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50 CFR Part 17

**Endangered and Threatened Wildlife and
Plants; Final Designation of Critical
Habitat for *Holocarpha macradenia*
(Santa Cruz Tarplant); Final Rule**

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

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RIN 1018-AG73

Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for *Holocarpha macradenia* (Santa Cruz Tarplant)**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 *Holocarpha macradenia* (Santa Cruz tarplant). Approximately 1,175 hectares (2,902 acres) of land in Contra Costa, Santa Cruz, and Monterey Counties, California, fall within the boundaries of the critical habitat designation. This critical habitat designation provides additional protection 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. 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, and our approaches for handling any future habitat conservation plans.

DATES: This rule becomes effective on November 15, 2002.

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 the Ventura Fish and Wildlife Office, U.S. Fish and Wildlife Service, 2493 Portola Road, Suite B, Ventura, CA 93003.

FOR FURTHER INFORMATION CONTACT: Connie Rutherford, Ventura Fish and Wildlife Office, U.S. Fish and Wildlife Service, telephone 805/644-1766; facsimile 805/644-3958. Information regarding this proposal is available in alternate formats upon request.

SUPPLEMENTARY INFORMATION:**Background**

Holocarpha macradenia (Santa Cruz tarplant) is an aromatic annual herb in the aster family (Asteraceae) that is restricted to coastal terrace prairie habitat along the coast of central California. *Holocarpha macradenia* is

one of only four species of the genus *Holocarpha*. All four are geographically restricted to California. The plant is rigid with lateral branches that grow to the height of the main stem, which is 10 to 50 centimeters (cm) (4 to 20 inches (in)) tall. The lower leaves are broadly linear and up to 12 cm (5 in) long; the upper leaves are smaller, with rolled back margins, and are truncated by a distinctive craterform (open pitted) gland. The yellow daisy-like flower head is surrounded from beneath by individual bracts (small leaf-like structures associated with the flower head) that have about 25 stout gland-tipped projections (Keil 1993). *H. macradenia* is distinguished from other members of the genus by its numerous ray flowers and black anthers.

Holocarpha macradenia, like other closely related tarplants in the genus *Deinandra*, is self-incompatible, meaning that individuals will not produce viable seeds without cross pollinating with other individuals (B. Baldwin, *in litt.*, 2001). Gene flow from individual to individual and from population to population increases the likelihood of viability through the maintenance of genetic diversity; therefore gene flow is important for the long-term survival of self-incompatible species (Ellstrand 1992). Gene flow often occurs through pollen movement between populations, and likely occurs over short distances; most of the native insects thought to pollinate *H. macradenia* generally travel less than 0.5 kilometers (km) (0.3 miles (mi)) at one time (Waser, *in litt.*, 2002). Clusters of small populations of *H. macradenia* may facilitate greater gene flow; therefore, even the conservation of small occurrences may be critical to maintaining genetic diversity in this species. Native bees, bee flies, and wasps have been observed visiting *H. macradenia* flowers (Sue Bainbridge, Jepson Herbarium, University of California, Berkeley, pers. comm., 2001).

Seed production in *Holocarpha macradenia* is highly variable. A large, multi-branched individual may produce 25 seed heads with up to 15 seeds per head, while individuals growing in crowded conditions may be unbranched and produce only one seed head (S. Bainbridge, pers. comm., 2001). Floral heads produce two kinds of achenes (seeds), disc and ray. The disc achenes readily germinate under field and lab conditions, but appear to lose viability within 18 months of production (Bainbridge 1999; S. Bainbridge, pers. comm., 2001). In contrast, the ray achenes do not germinate readily under field and lab conditions; they represent the persistent soil seed bank (a reserve

of dormant seeds, generally found in the soil) in the field, and germination may be delayed for many years until further environmental cues break their dormancy (Bainbridge 1999).

The disc achenes usually fall from the receptacle to the ground below the parent plant, while the ray achenes are enclosed in a sticky glandular phyllary (leaf-like structure) which aides dispersal by attaching to animals. Those animals likely to assist in seed dispersal include, but are not limited to, mule deer (*Odocoileus hemionus*), gray foxes (*Urocyon cinereoargenteus*), coyotes (*Canis latrans*), black-tailed jackrabbits (*Lepus californicus*), bobcats (*Felis rufus*), striped skunks (*Mephitis mephitis*), opossums (*Didelphis virginiana*), raccoons (*Procyon lotor*), and other small mammals and small birds.

The *Holocarpha macradenia* seed bank is important to the species' year-to-year and long-term survival (Bainbridge 1999). A seed bank includes all seeds in a population and generally covers a larger area than the extent of observable plants seen in a given year. The extent of seed bank reserves is variable from population to population. For example, in 1999 at the Twin Lakes population of *H. macradenia* in Santa Cruz, the seed bank density averaged 240 seeds per square meter (m²) (10 square feet (ft²)); at the Watsonville Airport, the seed bank density averaged 887 seeds per m² (10 ft²); at the Porter Ranch population in northern Monterey County, the seed bank density averaged 40,000 seeds per m² (10 ft²) (Bainbridge 1999; S. Bainbridge, pers. comm., 2001).

The number and location of standing plants (observable plants) in a population varies annually. For example, the Graham Hill population near Santa Cruz comprised 12,000 standing plants in 1994 and 550 in 2001 (V. Haley, consultant, Felton, CA, pers. comm., 2001); the Apple Hill population near Watsonville comprised 0 standing plants in 1999; 4,049 in 2000; and 1,330 in 2002 (T. Edell, *in litt.*, 2000; 2002). This annual variation in standing plants is due to a number of factors, including the amount and timing of rainfall, temperature, soil conditions, and extent and nature of the seed bank.

Management activities can affect the balance between the number of standing plants and the extent of seed bank reserves. Burning, mowing, and scraping habitat for *Holocarpha macradenia* have been utilized to enhance populations at several sites, including Graham Hill, Arana Gulch, Twin Lakes, Tan, and Apple Hill, with variable results. At the Watsonville Airport site, *H. macradenia* habitat

adjacent to runways has been mowed, disced, and grazed to maintain visibility for airport operations. While this management has increased the density of *H. macradenia*, the vigor of individual plants appears to be in decline, and the seed bank reserve may be becoming depleted (Deb Hillyard, California Department of Fish and Game (CDFG), pers. comm., 2001).

Habitat for *Holocarpha macradenia* historically consisted of grasslands and prairies found on coastal terraces below 100 meters (m) (330 feet (ft)) in elevation, from Monterey County north to Marin County (CNDDDB 2001). In the late 1800s, coastal prairies were estimated to cover 350,000 hectares (ha) (865,000 acres (ac)) in California (Huenneke 1989). Historically, four major factors contributed to changes in the distribution and composition of coastal prairies: Livestock grazing; the introduction of highly competitive, nonnative species; the elimination of periodic fire; and cultivation (Heady *et al.* 1988). The remaining coastal prairie habitat in the Monterey Bay area, as well as in the rest of the State, is becoming increasingly fragmented and restricted in distribution, largely due to these same factors as well as urban development.

In the Santa Cruz area, *Holocarpha macradenia* exists on flat to gently sloping marine terrace platforms that are separated by steep-sided gulches. A series of populations occur on older marine terraces inland from the communities of Santa Cruz and Soquel; these terraces range in elevation from about 34 to 122 m (110 to 400 ft). Two populations (Arana Gulch and Twin Lakes) occur on a more recent marine terrace at lower elevations (12 to 18 m (40 to 60 ft)) and closer to the ocean. In the Watsonville area in Santa Cruz County, a series of *H. macradenia* populations occur on a low-lying marine terrace (15 to 37 m (50 to 120 ft) in elevation) that is dissected by Harkins Slough, Hanson Slough, and Struve Slough; the close proximity of these populations suggest that they were once part of a larger population that has since been fragmented by changes in land use over the past 100 years. Approximately 6.4 km (4 mi) north of Watsonville, several *H. macradenia* populations are located on a marine terrace 55 m (180 ft) in elevation. Approximately 4.8 km (3 mi) south of Watsonville a population occurs at an elevation of 30 m (100 ft) on alluvium (sedimentary material deposited by flowing water) resulting from marine terrace deposits. On the east side of San Francisco Bay (Contra Costa County), the marine terraces are more extensively

dissected, and *H. macradenia* populations historically occurred on the alluvium resulting from terrace deposits (Palmer 1986).

In Santa Cruz County, where most of the remaining native populations of *Holocarpha macradenia* occur, the soils most typically found on marine terraces and the alluvial deposits derived from them are of several soil series (Brabb 1989; SCS 1978, 1980). The Watsonville, Tierra, Elkhorn, and Pinto soil series are most frequently associated with occurrences of *H. macradenia*. These loams and sandy loams are deep and range from well drained to somewhat poorly drained. Other soil series, including Los Osos, Elder, and Diablo, are also located in the vicinity of known populations of *H. macradenia*, but due to the scale used for mapping the distribution of soils, we cannot determine the importance of these soils to this species.

Because the soils where *Holocarpha macradenia* occurs typically include a subsurface clay component, they hold moisture longer into the growing season compared to the surrounding sandy soils. As a summer-blooming species, *H. macradenia* may benefit from this late season moisture (CDFG 1995); alternatively, the saturated soil conditions during the spring season may be too wet for many other species to become established, and therefore maintain the reduced cover that *H. macradenia* prefers (Grey Hayes, University of California, Santa Cruz, pers. comm., 2001).

Today, the Santa Cruz tarplant is associated most frequently with grasses such as *Avena fatua* (nonnative wild oat), *Hordeum murinum* (barley), *Briza maxima* (rattlesnake grass), *Vulpia* spp. (vulpia), and *Bromus* sp. (bromes); frequent native associates include *Juncus* spp. (rushes) and *Danthonia californica* (California oatgrass). Associated native herbaceous species include other tarplants from the genus *Hemizonia*. At some locations, the plant is found with rare or sensitive species, including *Perideridia gairdneri* (Gairdner's yampah), *Plagiobothrys diffusus* (San Francisco popcorn flower), *Trifolium buckwestiorum* (Santa Cruz clover), and the Ohlone tiger beetle (*Cicindela ohlone*), a species listed as endangered (Service 2001). Other locally unique plant species such as *Plagiobothrys chorisianus* var. *chorisianus* (Choris's popcorn flower), *Triteleia ixiodes* (Triteleia), *Eryngium armatum* (coast coyote thistle), and *Grindelia hirsutula* var. *maritima* (San Francisco gumplant) also occur in these areas (CNDDDB 2001; Hayes 2002; Stromberg, *et al.* 2001).

The distribution of *Holocarpha macradenia* has been severely reduced due to continuing destruction and alteration of coastal prairie habitat. All the native San Francisco Bay area populations have been extirpated. The last remaining native population in this area, known as the Pinole Vista population, consisting of 10,000 plants, was eliminated in 1993 by commercial development (CDFG 1997).

