydrax odorata*, *Rauvolfia sandwicensis*, *Sapindus* sp., *Smilax melastomifolia*, or *Xylosma hawaiiense*; and

(ii) Elevations between 180 and 959 m (590 and 3,146 ft).

Family Violaceae: *Isodendrion longifolium* (aupaka)

Oahu 4—*Isodendrion longifolium*—a and Oahu 20—*Isodendrion longifolium*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Isodendrion longifolium* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep slopes or stream banks in mixed mesic or lowland wet *Metrosideros polymorpha-Dicranopteris linearis* forest containing one or more of the following associated native plant species: *Acacia koa, Alyxia oliviformis, Antidesma* sp., *Bobea brevipes, Carex* sp., *Cyanea* sp., *Cyrtandra* sp., *Hedyotis terminalis, Isachne pallens, Melicope* sp., *Peperomia* sp., *Perrottetia sandwicensis, Pittosporum* sp., *Pouteria sandwicensis, Psydrax odorata, Psychotria* sp., *Selaginella arbuscula,* or *Syzygium sandwicensis;* and

(ii) Elevations between 316 and 880 m (1,036 and 2,886 ft).

Family Violaceae: *Isodendrion pyrifolium* (wahine noho kula)

Oahu 5—*Isodendrion pyrifolium*—a, Oahu 16—*Isodendrion pyrifolium*—b, and Oahu 17—*Isodendrion pyrifolium*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Isodendrion pyrifolium* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by bare rocky hills or wooded ravines in dry shrublands from 37 to 692 m (121 to 2,270 ft).

Family Violaceae: *Viola chamissoniana* ssp. *chamissoniana* (pamakani)

Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—a, Oahu 4—*Viola chamissoniana ssp. chamissoniana*—b, Oahu 4—*Viola chamissoniana* ssp. *chamissoniana*—c, Oahu 10—*Viola chamissoniana* ssp. *chamissoniana*—d, Oahu 15—*Viola chamissoniana* ssp. *chamissoniana*—e, and Oahu15—*Viola chamissoniana* ssp. *chamissoniana*—f, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Viola chamissoniana* ssp. *chamissoniana* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Dry cliffs, rocky ledges, or steep slopes in mesic shrubland or cliff vegetation and containing one or more of the following associated native plant species: *Artemisia australis, Bidens torta, Carex meyenii, Chamaesyce* sp., *Dodonaea viscosa, Dubautia* sp., *Eragrostis* sp., *Leptecophylla tameiameiae, Melanthera tenuis, Metrosideros polymorpha, Peperomia* sp., *Rumex* sp., *Schiedea* sp., or *Sida fallax;* and

(ii) Elevations between 468 and 1,149 m (1,535 and 3,769 ft).

Family Violaceae: *Viola oahuensis* (NCN)

Oahu 20—*Viola oahuensis*—a and Oahu 35—*Viola oahuensis*—b, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Viola oahuensis* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Exposed, windswept ridges of moderate to steep slope in wet *Metrosideros polymorpha-Dicranopteris linearis* shrublands or *Metrosideros polymorpha* mixed montane bogs in the cloud zone and containing one or more of the following associated native plant species: *Antidesma* sp., *Bidens macrocarpa, Broussaisia arguta, Cibotium* sp., *Dubautia laxa, Hedyotis terminalis, Labordia* sp., *Machaerina* sp., *Melicope* sp., *Sadleria* sp., *Syzygium sandwicensis, Vaccinium* sp., or *Wikstroemia* sp.; and

(ii) Elevations between 415 and 959 m (1,361 and 3,146 ft).

(2) *Ferns and allies.*

Family Adiantaceae: *Pteris lidgatei* (NCN)

Oahu 20—*Pteris lidgatei*—a, Oahu 20—*Pteris lidgatei*—b, and Oahu 20—*Pteris lidgatei*—c, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Pteris lidgatei* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep stream banks or cliffs in wet *Metrosideros polymorpha-Dicranopteris linearis* forest containing one or more of the following associated native plant species: *Asplenium* sp., *Broussaisia arguta, Cibotium chamissoi, Cyrtandra*

sp., *Dicranopteris linearis, Diplopterygium pinnatum, Doodia lyonii, Dryopteris sandwicensis, Elaphoglossum crassifolium, Isachne pallens, Machaerina angustifolia, Sadleria* sp., *Sadleria squarrosa, Selaginella arbuscula,* or *Sphenomeris chinensis;* and

(ii) Elevations between 75 and 867 m (246 and 2,844 ft).

Family Aspleniaceae: *Ctenitis squamigera* (pauoa)

Oahu 4—*Ctenitis squamigera*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Ctenitis squamigera* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Gentle to steep slopes in *Metrosideros polymorpha-Diospyros sandwicensis* mesic forest or diverse mesic forest and containing one or more of the following associated native plant species: *Alyxia oliviformis, Carex meyenii, Diospyros hillebrandii, Dodonaea viscosa, Doodia kunthiana, Dryopteris unidentata, Freycinetia arborea, Hibiscus* sp., *Myrsine* sp., *Nestegis sandwicensis, Pisonia* sp., *Pouteria sandwicensis, Psychotria* sp., *Psydrax odorata,* or *Xylosma* sp.; and

(ii) Elevations between 413 to 923 m (1,355 to 3,027 ft).