Along Monterey Bay in Santa Cruz and Monterey Counties, approximately 13 populations are extant. According to CNDDDB, an additional nine populations along the Monterey Bay have been extirpated by development, most recently in 1993 when a population in Watsonville (Anna Street site) was destroyed during construction of office buildings and a parking lot (CDFG 1993, 1995). Other populations have declined or have recently disappeared due to changes in grassland management that favor species which compete with *Holocarpha macradenia*. Where habitat is still intact, management favorable to *H. macradenia* can reverse these trends and allow seeds in the dormant seed bank of the species to germinate and grow. The ability to provide appropriate management for the remaining occurrences of *H. macradenia* will be pivotal in the recovery of the species.

Holocarpha macradenia is currently known from approximately 13 native and 8 experimentally seeded populations (CNDDDB 2001, CDFG 2000) in Contra Costa, Monterey, and Santa Cruz Counties. Some of the native populations may represent separate, fragmented patches of what historically was a single larger population. Seven of the native populations occur around the cities of Santa Cruz and Soquel. These populations, with the number of standing plants and year of the most recent survey, are: Graham Hill Road, 575–650 individuals (2002); De Laveaga, “several thousand” individuals (2001); Arana Gulch, 10,000 individuals (2002); Twin Lakes, 21 individuals (2002); O'Neill/Tan, 0 individuals (2001); Winkle (also referred to as Santa Cruz Gardens), 0 individuals (1994); and Fairway, 150 individuals (2001) (V. Haley, *in litt.*, 2002; Root 2001; Seals 2002; S. Bainbridge, *in litt.*, 2002; Rigney 2001; CNDDDB 2001; Rutherford, pers. obs., 2001). The names of the populations used here are those used in the final rule to list the species published on March 20, 2000 (65 FR 14898).

The remaining six native populations occur around the city of Watsonville. Four of these are bounded generally by Corralitos Creek, Harkins Slough, Watsonville Slough, and the city of

Watsonville; they may represent remnants of a larger population. These four populations, with their number of standing plants and year of the most recent survey are: Watsonville Airport, 2,492,000 individuals (2001); Harkins Slough, 15,000 individuals (1993); Apple Hill, 1,330 individuals (2002); and Struve Slough, 1 individual (1994). Two outlying populations in the Watsonville area are: Spring Hills Golf Course, 4,000 individuals (1990); and Porter Ranch, 120,000 individuals (2001) (Duffy & Associates 2002; CNDDDB 2001; Edell, *in litt.*, 2002; Bainbridge, *in litt.*, 2002).

The eight experimentally seeded populations of *Holocarpha macradenia* have resulted from the planting of seed in Wildcat Regional Park in the east San Francisco Bay area (East Bay). The final rule to list *H. macradenia* (65 FR 14898) included a discussion of these efforts to establish new populations within the historic range of the species. Twenty-two sites were seeded between 1982 and 1986 in what appeared to be suitable habitat but representing a range of conditions based on the following criteria: soil series (Tierra as well as five others), grazing pressure (light or moderate), and exposure to coastal fog (fog, wind but no fog, and out of wind). The seeds used for planting had been collected from East Bay populations at the northern end of the species' range. Although a number of populations did well for a few years, many have failed to persist. Of the eight populations that have persisted at least for 14 years, only one, Mezue, has consistently supported large numbers of individuals. In the year 2000, this population was the largest it has been since the initial seeding in 1983 and supported over 17,000 individuals (CDFG 2000).

Very recently, three population introductions have been attempted in conjunction with research on the effects of different grazing regimes on the suite of herb species (as opposed to grass species) within native coastal prairie. Two of the seeding attempts are located just north and west of the city of Santa Cruz, and one is in northern Monterey County within the Elkhorn critical habitat unit. Although it is too early to assess the degree of success these efforts will achieve, the population within the Elkhorn unit appears to be doing the best of the three at this point (Holl, *in litt.*, 2002).

Several agencies have taken the initiative to undertake efforts to enhance habitat for *H. macradenia*. In conjunction with the CDFG, the city of Santa Cruz has been applying a variety of habitat manipulations to plots within the Arana Gulch Open Space Preserve,

including raking, scraping, mowing, and controlled burning with the objective of increasing the number of standing individuals, which had been in decline since grazing was terminated in the 1980s (CDFG 1997). The CDFG has been applying habitat manipulations (mowing, burning, and scraping) and carrying out seed bank studies (Bainbridge 1999). The California Department of Transportation (CalTrans) has been mowing the Apple Hill population west of Watsonville to reduce the biomass of nonnative grasses (T. Edell, *in litt.*, 1998). While the interpretation of results can be complex, these efforts generally show that the number of standing individuals may be increased by reducing the potential for competition between *H. macradenia* and nonnative grasses through these management practices. However, increasing the number of standing individuals may also deplete seed bank reserves; therefore, the goals of appropriate management should include not only increasing the number of standing individuals in small populations, but also maintaining the appropriate balance between standing individuals and seed bank reserves.

Several proposed development projects will impact habitat for *Holocarpha macradenia*. Housing developments have been approved for several sites including the Graham Hill site and the Fairway site, but management plans for *H. macradenia* have not yet been fully implemented. A management plan for *H. macradenia* has been initiated for the Tan population, but has not yet resulted in enhancement of the population. Approval for a housing development adjacent to the Winkle population is pending. A housing development for the Struve Slough was recently approved without any active management plan for *H. macradenia*. As a result of a legal challenge, Watsonville Wetlands Watch has been granted 3 years to raise funding to purchase a 2-ha (6-ac) portion of the site that supports *H. macradenia* for conservation purposes (Superior Court of the State of California 2001).

As has been observed at the Watsonville Airport, human activities, such as mowing and cattle grazing can favor the abundance of *Holocarpha macradenia* by reducing competition from other herbaceous species. However, because these activities can also promote the spread and establishment of nonnative species, they may need to be repeated at frequent intervals or at certain times to maintain the establishment of *H. macradenia*. Such intensive management may not be

practical in all areas where *H. macradenia* habitat includes a complement of nonnative species. Moreover, while the presence of *H. macradenia* could be maintained in areas with a high abundance of nonnative species, the habitat quality of these areas for *H. macradenia* may be less than areas where the presence of nonnative species is minimal. Research on the effects of different frequencies of mowing, litter removal, and soil disturbances on habitat for *H. macradenia* is ongoing by researchers at the University of California (UC) at Santa Cruz and UC Berkeley's Jepson Herbarium (Holl, *in litt.*, 2002; Bainbridge, *in litt.*, 2002b) and will contribute to our understanding of how to optimize management efforts to benefit this species.

Based on the presence of other fragments of remaining coastal terrace prairie habitat, we believe that additional populations of *Holocarpha macradenia* may occur within the current range of the species but have not yet been detected. In particular, suitable habitat most likely remains on older coastal terraces that lie to the north of the cities of Santa Cruz and Soquel. These areas may contain a viable seed bank, even if no standing plants are found.

Holocarpha macradenia is threatened primarily by historic and recent habitat destruction caused by residential development and habitat alteration caused primarily by land management practices that favor the increase of other species which compete with *H. macradenia*. Most often, the establishment of invasive, competing species follows from the cessation of grazing by cattle or horses. Future loss of habitat may also result from recreational development, airport expansion, and agriculture. Habitat that has been set aside in preserves, conservation easements, and open spaces also suffers secondary impacts from: (1) Casual use by residents; (2) introduction of invasive species; (3) lack of active management; and (4) changes in hydrology. In particular, smaller preserve areas with *H. macradenia* suffer because they are cut off from many ecosystem functions dependent upon soil and hydrologic characteristics that would be present in larger, more contiguous sites. More often, these smaller areas are left as open spaces, but without the benefit of the grassland management needed to sustain them.

Nonnative species that have invaded and threaten habitat supporting native populations of *Holocarpha macradenia* include *Genista monspessulana* (French broom), *Eucalyptus* sp. (eucalyptus),

Acacia decurrens and *A. melanoxylon* (acacia), and a number of nonnative grass species, particularly *Phalaris aquatica* (Harding grass) and *Bromus* spp. (bromes). In Wildcat Regional Park in the East Bay area, *Cynara cardunculus* (artichoke thistle) has invaded habitat for *H. macradenia* at the one site that is being designated as critical habitat (Mezue), as well as many of the other sites where introduced populations of *H. macradenia* were attempted. *Picris echioides* (Bristly ox-tongue) has recently invaded the population of *H. macradenia* at the Elkhorn unit (Holl, *in litt.*, 2002).

Previous Federal Action

Federal action on this plant began when the Secretary of the Smithsonian Institution, as directed by section 12 of the Act, prepared a report on those native U.S. plants considered to be endangered, threatened, or extinct in the United States. This report (House Doc. No. 94-51), was presented to Congress on January 9, 1975, and included *Holocarpha macradenia* as endangered. On July 1, 1975, we published a notice in the **Federal Register** (40 FR 27823) accepting the report as a petition within the context of section 4(c)(2) (now section 4(b)(3)) of the Act and of our intention thereby to review the status of the plant taxa named therein. On June 16, 1976, we published a proposed rule in the **Federal Register** (41 FR 24523) determining approximately 1,700 vascular plant species to be endangered pursuant to section 4 of the Act. *Holocarpha macradenia* was included in this June 16, 1976, **Federal Register** document.

In 1978, amendments to the Act required that all proposals over two years old be withdrawn. A one-year grace period was given to those proposed rules already more than two years old. Later, on December 10, 1979, we published a notice (44 FR 70796) of the withdrawal of the portion of the June 16, 1976, proposed rule that had not been made final, along with four other proposed rules that had expired. We published an updated notice of review (NOR) for plants on December 15, 1980 (45 FR 82480). This notice included *Holocarpha macradenia* as a category one candidate (species for which data in our possession was sufficient to support proposals for listing).

On February 15, 1983, we published a notice (48 FR 6752) of our prior finding that the listing of *Holocarpha macradenia* was warranted but precluded in accordance with section 4(b)(3)(B)(iii) of the Act as amended in 1982. Pursuant to section 4(b)(3)(C)(i) of

the Act, this finding must be recycled annually, until the species is either proposed for listing, or the petitioned action is found to be not warranted. Each October from 1983 through 1990 further findings were made that the listing of *H. macradenia* was warranted, but that the listing of this species was precluded by other pending proposals of higher priority.

Holocarpha macradenia continued to be included as a category one candidate in plant NORs published September 27, 1985 (50 FR 39526), February 21, 1990 (55 FR 6184), and September 30, 1993 (58 FR 51144). Upon publication of the February 28, 1996, NOR (61 FR 7596), we ceased using category designations and included *H. macradenia* as a candidate. Candidate species are those for which we have on file sufficient information on biological vulnerability and threats to support proposals to list them as threatened or endangered. The 1997 NOR, published September 19, 1997 (62 FR 49398) retained *H. macradenia* as a candidate, with a listing priority of 2. On March 20, 1998, we published a proposed rule in the **Federal Register** (63 FR 15142) to list *H. macradenia*. The final rule listing *H. macradenia* as a threatened species was published on March 20, 2000 (65 FR 14898).

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. Our regulations (50 CFR 424.12(a)(1)) state that designation of critical habitat is not prudent when one or both of the following situations exist: (1) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species. At the time *Holocarpha macradenia* was listed, we found that designation of critical habitat for *H. macradenia* was prudent, but that given our limited listing budget, designation of critical habitat would have to be deferred so as to allow us to concentrate limited resources on higher priority critical habitat and other listing actions.

On June 17, 1999, our failure to issue final rules for listing *Holocarpha macradenia* and eight other plant species as endangered or threatened, and our failure to make a final critical habitat determination for the nine species was challenged in *Southwest Center for Biological Diversity and California Native Plant Society v.*

Babbitt (Case No. C99-2992 (N.D.Cal.)). On May 22, 2000, the judge signed an order for the Service to propose critical habitat for the species by September 30, 2001. In mid-September 2001, plaintiffs agreed to a brief extension of this due date until November 2, 2001. The proposed rule to designate critical habitat for the species was signed on November 2, 2001, and sent to the **Federal Register**.

The proposed rule to designate critical habitat for the species was published on November 15, 2001 (66 FR 57526). In the proposal, we determined it was prudent to designate approximately 1,360 ha (3,360 ac) of land in Santa Cruz and Monterey Counties as critical habitat for *Holocarpha macradenia*. Publication of the proposed rule opened a 60-day public comment period, which closed on January 14, 2002.

On May 7, 2002, we published a notice announcing the reopening of the comment period on the proposal to designate critical habitat for *Holocarpha macradenia* and a notice of availability of the draft economic analysis on the proposed determination (67 FR 30642). This second public comment period closed on June 6, 2002. On May 16, 2002, the plaintiffs agreed to extend the date upon which we are to make a final rule determination for critical habitat to September 30, 2002.

Summary of Comments and Recommendations

We contacted appropriate Federal, State, and local agencies, scientific organizations, and other interested parties and invited them to comment. In addition, we invited public comment through the publication of notices in the Santa Cruz Sentinel on November 21; the Monterey Herald on November 20; the San Jose Mercury on November 20; and the Oakland Tribune on November 22; all in the year 2001. We received individually written letters from 18 parties, which included 4 designated peer reviewers, 1 Federal agency, 2 State agencies, and 3 local jurisdictions. Of these 18 parties, 13 supported the proposed designation and 5 were neutral regarding the designation of critical habitat for this species; however, 1 of those supporting the designation and 3 of those that were neutral requested that areas they own, manage, or have planning jurisdiction over, be excluded from critical habitat designation.

We reviewed all comments received for substantive issues and new information regarding critical habitat and *Holocarpha macradenia*. Similar comments were grouped into general

issues and are addressed in the following summary.

Biological Issues

1. *Comment:* The need for the 9 smaller units, ranging in size from 7 to 170 acres, is well justified given specific information about the status of the *Holocarpha macradenia* populations. However, the need for the two larger units (I and J near Watsonville), which together comprise almost half of the 3,360 acres proposed for designation, is not adequately justified.

Our Response: The varying size of the units is in part due to their location relative to the configuration of the coastal terraces in the vicinity as well as patterns of development. For instance, in the hills north of Santa Cruz and extending down to the Soquel area, the coastal terrace is strongly dissected by a series of drainages, leaving small fingers of terrace jutting southward. Populations of *Holocarpha macradenia* that occur on these terraces are necessarily restricted in distribution by geography, and then more so by human development. In contrast, the coastal terrace in the vicinity of Watsonville occurs as a larger block that is only weakly dissected by swales and drainages, resulting in a more rolling hill landscape. As discussed in this rule, numerous historic locations of *H. macradenia* have been noted in the Watsonville area. This leads us to conclude that *H. macradenia* was once widespread throughout the coastal terraces in the area. We believe the designation of larger critical habitat units in the Watsonville area is consistent with the available information on landforms, soils and historic occurrences of the species.

As discussed below, Units I and J are essential because they support many populations of *H. macradenia*, as well as the grassland habitat that is important to expanding existing populations and maintaining connectivity between them. These units also represent two of the three areas in the central Monterey Bay area and the southern end of the range of the species that support populations of *H. macradenia*. Unit J also contains the most inland distribution of the species. Preserving the genetic variability within a species, by conserving populations with unique characteristics such as the ability to persist at the edge of the species' range, allows it to adapt to changing environmental conditions, and is therefore essential to the long-term survival and conservation of the species.

2. *Comment:* The proposed designation of 3,360 acres seems

excessive for a species that is only listed as threatened.

Our Response: The Act and its implementing regulations do not provide for different standards when considering critical habitat for a threatened species as opposed to an endangered species. Other species listed as threatened have had much larger acreages designated. The extent of acreage designated in this rule, as in all of our critical habitat rules, is tied to the amount of habitat that supports the primary constituent elements for the species, and where the species is known to occur. Based on the remaining amount of habitat and what is known about the historic and current range of *Holocarpha macradenia*, we conclude that the amount of critical habitat being designated is essential for maintaining populations of *H. macradenia*, as well as the grassland habitat and the ecological functions that are important for the expansion of existing populations and maintaining connectivity between them.

3. *Comment:* Three commenters indicated that additional critical habitat should be designated in the East Bay region (Alameda and Contra Costa Counties) in support of additional reintroduction efforts for *Holocarpha macradenia* within its historic range. One commenter specified that habitat for at least five populations should be designated in this area and that seed used should represent the remains of the "northern" gene stock.

Our Response: We agree that maintaining the northern gene stock is important to the conservation and recovery of the species, and that attempting to establish additional populations in the East Bay region is an important recovery task. Although we are only designating one area in the East Bay region as critical habitat, we believe that the relatively large size and long-term stability of the population in this unit made it the most important to designate at this time. We are required to designate those areas we know to be critical habitat, using the best information available to us at the time. When we designate critical habitat at the time of listing, as required under Section 4 of the Act, or under court-ordered deadlines, we may not have the information necessary to identify all areas that are essential for the conservation of the species. Additional habitat outside the designated areas may later be discovered to be critical for the recovery of the species. We will soon be developing a recovery plan for *Holocarpha macradenia*, and look forward to developing specific recovery recommendations for the species,

including the need for establishing additional populations within the historic range of the species in the East Bay.

Management Considerations

4. *Comment:* We received comments from several land managers as well as academic researchers that are currently evaluating the role that grazing and fire may have in maintaining habitat for *Holocarpha macradenia*. A number of suggestions were offered about how the species responds to different types of management and how discussion of these management options should be framed in the rule.

Our Response: We appreciate the numerous suggestions we received to expand discussions regarding management, and we have incorporated some of these suggestions into the rule in the Background section and the Special Management Considerations section. However, we have limited the level of detail to which the discussion has been expanded, because it could go well beyond the scope of the current critical habitat designation process. We suggest that these issues be discussed further at the time we are developing a recovery plan for the species.

Economic Comments

5. *Comment:* We received one comment recommending that we use the contingent valuation method (CVM) to determine the hypothetical nonuse values for the plant species and its habitat that comprise this rulemaking.

Our Response: Economists recognize that in addition to a "use value" that society places on natural resources these goods may also exhibit a "non-use value" by society. For example, while many people may elect to visit a public park and "use" it for a variety of recreational purposes, the presence of this park may provide a variety of benefits to additional members of society even though their enjoyment may not be directly observable. Certain individuals may also derive benefits from the park because of the protection it offers to certain natural resources including a diverse ecosystem that harbors endangered and threatened species. While these members of society may value the park merely for its existence, their behavior is not directly observable and thus economists have developed certain tools, including the CVM for measuring these values.

CVM is an approach used by economists to directly elicit non-use values from individuals through the use of carefully designed survey instruments. A CVM study will provide respondents with a framework wherein

they are asked to value the resource given the parameters of the framework. For the CVM to work properly, and provide meaningful information on non-use values, considerable resources must be expended to adequately design and administer this tool. However, it is not currently feasible for us to conduct CVM studies to capture the non-use values certain individuals may place on critical habitat designation due to our limited resources.

In conducting our analyses, we do review economic literature to determine whether or not there are any existing studies that can provide information that would allow us to better describe and accurately quantify such benefits associated with the survival and recovery of the species and its habitat in question. However, even when such studies are identified, they usually do not allow for the separation of the benefits of listing (including the Act's take provisions) from the benefits of critical habitat designation.

While we are often unable to quantify benefits that may be associated with the designation, our analyses do discuss potential benefits in a qualitative manner. This discussion is not intended to provide a complete analysis of the benefits that could result from section 7 of the Act in general or critical habitat designation in particular. In short, we believe that we are currently best able to express the benefits of critical habitat designation in biological terms that can be weighed against the expected cost impacts of the rulemaking.

We believe that this approach is consistent with the statutory requirements of the Act. Section 4(b)(2) of the Act requires the Secretary to designate critical habitat on the basis of the best scientific data available after taking into consideration the economic impact and any other relevant impact of specifying any particular area as critical habitat. This section of the Act continues on to state that the Secretary may exclude areas from the designation if he (she) determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the designation. This language does not imply that the Secretary must apply a strict cost-benefit test to the exclusion process but instead gives her broad discretion in considering the best scientific and commercial data available when making a final decision. As a result, critical habitat decisions do not hinge solely on the results of a benefit-cost analysis. The designation of critical habitat units is first made on biological grounds, and when these decisions significantly impinge on economic activities, then the weighing of the costs

and benefits of the proposed action are considered. In this particular instance, the economic analysis did not identify any significant economic impact associated with the designation.

6. *Comment:* One commenter asserted that the designation of critical habitat causes officials of California's resource agencies, namely the California Coastal Commission (CCC) and the CDFG to identify the designated areas as Environmentally Sensitive Habitat Areas (ESHA), and that land use within the ESHAs are restricted through the implementation of requirements of the California Coastal Act (CCA). Thus ESHAs could impose additional costs on the regulated community.

Our Response: As stated in our addendum to the draft economic analysis, the CCA charges the CCC with implementing coastal management policies in conjunction with local governments in coastal zones in 15 counties and 58 cities in California. These policies generally require the protection of fragile and/or scenic coastal habitat, improvement of public access (physical and visual) to the coast, the protection of agricultural land, and measures to direct growth towards urban areas and away from undeveloped coastal areas. The CCC also established the Local Coastal Program (LCP), which requires local coastal governments to prepare management plans for their coastal areas that must be approved by the CCC. Once a local government obtains CCC approval of its LCP, the authority to approve local development proposals is transferred from the CCC to the local government in most circumstances. The CCC maintains "original jurisdiction" over areas where no approved LCP exists, proposals on the immediate shoreline (below mean high tide), and proposals involving major public works or energy projects.

In the process of approving and/or amending LCPs, or through reviewing applications under "original jurisdiction," the CCC may establish certain coastal areas as ESHAs, depending on the habitat resources present and their role in healthy ecosystem function. ESHAs are established based on a site-specific field study of the project area in question by CCC biologists. Once established, the presence of an ESHA limits the type of development that can be approved to "uses dependent only on those resources" present in the ESHA.

The most likely potential effect of critical habitat on the CCC's implementation of the CCA would be through the increased likelihood that an ESHA might be established following its designation. CCC personnel indicate

that the presence of listed species nearly always results in the establishment of an ESHA. As a result, the designation of critical habitat would increase the likelihood of ESHA establishment in areas not previously known to be occupied by endangered or threatened species.