Family Aspleniaceae: *Diellia erecta* (asplenium-leaved diellia)

Oahu 35—*Diellia erecta*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Diellia erecta* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Moderate to steep gulch slopes or sparsely vegetated rock faces in mesic forest containing one or more of the following associated native plant species: *Coprosma* sp., *Dodonaea viscosa, Dryopteris unidentata, Myrsine* sp., *Psychotria* sp., *Psydrax odorata, Sapindus oahuensis, Syzygium sandwicensis,* or *Wikstroemia* sp.; and

(ii) Elevations between 150 and 550 m (492 and 1,804 ft).

Family Aspleniaceae: *Diellia falcata* (NCN)

Oahu 4—*Diellia falcata*—a, Oahu 4—*Diellia falcata*—b, Oahu 15—*Diellia falcata*—c, and Oahu 15—*Diellia falcata*—d, identified in the legal descriptions in paragraph (i) of this section, constitute critical habitat for *Diellia falcata* on Oahu. Within these units, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Deep shade or open understory on moderate to moderately steep slopes and gulch bottoms in diverse mesic forest containing one or more of the following associated native plant species: *Acacia koa, Alyxia oliviformis, Antidesma* sp., *Asplenium kaulfussii, Carex meyenii, Charpentiera* sp., *Claoxylon sandwicense, Coprosma foliosa, Diospyros hillebrandii, Diospyros sandwicensis, Diplazium sandwichianum, Doodia kunthiana, Dryopteris unidentata, Elaeocarpus bifidus, Freycinetia arborea, Hedyotis terminalis, Hibiscus* sp., *Melicope* sp., *Metrosideros polymorpha, Myrsine lanaiensis, Nephrolepis exaltata, Nestegis sandwicensis, Nothocestrum* sp., *Pipturus* sp., *Pisonia sandwicensis, Pouteria sandwicensis, Psychotria* sp., *Psydrax odorata, Sapindus oahuensis, Selaginella arbuscula, Sophora chrysophylla,* or *Xylosma* sp.; and

(ii) Elevations between 394 and 932 m (1,292 and 3,057 ft).

Family Aspleniaceae: *Diellia unisora* (NCN)

Oahu 15—*Diellia unisora*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Diellia unisora* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Moderate to steep slopes or gulch bottoms in deep shade or open understory in mesic forest and containing one or more of the following associated native plant species: *Acacia koa, Alyxia oliviformis, Antidesma* sp., *Bidens torta, Carex meyenii, Chamaesyce multiformis, Coprosma* sp., *Dodonaea viscosa, Dryopteris unidentata, Eragrostis grandis, Hedyotis schlechtendahliana, Hedyotis terminalis, Metrosideros polymorpha, Myrsine lessertiana, Psychotria* sp., *Rumex* sp., or *Selaginella arbuscula;* and

(ii) Elevations between 489 and 943 m (1,604 and 3,093 ft).

Family Aspleniaceae: *Diplazium molokaiense* (NCN)

Oahu 4—*Diplazium molokaiense*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Diplazium molokaiense* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Steep rocky wooded gulch walls in wet forests; and

(ii) Elevations between 618 and 1,202 m (2,027 and 3,943 ft).

Family Grammitidaceae: *Adenophorus periens* (pendent kihi fern)

Oahu 20—*Adenophorus periens*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Adenophorus periens* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Trees in *Metrosideros polymorpha* or *Metrosideros rugosa* wet forests containing one or more of the following associated native plant species: *Cheirodendron* spp., *Cibotium* sp. *Dicranopteris linearis, Hedyotis terminalis, Machaerina angustifolia,* or *Syzygium sandwicensis;* and

(ii) Elevations between 309 to 867 m (1,014 to 2,844 ft).

Family Lycopodiaceae: *Phlegmariurus nutans* (wawaeiole)

Oahu 20—*Phlegmariurus nutans*—a, identified in the legal description in paragraph (i) of this section, constitutes critical habitat for *Phlegmariurus nutans* on Oahu. Within this unit, the currently known primary constituent elements of critical habitat include, but are not limited to, the habitat components provided by:

(i) Tree trunks, open ridges, forested slopes, or cliffs in *Metrosideros polymorpha* dominated wet forests, cliffs, or shrublands or mesic forests and containing one or more of the following associated native plant species: *Antidesma platyphyllum, Broussaisia arguta, Cyrtandra laxiflora, Dicranopteris linearis, Elaphoglossum* sp., *Hedyotis terminalis, Hibiscus* sp., *Machaerina angustifolia, Psychotria mariniana, Syzygium sandwicensis,* or *Wikstroemia oahuensis;* and

(ii) Elevations between 227 and 846 m (745 and 2,775).

Family Marsileaceae: *Marsilea villosa* (ihi ihi)

Oahu 13—*Marsilea villosa*—a, Oahu 14—*Marsilea villosa*—b, Oahu 28—*Marsilea villosa*—c, Oahu 29—*Marsilea villosa*—d, and Oahu 36—*Marsilea villosa*—e, identified in the legal description in paragraph (i) of this section, constitute critical habitat for *Marsilea villosa* on Oahu. Within these units, the currently known primary constituent elements of critical habitat

include, but are not limited to, the habitat components provided by:

(i) Cinder craters, vernal pools surrounded by lowland dry forest vegetation, mud flats, or lowland grasslands containing *Sida fallax*; and

(ii) Elevations between 1 and 89 m (3 and 292 ft).

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Craig Manson,

Assistant Secretary for Fish and Wildlife and Parks.

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