While the presence of designated critical habitat is typically correlated with an ESHA, CCC staff confirm that the designation itself does not automatically result in an area becoming an ESHA. Rather, the designation of critical habitat is considered by CCC biologists as a potential source of additional information to be evaluated in the context of the quality of the underlying data and checked against existing knowledge and field surveys. CCC staff also indicate, however, that if habitat represents significant biological value for a State- or Federally-listed species, it is very likely this habitat would have already been identified through CCC biological surveys, and probably would have already been recommended as an ESHA. As a result, only if the designation of critical habitat adds new biological information might ESHAs be adjusted or established.

In the case of the designation of critical habitat for *Holocarpha macradenia*, staff from the CCC's Central Coast District Office indicate that the proposed designation is unlikely to result in the establishment of any new ESHAs. The proposed critical habitat area falls within existing LCPs and, more importantly, the designation adds no new information regarding occupied or essential habitat areas. Consequently, the proposed designation of critical habitat is not likely to result in additional costs associated with the implementation of the CCA.

Comments on Site-Specific Areas

7. *Comment:* The East Bay Regional Parks District (EBRPD) requested that we make minor modifications to the boundaries of Unit A (Mezue) that occurs on lands they manage. The modifications are based on more detailed topographic and vegetation data that they were able to provide. The proposed modifications would remove some riparian habitat from the unit and add one small area at the top of the watershed upslope to where a population of *Holocarpha macradenia* is located.

Our Response: We have modified the boundary to remove a few areas of riparian vegetation and a small area that was not within the subwatershed where the plant occurs. We are not able to include the small area at the top of the watershed within the final boundary

because we had not previously proposed to include it. These modifications resulted in a reduction of acreage in this unit from 61 ha (150 ac) to 52 ha (130 ac).

8. *Comment:* The California Army National Guard (CANG) requested that we remove 3 ha (7 ac) of lands that they own and manage known as the Santa Cruz Armory from Unit C (De Laveaga) of the proposed critical habitat designation. They fully support the efforts of the Service to protect *Holocarpha macradenia* and its habitat, and point out that they are directed by the Sikes Act (16USC 670a *et seq.*) to develop and implement an Integrated Natural Resources Management Plan (INRMP) for the Armory with certain criteria for maintaining biodiversity and using an adaptive management approach. They submitted a list of 11 management elements, some of which have already been implemented, that will be included in their INRMP.

Our Response: Critical habitat is defined in section 3 of the Act as—(i) the specific areas within the geographic area occupied by the 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. Special management and protection are not required if adequate management and protection are already in place. Adequate special management or protection is provided by a legally operative plan/agreement that addresses the maintenance and improvement of the primary constituent elements important to the species and that manages for the long-term conservation of the species. Areas that are currently being managed to address the conservation needs of *Holocarpha macradenia*, in accordance with plans we have reviewed and determined to be adequate, do not require special management within the meaning of section 3(5)(a)(i) of the Act and will not be included in this final rule.

To determine if a plan provides adequate management or protection we consider—(1) Whether there is a current plan specifying the management actions and whether such actions provide sufficient conservation benefit to the species; (2) whether the plan provides assurances that the conservation management strategies will be implemented; and (3) whether the plan

provides assurances that the conservation management strategies will be effective. In determining if management strategies are likely to be implemented, we consider whether—(a) A management plan or agreement exists that specifies the management actions being implemented or to be implemented; (b) there is a timely schedule for implementation; (c) there is a high probability that the funding source(s) or other resources necessary to implement the actions will be available; and (d) the party(ies) have the authority and long-term commitment to implement the management actions, as demonstrated, for example by a legal instrument providing enduring protection and management of the lands. In determining whether an action is likely to be effective, we consider whether—(a) The plan specifically addresses the management needs, including reduction of threats to the species; (b) such actions have been successful in the past; (c) there are provisions for monitoring and assessment of the effectiveness of the management actions; and (d) adaptive management principles have been incorporated into this plan.

The Sikes Act Improvement Act of 1997 (Sikes Act) requires each military installation that encompasses land and water suitable for the conservation and management of natural resources to have completed, by November 17, 2001, an INRMP. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the installation. Each INRMP includes an assessment of the ecological needs of 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. Under section 7 of the Act, we consult with the military on the development and implementation of INRMPs for installations with listed species. Military installations with approved INRMPs which address the needs of species generally do not meet the definition of critical habitat discussed above as they require no additional special management or protection. Therefore, we do not include these areas in critical habitat designations if they meet the following three criteria: (1) A current INRMP must be complete and provide a benefit to the species; (2) the plan must provide assurances that the conservation management strategies will be

implemented; and (3) the plan must provide assurances that the conservation management strategies will be effective, by providing for period 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.

We conclude that the CANG does not yet have an INRMP for the Santa Cruz Armory that sufficiently addresses the criteria above. These lands do not warrant exclusion from critical habitat designation because the proposed management plan has not been approved and does not contain assurances that the management actions it describes will be implemented or effective. Concerning the likelihood that management actions will be implemented, we note that the plan does not include a timely schedule for implementation and does not contain a commitment of financial resources. Concerning the likelihood that management actions will be effective, we note that there are no provisions for monitoring or assessing of their effectiveness, and adaptive management principles have not been incorporated into the draft plan. We appreciate the efforts that CANG has already made toward restoring and protecting habitat on these lands, including the removal of eucalyptus logs from *Holocarpha macradenia* habitat, and the removal of wood chips that were inadvertently spread on top of a portion of the population. The Service has agreed to work with CANG in the development of their INRMP, particularly as it pertains to the conservation of *H. macradenia*. If the INRMP sufficiently meets the criteria for exclusion from critical habitat upon its completion, the Service will consider revising the critical habitat designation to exclude the Santa Cruz Armory lands at a future date.

Based upon a site visit with CANG staff to the Santa Cruz Armory, the Service has determined that a portion of the proposed critical habitat unit does not contain the primary constituent elements, specifically, the parking lot. By eliminating this area, the final critical habitat unit has been reduced from 3 ha (7 ac) to 2 ha (5 ac).

9. *Comment:* The Pajaro Valley Unified School District (District) requested that we remove 28 ha (70 ac) of land they own, known as the Millennium High School site, from Unit I (Watsonville) of the critical habitat designation for two reasons. They contend that the site has been under cultivation for over a decade and that there is no evidence of the species or the habitat conditions that would support it. In addition, they are concerned that the

designation will “create obstacles” to the construction of the New Millennium High School. They also request the removal of Harkins Slough Road from critical habitat designation, because the planned improvements for this road, which will provide access to the High School, will be facing “considerable difficulties.”

Our Response: Section 4(b)(2) of the Act states “The Secretary shall designate critical habitat, and make revisions thereto, under subsection (a)(3) on the basis of the best scientific data available and after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat.” Absent a finding by us that the economic or other relevant impacts of a critical habitat designation would outweigh the benefits of designation, the Act does not provide for the exclusion from critical habitat of private lands essential to the conservation of listed species. We believe that this parcel of land contains components essential to the conservation of *H. macradenia* because: (1) The site contains the primary constituent elements including the appropriate soils (Watsonville loams) and hydrology that are suitable for the species, and the site occurs within 1 km (0.5 mi) of 3 known locations for the species. Therefore, this site could provide habitat for the expansion of existing populations as well as maintain connectivity between existing populations by allowing gene flow between these populations through pollinator activity and seed dispersal. The importance of this site is also discussed in the description of the Watsonville unit. We believe that the designation of these lands in this final rule as critical habitat outweighs the benefits of their exclusion from being designated as critical habitat. The possible removal of these lands from the designation is also addressed in the Exclusions Under Section 4(b)(2) section of this rule.

With respect to the critical habitat designation creating “obstacles” and “difficulties” in completing construction of the High School, the District did not specify what they believed these to be. However, we believe that the designation at this site will have little additional regulatory burden for the District because there will probably be little federal nexus to the project and therefore minimal requirement for them to consult under section 7 of the Act, if any. Just as this rule was being finalized, we received information indicating that construction of the High School had been initiated. Because this construction will remove

the primary constituent elements from approximately 32 acres of the parcel on which the High School is being built, we are removing this portion that will be converted to buildings, paved surfaces, and playing fields from critical habitat designation. Because this information was received so close to the time of publication, we did not have the opportunity to redraw the map for this unit. The remaining 36 acres of the site will be slated for conservation and protected from development through permanent deed restrictions. Because the planned Harkins Slough Road improvements are partially funded with Federal funds, the Federal Highway Administration (FHWA) will be consulting with us on the road due to the presence of California red-legged frog. The inclusion of critical habitat for *Holocarpha macradenia* in the same consultation is not expected to significantly increase the economic impact of the project on FHWA or the District.

10. *Comment:* The City of Watsonville requested that a number of areas be removed from the critical habitat designation, including the following: the Millennium High School site; the Sea View Ranch site; an illegal fill site with an existing grading permit for remediation; the City’s golf driving range; and the State Highway 1 right of way within the city limits. They believe these areas should be removed because they have recently been surveyed for the presence of *Holocarpha macradenia* and it was found not to be present. The City provided some additional information extracted from planning documents for some of these projects. In addition, CalTrans requested that areas within their right of way be excluded because the disturbance from routine maintenance activities makes them inappropriate for species recovery activities.

Our Response: As stated in the section on Mapping in the body of this rule, some critical habitat units were mapped with greater precision than others, based on the available information, and the size of the unit. We appreciate the additional information that the City of Watsonville was able to provide to us. As discussed in the section on Primary Constituent Elements in this rule, we tried to map areas that contained soils associated with coastal terrace prairies, plant communities that support associated species, and the physical attributes, particularly the soils and hydrologic processes that produce the seasonally saturated soils characteristic of *Holocarpha macradenia* habitat. We have therefore removed portions of these areas from this critical habitat

designation, including portions of the landfill parcel that are steep-sided canyons below the level of the coastal terrace, and the landfill itself. We have also removed the golf driving range because the soils have been altered by the placement of other soils on top of the native soils during the development of the range. Even though the proposed rule contains language to indicate that paved surfaces are not considered critical habitat, we have removed most of the State Highway 1 corridor from the area mapped as critical habitat. We have also removed 3 m (9 ft) on either side of the highway from critical habitat designation because this area needs to be kept free of vegetation for human health and safety reasons, and because the soil profile along the road shoulder has been modified such that it does not now contain the primary constituent elements for this taxon. However, we have not removed the remaining area within right of ways or other parcels from the critical habitat designation because, to the best of our knowledge, they occur on coastal terrace habitat that has native soils with the attendant hydrologic and edaphic processes still in place. They are essential to the conservation of the species because they are important for the expansion of existing populations and maintaining connectivity between them. Even though some of these locations have been converted to agriculture or have recently been graded, the native soils are still in place and these areas have the potential to be restored as habitat for *H. macradenia*. We believe that designating of these lands as critical habitat in this final rule outweighs the benefits of excluding them. The possible removal of these lands from the designation is also addressed in the Exclusions Under Section 4(b)(2) section of this rule.

11. *Comment:* The City of Watsonville requested that only those portions of the Watsonville Airport that are identified in the Tarplant Mitigation Plan (Gilchrist 2001) be included in the critical habitat designation, thus excluding other portions of the airport.

Our Response: The portions of the Airport that are paved with runways and roads or support buildings are not considered critical habitat for the species even though they are within the critical habitat boundaries; due to the scale of mapping, however, these areas could not be excluded on our maps. Of the remaining portions of the Airport, some are included in the Tarplant Mitigation Plan and some are not. However, we have included all of these areas within the critical habitat designation because they are contiguous

with areas that currently support *Holocarpa macradenia*, provide areas for expansion of the population, and provide connectivity between patches of the plant. In addition, this site supports the largest population of *H. macradenia*, and therefore is important as a seed bank should it become necessary to reseed other sites where populations are declining.

Peer Review

In accordance with our policy published on July 1, 1994 (59 FR 34270), we solicited independent opinions from the Sustainable Ecosystems Institute (which provided two peer reviewers) as well as two other knowledgeable individuals with expertise in one or several fields, including familiarity with the species, familiarity with the geographic region in which the species occurs, and familiarity with the principles of conservation biology. All four peer reviewers supported the proposal, and provided us with comments which we incorporated into the final rule. Their comments included discussion on the following issues: The importance of maintaining the genetic stock from the northern portion of the species' range, as represented by the introduced populations in the East Bay area; the importance of appropriate management in maintaining populations of the species; the necessity of maintaining all critical habitat units for the species; and the relationship between annual population fluctuations and the areas being designated. One peer reviewer suggested that the discussion concerning the role of offsite hydrology in maintaining habitat for the species needed to be strengthened.

Summary of Changes From the Proposed Rule

Based on a review of public comments received on the proposed determination of critical habitat, we reevaluated our proposed designation and the draft Economic Analysis and made several changes to the final designation of critical habitat. These include the following:

(1) We made minor changes to the boundary lines on the Mezue Unit to remove riparian corridors and a small portion of habitat outside the subwatershed where *Holocarpa macradenia* occurs. These changes resulted in a reduction of 9 ha (21 ac) in this unit.

(2) We made minor changes to the boundary lines on the De Laveaga Unit. The purpose of these changes was to draw the boundaries more precisely to eliminate the parking lot of the Santa

Cruz Armory from within the boundary of the unit. This change resulted in a reduction of 1 ha (2 ac) in this unit.

(3) We made minor changes to the boundary lines on the Watsonville Unit. The purpose of these changes was to avoid areas that obviously did not contain the primary constituent elements, and for which we were unable to draw more precise boundaries at the time of the proposed designation. The use of recently acquired high-resolution aerial photographs dating from April 2000 enabled us to undertake this more precise mapping. These changes resulted in a total reduction of 174 ha (430 ac) in this final critical habitat designation. For all three of the units, the new boundary lines were drawn within the boundary lines shown in the proposed designation; in no case were the new boundary lines drawn outside of those described in the legal description for the units in the proposed designation.

(4) We corrected the acreage figure for the Graham Hill Unit (Unit B) from 14 ha (35 ac) to 12 ha (30 ac). We had intended to propose 2 additional hectares (5 ac) to the south of the current unit boundary. However, the boundaries showing this additional habitat and the Universal Transverse Mercator (UTM) coordinates describing their location were inadvertently left out of the proposed rule. The unit boundaries as depicted in this final rule encompass 12 ha (30 ac). Under the Act and the Administrative Procedure Act, we are required to allow the public an opportunity to comment on the proposed rulemaking. Therefore, because these new areas were not included in the proposed rule, we are not including them in the final rule. Although these areas were not included in the critical habitat proposal, they may be important to the recovery of the species and could be included in recovery activities in the future.

(5) We added a section describing the Special Management Considerations or Protections that *Holocarpa macradenia* may require. We believe that this new section will assist land managers in developing management strategies for *H. macradenia* on their lands.

Critical Habitat

Section 3 of the Act defines critical habitat 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" 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 of 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. Aside from the added protection that may be provided under section 7, the Act does not provide other forms of protection to lands designated as critical habitat. Because consultation under section 7 of the Act does not apply to activities on private or other non-Federal lands that do not involve a Federal nexus, critical habitat designation would not afford any additional regulatory protections under the Act with regard to such activities.

Critical habitat also provides nonregulatory benefits to the species by informing the public and private sectors of areas that are important for species recovery and where conservation actions would be most effective. Designation of critical habitat can help focus conservation activities for a listed species by identifying areas that contain the physical and biological features essential for the conservation of that species, and can alert the public as well as land-managing agencies to the importance of those areas. Critical habitat also identifies areas that may require special management considerations or protection, and may help provide protection to areas where significant threats to the species have been identified, by helping people to avoid causing accidental damage to such areas.

In order to be included in a critical habitat designation, the habitat must first be "essential to the conservation of the species." Critical habitat designations identify, to the extent known using the best scientific and commercial data available, habitat areas that provide essential life cycle needs of the species (primary constituent elements, as defined at 50 CFR 424.12(b)). Section 3(5)(C) of the Act states that not all areas that can be occupied by a species should be designated as critical habitat unless the

Secretary determines that all such areas are essential to the conservation of the species. Our regulations (50 CFR 424.12(e)) also state that, "The Secretary shall designate as critical habitat areas outside the geographic area presently occupied by the species only when a designation limited to its present range would be inadequate to ensure the conservation of the species."

Section 4(b)(2) of the Act requires that we take into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. We may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas within critical habitat, provided the exclusion will not result in extinction of 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 a recovery plan, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, and biological assessments or other unpublished materials (*i.e.*, gray literature).

Section 4 of the Act requires that we designate critical habitat based on what we know at the time of designation. Habitat is often dynamic, and populations may move from one area to another over time. Furthermore, we recognize that designation of critical habitat may not include all of the habitat areas that may eventually be determined to be necessary for the recovery of the species. For these reasons, critical habitat designations do not signal that habitat outside the designation is unimportant or may not be required for recovery. Areas that support newly discovered populations in the future, but are outside the critical habitat designation will continue to be subject to conservation actions that may be implemented under section 7(a)(1) of the Act and to the regulatory protections afforded by the section 7(a)(2) jeopardy

standard and the prohibitions of section 9 of the Act, as determined on the basis of the best available information at the time of the action. 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.

Methods of Selecting Areas for Critical Habitat Designation

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 *Holocarpha macradenia*. This included information from the California Natural Diversity Data Base (CNDDDB 2001), geologic and soil survey maps (Brabb 1989; SCS 1980, 1978), aerial photos available through TerraServer (<http://terraserver.homeadvisor.msn.com>), aerial photos on loan from the County of Santa Cruz Planning Department, recent biological surveys and reports, additional information provided by interested parties, and discussions with botanical experts. Frequently accompanied by agency representatives, we also conducted site visits, either cursory or more extensive, at a number of locations managed by, or with involvement from, local, State or Federal agencies, including Graham Hill, De Laveaga Park, Twin Lakes State Beach, Arana Gulch Open Space Area (City of Santa Cruz), Anna Jean Cummings County Park (Santa Cruz County), and the Watsonville Airport (City of Watsonville). We also visited the Porter Ranch site, which is owned and managed by the Elkhorn Slough Foundation.

Special Management Considerations or Protections

Much of what is known about the specific physical and biological requirements of *Holocarpha macradenia* is described in the Background section of this final rule. Additional information about appropriate management techniques is being generated by ongoing management efforts and research on life history. As discussed in the Background section, several agencies such as the CDFG,

California Department of Parks and Recreation (CDPR), CalTrans, County of Santa Cruz, City of Santa Cruz, and EBRPD are undertaking efforts to learn how to better enhance habitat for *H. macradenia*. Some of these efforts are being carried out with the cooperation of researchers from UC Santa Cruz and Berkeley's Jepson Herbarium. Preliminary management and seed bank studies show that habitat manipulation such as burning, mowing, grazing, and scraping can increase standing numbers of plants and may be necessary to enhance and maintain populations of *H. macradenia*. Active management is often necessary to preserve habitat that is essential for the long-term conservation of *H. macradenia*.

Special management considerations or protections may be needed to maintain the primary constituent elements for *Holocarpha macradenia* within the units being designated as critical habitat. In some cases, protection of existing habitat and current ecological processes may be sufficient to ensure that populations of *H. macradenia* are maintained, and have the ability to reproduce and disperse into surrounding habitat at those sites. In other cases, however, active management may be needed to maintain the primary constituent elements for *H. macradenia*. We have outlined below the most likely special management or protection that *H. macradenia* may require.

(1) The native soils on which *Holocarpha macradenia* is found should be maintained to optimize conditions for the species. Physical properties of the soil, such as its chemical composition, salinity, texture, and drainage capabilities would best be maintained by limiting or restricting deep tilling and the use of herbicides, fertilizers, or other soil amendments.

(2) The hydrologic regime of the area surrounding *Holocarpha macradenia* habitat should be maintained to provide for the seasonally moist soils that the species favors. Increasing or decreasing surface and subsurface water flow to these areas through habitat alteration that either artificially adds water (*e.g.*, through irrigation) or reduces water (*e.g.*, through diversions associated with construction projects) could decrease the suitability of these areas to support *H. macradenia*.

(3) The grassland communities should be maintained to ensure that the habitat needs of pollinators and dispersal agents are maintained. The use of pesticides should be limited or restricted so that viable populations of pollinators are present to facilitate reproduction of *Holocarpha*

macradenia. Fragmentation of habitat through construction of roads and certain types of fencing should be sufficiently limited to allow seed dispersal agents to move *H. macradenia* seed throughout the unit.

(4) The grassland communities need to be maintained to facilitate germination and the establishment of seedlings, because this is a critical bottleneck in the life cycle of the species (Bainbridge, *in litt.*, 2002b). In particular, this portion of the species' life cycle requires a reduced litter layer and canopy height of surrounding vegetation. This can be achieved through either mowing or livestock grazing. A discussion of more detailed prescriptions is beyond the scope of this rule, as the optimal regime will vary from site to site, depending on a number of variables. However, research efforts that are currently underway will assist in developing more site-specific recommendations.

(5) In the grassland communities where *Holocarpha macradenia* occurs, invasive, nonnative species such as French broom, eucalyptus, acacia, Harding grass, bromes, artichoke thistle, and bristly ox-tongue and other species need to be actively managed to reduce competition and maintain the open habitat that *H. macradenia* needs.

(6) Certain areas where *Holocarpha macradenia* occurs may need to be fenced to protect them from accidental or intentional trampling by humans and livestock, and to facilitate management of the habitat through intentional grazing or other means.

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 consider those physical and biological features (primary constituent elements) that are essential to the conservation of the species and that may require special management considerations or protection. These 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 germination, or seed dispersal; and habitats that are protected from disturbance or are representative of the historic geographic and ecological distributions of a species.

Based on our knowledge to date, the primary constituent elements for *H. macradenia* consist of, but are not limited to:

(1) Soils associated with coastal terrace prairies, including the

Watsonville, Tierra, Elkhorn, Santa Inez, and Pinto series.

(2) Plant communities that support associated species, including native grasses such as *Nassella* sp. (needlegrass) and *Danthonia californica* (California oatgrass); native herbaceous species such as members of the genus *Hemizonia* (other tarplants), *Perideridia gairdneri* (Gairdner's yampah), *Plagiobothrys diffusus* (San Francisco popcorn flower), and *Trifolium buckwestiorum* (Santa Cruz clover); and

(3) Physical processes, particularly soils and hydrologic processes, that maintain the soil structure and hydrology that produce the seasonally saturated soils characteristic of *Holocarpha macradenia* habitat.

Site Selection

We identified critical habitat areas essential for the conservation of *Holocarpha macradenia* in the three primary areas where it is known to occur: In the East Bay (Contra Costa County); in the Santa Cruz-Soquel area (Santa Cruz County); and the Watsonville area (Santa Cruz and Monterey Counties). Historic locations for which there are no recent records of occupancy (within the last 20 years) were not proposed for designation, including those previously found in Marin and Alameda Counties that have become urbanized over the last 100 years; locations to the north of Santa Cruz where *H. macradenia* has not been seen in over 50 years; and locations around the Watsonville area that have been destroyed by fill, agricultural activities, and parking lot construction. In the East Bay, only one of the eight sites that support an introduced population of *H. macradenia* in Wildcat Regional Park is being proposed for designation because it is the largest seeded population that represents the genetic variability of the northern portion of the species' range. Several commenters suggested that additional critical habitat should have been proposed in the northern portion of the species range (East Bay area). While we agree that additional areas in the northern portion of its range may be required for the long term conservation of the species, the information necessary to propose other areas was not available to us at the time the proposal was prepared, and is therefore not included here. However, additional habitat outside the designated areas may later be discovered to be critical for the recovery of the species, and may be included in recovery activities for the species in the future.

Due to the historic loss of the habitat that supported *Holocarpha macradenia*,

we believe that future conservation and recovery of this species depends not only on protecting it in the limited areas that it currently occupies, but also on providing the opportunity to expand its distribution by protecting currently unoccupied habitat within its historic range. Protection of each of the locations where *H. macradenia* occurs is essential for the conservation of this species to reduce the risks of extirpation that is inherent in having so few extant populations, especially when so many of the populations comprise so few individuals. The slight variations in elevation, coastal influence, and soil types found among the critical habitat units are important in shaping the phenological (*e.g.*, timing of reproduction), morphological (*i.e.*, physical structure and form), and physiological adaptations of plant populations to specific environments (Clausen *et al.* 1948, Clausen 1951). For example, elevation and distance from the coast influence precipitation and average daily temperatures to which a population is subjected, while soil type can influence nutrient and water availability. The heritable local adaptations that develop as a result of such environmental variations reflect genetic variability within the species. Preserving this genetic variability in endemic species that allows for adaptation to changing climatic and other environmental influences is important to improve the likelihood that the species will be able to survive and adapt to such future environmental changes (Falk 1992).

In addition to maintaining existing populations, the persistence of the species requires surrounding habitat needed to maintain the ecological processes that allow the populations and the primary constituent elements to persist. These ecological processes include the expansion and shifting of populations over time, the maintenance of pollinator interactions that maintain the gene flow between populations over time, and the maintenance of seed dispersal vectors that serve to distribute seed between existing sites as well as to new sites. The ability to maintain disturbance factors (for example, grazing, mowing, or fire disturbance) that maintain the openness of vegetation that the species requires for successful germination is also critical to the long term persistence of the species. Threats to the remaining habitat of *H. macradenia* include: Urban development and its associated impacts, such as habitat fragmentation, recreational use, and changes in grazing regimes that may have facilitated the

increase in nonnative plant species that compete with *H. macradenia*. The areas we are designating as critical habitat provide some or all of the habitat components essential for the conservation of *H. macradenia*. Given the species' need for a reduced litter layer and canopy height and the threat of competition from nonnative species, we believe that these areas require special management considerations or protection.

In our delineation of the critical habitat units, we believe it is important to designate all areas that currently support native populations of *Holocarpha macradenia* because the number of populations that have been extirpated and the reduction in range that the species has undergone place a great importance on the conservation of all the known remaining sites. In the area just west of Watsonville, a number of populations that are in close geographic proximity to each other are included in the same unit because the distribution of *H. macradenia* in this area was probably once greater, prior to fragmentation of populations into smaller units. Maintaining the connectivity between these populations through gene flow and seed dispersal is important for maintaining the genetic variability that will contribute to the long term persistence of the species.

With regard to the experimental seeded populations of *H. macradenia*, we acknowledge the importance these seeding trials have offered with respect to understanding the range of habitat characteristics that *H. macradenia* may tolerate. However, based on current information, we believe that only the area that supports the Mezue population is essential to the recovery of the species. This population is the best expression of the genetic variability that once occurred in the northern end of the range of the species; native stands in this portion of the range have now been extirpated.

Even though we did not have sufficient information to propose sites other than where populations are

currently known to occur, we do not imply that habitat outside the designation is unimportant or may not be required for recovery of the species. Areas that support newly discovered populations in the future, but are outside the critical habitat designation, will continue to be subject to conservation actions that may be implemented under section 7(a)(1) of the Act and to the regulatory protections afforded by the section 7(a)(2) jeopardy standard and the prohibitions of section 9 of the Act, as determined on the basis of the best available information at the time an action is being proposed.

Mapping

The critical habitat units were delineated by creating data layers in a geographic information system (GIS) format of the areas where *Holocarpha macradenia* is known to occur, using information from the California Natural Diversity Data Base (CNDDB 2001), aerial photos, recent biological surveys and reports, and discussions with botanical experts. These data layers were created on a base of USGS 7.5' quadrangles obtained from the State of California's Stephen P. Teale Data Center. Critical habitat units were mapped using UTM coordinates. Some units were mapped with a greater precision than others, based on the available information, and the size of the unit.

In selecting areas of designated critical habitat we made an effort to avoid developed areas, such as housing developments, that are unlikely to contain the primary constituent elements or otherwise contribute to the conservation of *Holocarpha macradenia*. However, we could not map critical habitat in sufficient detail to exclude all developed areas, or other lands unlikely to contain the primary constituent elements essential for the conservation of *H. macradenia*. Areas within the boundaries of the mapped units, such as buildings, roads, parking lots, railroads, airport runways and other paved areas, lawns, and other

urban landscaped areas will not contain any of the primary constituent elements. Federal actions limited to these areas, therefore, would not trigger a section 7 consultation, unless they affect the species and/or primary constituent elements in adjacent critical habitat.

Critical Habitat Designation

The critical habitat areas described below constitute our best assessment at this time of the areas needed for the conservation and recovery of *Holocarpha macradenia*. Critical habitat being designated for *H. macradenia* consists of 11 units that currently sustain the species. The geographic range that *H. macradenia* occupies has been reduced to so few sites that the species may well be threatened with extinction in the near future, particularly if appropriate management of the remaining habitat is not employed. Protection of this designated critical habitat is essential for the conservation of the species because it would reduce the threat to the species from future population extirpations due to stochastic events. Further, because this species cannot self-pollinate, maintenance of adequate gene flow between populations, which is critical to producing the genetic variability necessary for the species' survival and recovery, is dependent on the retention of lands containing suitable habitat in sufficiently close proximity to existing populations to allow for their expansion as well as for gene flow to other nearby populations. The areas being designated as critical habitat are within the three primary areas that currently support *H. macradenia* and include the appropriate coastal terrace prairie habitat necessary for the species. We are designating approximately 2,902 ha (1,174 ac) of land as critical habitat for *H. macradenia*.

The approximate areas of designated critical habitat by land ownership are shown in Table 1. Lands proposed are under private, county, State, and Federal jurisdiction.

TABLE 1.—APPROXIMATE AREAS, GIVEN IN HECTARES (HA) AND ACRES (AC)¹ OF CRITICAL HABITAT FOR *Holocarpha macradenia* BY LAND OWNERSHIP

Unit name	State	Private	County/ City	Federal	Total
A. Mezue	0 ha (0 ac)	0 ha (0 ac)	50 ha (130 ac)	0 ha (0 ac)	50 ha (130 ac)
B. Graham Hill	0 ha (0 ac)	12 ha (30 ac)	0 ha (0 ac)	0 ha (0 ac)	12 ha (30 ac)
C. De Laveaga	2 ha (5 ac)	0 ha (0 ac)	0 ha (0 ac)	0 ha (0 ac)	2 ha (5 ac)
D. Arana Gulch	0 ha (0 ac)	0 ha (0 ac)	26 ha (65 ac)	0 ha (0 ac)	26 ha (65 ac)

TABLE 1.—APPROXIMATE AREAS, GIVEN IN HECTARES (HA) AND ACRES (AC)¹ OF CRITICAL HABITAT FOR *Holocarpha macradenia* BY LAND OWNERSHIP—Continued

Unit name	State	Private	County/ City	Federal	Total
E. Twin Lakes	11 ha (26 ac)	0 ha (0 ac)	0 ha (0 ac)	0 ha (0 ac)	11 ha (26 ac)
F. Rodeo Gulch	0 ha (0 ac)	11 ha (26 ac)	0 ha (0 ac)	0 ha (0 ac)	11 ha (26 ac)
G. Soquel	0 ha (0 ac)	18 ha (45 ac)	22 ha (55 ac)	0 ha (0 ac)	40 ha (100 ac)
H. Porter Gulch	0 ha (0 ac)	14 ha (35 ac)	0 ha (0 ac)	0 ha (0 ac)	14 ha (35 ac)
I. Watsonville	23 ha (56 ac)	340 ha (840 ac)	125ha (309 ac)	0 ha (0 ac)	488 ha (1,205 ac)
J. Casserly	0 ha (0 ac)	450 ha (1,110 ac)	0 ha (0 ac)	0 ha (0 ac)	450 ha (1,110 ac)
K. Elkhorn	0 ha (0 ac)	70 ha (170 ac)	0 ha (0 ac)	0 ha (0 ac)	70 ha (170 ac)
Total	27 ha (66 ac)	920 ha (2,270 ac)	230 ha (570 ac)	0 ha (0 ac)	1,175 ha (2,902 ac)

¹ Approximate acres from GIS map data have been converted to hectares (1 ha = 2.47 ac). Based on the level of imprecision of mapping, approximate hectares and acres greater than or equal to 30 (≥ 30) have been rounded to the nearest 5; totals are sums of columns and rows.

A brief description of each critical habitat unit is given below:

East Bay Area Unit

Unit A: Mezue

Unit A consists of grassland habitat on sloping alluvial deposits from old marine terraces within Wildcat Regional Park in Contra Costa County. This entire unit of approximately 50 ha (130 ac) is on lands managed by the EBRPD. Management activities at this site include controlled grazing, removal of invasive artichoke thistle, and annual population monitoring (EBRPD 1992, 2001). Of the 22 sites that were used as sites to introduce *Holocarpha macradenia* seed in the East Bay region between 1982 and 1986, this population has been the only one that has consistently supported a large population of *H. macradenia*. In the year 2000, this population supported over 17,000 individuals (CDFG 2000). Although this population is an introduced population, this unit is essential to the survival and conservation of the species because this population represents the genetic variability in the northernmost portion of the plant's range and is important for the expansion of the existing population. In recognition of the conservation value of this population, the Service is contributing funding toward nonnative species removal at this site (Service 2002).

Santa Cruz—Soquel Area Units

Unit B: Graham Hill

Unit B consists of grasslands on a relatively flat coastal terrace prairie on the west side of Graham Hill Road,

approximately 1 mile north of the City of Santa Cruz in Santa Cruz County. This entire unit of approximately 12 ha (30 ac) is on privately owned lands. The unit includes a 7-ha (17-ac) area that has been set aside through a conservation easement to the County of Santa Cruz for conservation of coastal prairie habitat and *Holocarpha macradenia* as mitigation for an adjacent development that comprises 52 residences and associated amenities. The population has been fenced and nonnative species have been removed; however, efforts to enhance the population, as called for in a management plan (Environmental Science Associates 1996), have not yet been initiated. In 1994, this population numbered 12,000 individuals; by 1998, 675 individuals were counted; and in 2001, approximately 550 individuals were counted (V. Haley, consultant, Felton, California, pers. comm., 2001). This unit is important because it currently supports a population of *H. macradenia* and because it represents the western limit of the cluster of populations that are found on the northern end of Monterey Bay. This unit, along with the Fairway Unit, occurs at the highest elevation of the native populations (122 m (400 ft)) and consequently the farthest away from the influence of the coastal climate. Preserving the genetic variability within the species that has allowed it to adapt to these different environmental conditions is essential for the long-term survival and conservation of the species.

Unit C: De Laveaga

Unit C consists of grasslands on a relatively flat coastal terrace prairie

within De Laveaga Park just north of the City of Santa Cruz in Santa Cruz County. This entire unit of approximately 2 ha (5 ac) is on State lands managed by the CANG and supported by Federal funds from the National Guard Bureau. The CANG does not anticipate undertaking any new military activities on this parcel beyond its current use as an assembly point for monthly drills and as storage for equipment. In 2001, a maintenance crew from the adjacent city-owned golf course spread wood chips from a felled tree over half the population. The CANG has initiated management actions to restore and enhance habitat for *H. macradenia*, including removal of the wood chips and chunks of eucalyptus logs. In addition, the CANG has initiated development of an INRMP (CANG 2002); if the final plan meets the criteria outlined earlier in our response to comment number eight, the critical habitat designation may be removed from this unit in the future. This unit is essential because it currently supports a population of *H. macradenia* and because it is one of only seven populations in the cluster of populations that are found on the northern end of Monterey Bay. Despite its small size, this unit is essential because it is located between the Graham Hill, Arana Gulch, and Rodeo Gulch Units, and is important for maintaining connectivity between these other units.

Unit D: Arana Gulch

Unit D consists of grasslands on a relatively flat coastal terrace prairie within an open space preserve just

north of Woods Lagoon in the City of Santa Cruz. This entire unit of approximately 26 ha (65 ac) is on lands owned and managed by the City of Santa Cruz. It is bounded on the west, east, and north sides by existing development and on the south side by the Santa Cruz Harbor. Huge population fluctuations have occurred on this site, ranging from 100,000 individuals in the late 1980s when the site was being grazed by cattle, to no plants in 1995 (K. Lyons, *in litt.*, 2001). The City entered into a Memorandum of Understanding with the CDFG in 1997 to manage *Holocarpha macradenia*, which includes utilizing a variety of management techniques to enhance the population. As of 1998, individuals numbered approximately 12,820; in 2000, they numbered 234; and in 2002 they numbered approximately 10,000 (K. Lyons, *in litt.*, 2001; Seals 2002). This unit is essential because it currently supports a population of *H. macradenia* and because it is one of only seven populations in the cluster of populations that are found on the northern end of Monterey Bay. This unit and the Twin Lakes Unit occur at the lowest elevation of the native populations in the northern Monterey Bay area (12 to 18 m (40 to 60 ft)) and are consequently the closest to the influence of the coastal climate. Moreover, these two units are within one-half mile of each other and therefore could retain connectivity between them. It is also essential for the recovery of the species because current management by the City of Santa Cruz has allowed this site to support the third largest standing native population of tarplant. It therefore contributes significantly to the seed bank reserve for the species and is large enough to support management activities that may be necessary to maintain the population at this site.

Unit E: Twin Lakes

Unit E consists of grasslands on relatively flat coastal terrace prairie just north of Schwan Lagoon within the City of Santa Cruz. This entire unit of approximately 11 ha (26 ac) is on lands owned by the CDPR within Twin Lakes State Park. It is bounded on the west, north, and east sides by existing development, and on the south side by Schwan Lagoon. Since 1997, CDPR has been actively managing *Holocarpha macradenia* habitat by removing invasive, nonnative species and attempting various methods of enhancing the population (Service 2000). CDPR has also funded research on *H. macradenia* seed bank dynamics (Bainbridge 1999). This population has

ranged in size from 120 individuals in 1986 to 21 individuals in 2002 (Hyland 2002). This unit is essential because it currently supports a population of *H. macradenia* and because it is one of only seven populations in the cluster of populations that are found on the northern end of Monterey Bay. As with the Arana Gulch Unit, it occurs at the lowest elevation of the native populations in the northern Monterey Bay area (12 to 18 m (40 to 60 ft)) and consequently the closest to the influence of the coastal climate. Moreover, the two units are within one-half mile of each other and therefore could retain connectivity between them.

Unit F: Rodeo Gulch

Unit F consists of sloping alluvial deposits and adjacent relatively flat coastal terrace prairie that straddles the Arana Gulch and Rodeo Gulch drainages north of the community of Soquel in Santa Cruz County. It is bounded on the north, east, and south sides by existing development; the western side is bounded by lands that have not been developed. This entire unit of approximately 11 ha (26 ac) is on privately owned lands. This unit includes a parcel that has recently been proposed for a housing development known as Santa Cruz Gardens Subdivision Unit 12 (Denise Duffy and Associates 2001). This parcel was previously set aside in a "temporary open space easement" as mitigation for destroying a portion of the *H. macradenia* population by an earlier phase of the development in 1986 (Service 2000). The current development proposal calls for setting aside approximately 23 ha (56 ac) for conservation and recreation purposes, and includes much of the habitat that supports *H. macradenia*. Salvage of soil and an *H. macradenia* seed bank is being proposed for another portion of the project site that will be impacted by development (Lyons 1999). This population numbered approximately 60 individuals in 1993; none have been observed since then (CNDDDB 2001). However, a seed bank likely persists at this site. This unit is essential because of the likely presence of an *H. macradenia* seed bank and because it is one of only seven populations in the cluster of populations that are found on the northern end of Monterey Bay. In addition to the seed bank for this population, this unit supports grassland habitat that provides for future expansion of the population. Also, it is within one-half mile of the Soquel Unit, and therefore could retain connectivity between the units.

Unit G: Soquel

Unit G consists of grasslands on sloping alluvial deposits and adjacent relatively flat coastal terrace prairie that straddles the Rodeo Gulch and Soquel Creek drainages north of the community of Soquel in Santa Cruz County. It is bounded on the north, east, and south sides by existing development; the western side is bounded by lands that have not been developed. Approximately 22 ha (55 ac) of this 40-ha (100-ac) unit is within Anna Jean Cummings Regional Park (also known as O'Neill Ranch), which is managed by the County of Santa Cruz. The remaining portion is privately owned. On the park lands, the population has been fenced, and portions of the habitat for the plant are being mowed and raked in accordance with a management plan (Ecosystems West 1999; Joe Rigney, consultant, pers. comm., 2001). The County of Santa Cruz approved a housing development for the privately-owned parcel (previously known as Tan, but now called Seacrest) in 1997. The development included an approximately 4-ha (10-ac) parcel to be set aside for conservation and a plan to manage the habitat for *Holocarpha macradenia*. Although part of the same population, the CNDDDB has maintained two separate entries (O'Neill and Tan) to reflect the two land ownerships. The total number of individuals in the combined population has never been larger than 200 individuals, with the private parcel supporting only a portion of those (CNDDDB 2001). To date, management activities have not resulted in enhancing the population of the species on either parcel. This unit is essential because it has recently supported a population of *H. macradenia* and the seed bank is still present, and because it is one of only seven populations in the cluster of populations that are found on the northern end of Monterey Bay. In addition to the seed bank for this population, this unit supports grassland habitat that provides for future expansion of the population. Also, it is within one-half mile of the Rodeo Gulch Unit, and therefore could retain connectivity between the units. Moreover, the acreage in Anna Jean Cummings Park represents one of the best remaining fragments of habitat on which to attempt recovery activities for *H. macradenia*, as it has been subject to fewer impacts than other sites.

Unit H: Porter Gulch

Unit H consists of grasslands on gently sloping alluvial deposits derived from a coastal terrace that straddles the

Bates Creek and Porter Gulch drainages north of the community of Soquel in Santa Cruz County. It is bounded on all sides by undeveloped lands. This entire unit of approximately 14 ha (35 ac) is on privately owned lands. The population of *Holocarpha macradenia* at this site includes an approximately 12-ha (30-ac) parcel that was proposed for a lot split. A management plan for the species was developed as part of the proposed split (Greening Associates 1995); however, the management plan for *H. macradenia* has not been fully implemented. This unit also includes adjacent coastal prairie habitat, of which approximately 4 ha (9 ac) was deeded in 2001 to the Land Trust of Santa Cruz County for preservation. In 1993, the population of *H. macradenia* numbered approximately 1,500 individuals (CNDDDB 2001). The population numbered only several hundred individuals in 2001 when the site was observed to support a large cover of rattlesnake grass that likely competed with *H. macradenia* (C. Rutherford, Service, pers. obs., 2001). This unit is essential because it currently supports a population of *H. macradenia*, and because it is one of only seven populations in the cluster of populations that are found on the northern end of Monterey Bay. Also, along with the Graham Hill Unit, this one occurs at the highest elevation of the native populations (122 m (400 ft)) and consequently the farthest away from the influence of the coastal climate. Preserving the genetic variability within the species that has allowed it to adapt to these slightly different environmental conditions is essential for the long-term survival and conservation of the species.

Watsonville Area Units

Unit I: Watsonville

Unit I consists of grasslands on alluvial fans and marine terraces west of the City of Watsonville in Santa Cruz County; during the remapping for the final rule we removed most of the low-lying drainages that interdigitate with the grasslands. The northern and eastern boundaries reach toward the Corralitos Creek drainage except where it runs up against existing development. The southeastern and southern boundary is formed by the Pajaro River drainage. The western boundary is formed by the Harkins Slough drainage and then generally follows Buena Vista Drive north until it intersects with the northern perimeter of the Watsonville Airport (Airport). This unit excludes paved areas of the Airport, but includes the unpaved portions surrounding the runways. This approximately 488-ha

(1,205-ac) unit is partly owned by the City of Watsonville (the Airport and High School) (approximately 125 ha (309 ac)); a small portion is under easement to CalTrans (approximately 8 ha (19 ac)); a portion is designated as a Reserve by the CDFG (approximately 15 ha (37 ac)); and the remaining portion is privately owned (approximately 340 ha (840 ac)). This unit overlaps in part with an area that is targeted for regional conservation planning by the CDFG. Through its Conceptual Area Protection Plan process, CDFG, along with other Federal, State, and local agencies and organizations, are identifying opportunities to preserve sensitive species and habitats, including the Harkins Slough and Watsonville Slough wetlands and adjacent habitats (J. DeWald, *in litt.*, 2001). This unit is essential because it currently supports multiple populations of *H. macradenia* including the populations known from the Airport, Harkins Slough, Apple Hill, and Bay Breeze (see Background for additional population information). This unit also supports grassland habitat that is important for the expansion of existing populations and for maintaining connectivity between the populations. It is also one of only three areas that support populations of *H. macradenia* that are found in the central Monterey Bay area and in the southern end of the range of the species. Preserving any genetic variability within the species that has allowed it to adapt to these slightly different environmental conditions is essential for the long-term survival and conservation of the species. Just prior to publication of this final rule, we were informed that construction of the Millennium High School had been initiated. Therefore, with this unit description, we are removing the 32 acres that are being converted to building, paved surfaces, and playing fields because these areas will no longer support the primary constituent elements. Note, however, that the 32 acres have not been removed from the map depicting this unit; nor have they been subtracted from the unit total and overall total number of acres being designated as critical habitat for the species.

Unit J: Casserly

Unit J consists of open patches of grassland interspersed with golf course greens, cattle pastures, croplands, and orchards. This entire unit of approximately 450 ha (1,110 ac) consists of privately owned lands. It is the unit for which the least amount of information is available, particularly with respect to existing land uses. The Spring Hills population of *Holocarpha*

macradenia occurs within this unit. The population numbered approximately 4,000 individuals in 1990 (CNDDDB 2001); the population was observed in 1995 and 2001, though not counted. The population was fragmented by development of the Spring Hills Golf Course, and now consists of five separate occurrences. This unit is essential because it currently supports multiple occurrences of *H. macradenia* that are found in the Monterey Bay area, including the five populations known from the Spring Hills Golf Course. This unit also supports grassland habitat that is important for the expansion of existing populations, and for maintaining connectivity between these populations. It is one of only three areas that support populations of *H. macradenia* that are found in the central Monterey Bay area and in the southern end of the range of the species as well as the most inland distribution of the species. Preserving genetic variability within the species that has allowed it to adapt to these slightly different environmental conditions is essential for the long-term survival and conservation of the species.

Unit K: Elkhorn

Unit K consists of sloping terrain on the edges of a coastal terrace, just south of the Pajaro River in northern Monterey County. The population of *Holocarpha macradenia* that is found here is unusual in that it occurs on a canyon bottom; it is also the only population that occurs primarily on the Santa Ynez soil series. This unit of approximately 70 ha (170 ac) is privately owned by the Elkhorn Slough Foundation (Foundation). The CDFG holds a conservation easement on an approximately 16-ha (40-ac) parcel that overlaps in part with this unit; the Foundation is managing the parcel for its biological values. Multiple Federal, State, and local government and private agencies have recently developed a conservation plan for the Elkhorn Slough watershed; this critical habitat unit is within the 18,210-ha (45,000-ac) area on which the conservation plan focuses (Scharffenberger 1999). In 1993, the population at this site comprised approximately 3,200 individuals (CNDDDB 2001). *Salix* spp. (willow) planting that has been undertaken as part of a riparian enhancement project may increase shading on an adjacent population of *H. macradenia*, leading to a reduction in the size of that population (Holl, *in litt.*, 2002). This unit is essential because it currently supports a population of *H. macradenia* and because it is one of only three areas that support populations of *H.*

macradenia that are found on the central Monterey Bay area and in the southern end of the range of the species. Also, this is the only population that occurs primarily on the Santa Ynez soil series. Preserving any genetic variability within the species that has allowed it to adapt to these slightly different environmental conditions is essential for the long-term survival and conservation of the species. In addition to the current population, this unit comprises grassland habitat that is important for the expansion of the population.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, permit, or carry out do not 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 it appreciably diminishes the value of critical habitat for the conservation of the species. Individuals, organizations, States, local governments, and other non-Federal entities are affected by the designation of critical habitat only if their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding.

Section 7(a) of the Act requires Federal agencies, including the Service, to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat, if any is designated or proposed. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402.

Section 7(a)(4) of the Act requires Federal agencies to confer with us on any action that is likely to jeopardize the continued existence of a species proposed for listing, or result in destruction or adverse modification of proposed critical habitat. Conference reports provide conservation recommendations to assist action agencies in eliminating conflicts that may be caused by their proposed action(s). The conservation measures in a conference report are advisory.

We may issue a formal conference report, if requested by the Federal action agency. Formal conference reports include an opinion that is prepared according to 50 CFR 402.14, as if the species was listed or critical habitat designated. We may adopt the formal conference report as the biological

opinion when the species is listed or critical habitat designated, if no substantial new information or changes in the action alter the content of the opinion (50 CFR 402.10(d)).

If a species is listed or critical habitat is designated, section 7(a)(2) of the Act requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Through this consultation the Federal action agency would ensure that the permitted actions do not destroy or adversely modify critical habitat.

If we issue a biological opinion concluding that a project is likely to result in the destruction or adverse modification of critical habitat, we 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.

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

Activities that may affect *Holocarpa macradenia* or its critical habitat will require consultation under section 7 of the Act. Activities on private or State lands, that require 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.*), a

section 10(a)(1)(B) of the Act permit from the Service, or any other activity requiring a Federal action (*i.e.*, funding or authorization from the Federal Highway Administration or Federal Emergency Management Agency), will also be subject to the section 7 consultation process. Federal actions not affecting listed species or critical habitat, and actions on non-Federal land that are not federally funded, authorized, or permitted do not require section 7 consultation.

To properly portray the effects of critical habitat designation, we must first compare the section 7 requirements for actions that may affect critical habitat with the requirements for actions that may affect a listed species. Section 7 ensures that actions funded, authorized, or carried out by Federal agencies are not likely to jeopardize the continued existence of a listed species, or destroy or adversely modify the listed species' critical habitat. Actions likely to "jeopardize the continued existence" of a species are those that would appreciably reduce the likelihood of the species' survival and recovery. Actions likely to "destroy or adversely modify" critical habitat are those that would appreciably reduce the value of critical habitat for the survival and recovery of the listed species.

The relationship between a species' survival and its recovery has been a source of confusion to 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. U.S. Fish and Wildlife Service et al.*, 245 F.3d 434) regarding our previous not prudent finding, the Court found our definition of destruction or adverse modification as currently contained in 50 CFR 402.02 to be invalid. In response to this decision, we are reviewing the regulatory definition of adverse modification in relation to the conservation of the species.

Section 4(b)(8) of the Act requires us to evaluate briefly and describe 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. Activities that may destroy or adversely modify critical habitat would be those that alter the primary constituent elements to the extent that the value of critical habitat for both the survival and recovery of *Holocarpa*

macradenia is appreciably reduced. 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 for *Holocarpha macradenia* include, but are not limited to:

(1) Activities that alter watershed characteristics in ways that would appreciably alter or reduce the quality or quantity of surface and subsurface flow of water needed to maintain the coastal terrace prairie habitat. Such activities adverse to *Holocarpha macradenia* could include, but are not limited to, maintaining an unnatural fire regime either through fire suppression or prescribed fires that are too frequent or poorly-timed; residential and commercial development, including road building and golf course installations; agricultural activities, including orchardry, viticulture, row crops, and livestock grazing; and vegetation manipulation such as harvesting firewood in the watershed upslope from *H. macradenia*; and

(2) Activities that appreciably degrade or destroy coastal terrace prairie habitat, including but not limited to livestock grazing, clearing, discing, introducing or encouraging the spread of nonnative species, and heavy recreational use. As noted earlier in the rule, some form of grazing may be helpful if it maintains open habitat and decreases competition from other species.

If you have questions regarding whether specific activities will likely constitute adverse modification of critical habitat, contact the Field Supervisor, Ventura Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT** section). Requests for copies of the regulations on listed wildlife and inquiries about prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Portland Regional Office, 911 NE 11th Avenue, Portland, OR 97232-4181 (503/231-6131, FAX 503/231-6243).

Exclusions Under Section 4(b)(2)

Subsection 4(b)(2) of the Act allows us to exclude areas from the critical habitat designation where the benefits of exclusion outweigh the benefits of designation, provided the exclusion will not result in extinction of the species. We received requests for exclusion from critical habitat designation from the following parties: California Army National Guard, Pajaro Unified School District, City of Watsonville, and California Department of Transportation; our response to these

requests are contained under Comment Nos. 8, 9, and 10 in the Response to Comments section earlier in this rule. As discussed in this final rule and in our economic analysis for this rulemaking, we have determined that the adverse economic effects resulting from this critical habitat designation will be minimal. We believe all the areas included in this designation, including those for which exclusions were requested, are essential for the conservation of *Holocarpha macradenia* because native populations have already been extirpated from the northern two-thirds of its range, and the only remaining expression of the northern gene stock persists as introduced populations in the middle portion of its range (East Bay area). This designation would protect the remaining existing populations, adjacent suitable areas needed for the expansion of populations and would maintain connectivity between populations through pollinator activity and seed dispersal mechanisms, and the ecological functions upon which the species depends. The role that these lands play in the long term persistence of the species is also discussed under the Site Selection and Critical Habitat Designation sections earlier in this rule. We believe that the designation of the lands in this final rule as critical habitat outweigh the benefits of their exclusion from being designated as critical habitat. Consequently, none of the proposed lands have been excluded from the designation based on economic impacts or other relevant factors pursuant to section 4(b)(2).

Relationship to Habitat Conservation Plans and Other Planning Efforts

Currently, there are no habitat conservation plans (HCPs) that include *Holocarpha macradenia* as a covered species. Section 10(a)(1)(B) of the Act authorizes us to issue permits for the take of listed species incidental to otherwise lawful activities. An incidental take permit application must be supported by an HCP that identifies conservation measures that the permittee agrees to implement for the species to minimize and mitigate the impacts of the permitted take. Although "take" of listed plants is not prohibited by the Act, listed plant species may also be covered in an HCP for wildlife species. In most instances we believe that the benefits of excluding HCPs from critical habitat designations will outweigh the benefits of including them. In the event that future HCPs covering *H. macradenia* are developed within the boundaries of the designated critical habitat, we will work with applicants to

ensure that the HCPs provide for protection and management of habitat areas essential for the conservation of this species. This will be accomplished by either directing development and habitat modification to nonessential areas, or appropriately modifying activities within essential habitat areas so that such activities will not adversely modify the primary constituent elements. The HCP development process would provide an opportunity for more intensive data collection and analysis regarding the use of particular habitat areas by *H. macradenia*. The process would also enable us to conduct detailed evaluations of the importance of such lands to the long-term survival of the species in the context of constructing a biologically configured system of interlinked habitat blocks.

We will provide technical assistance and work closely with applicants throughout the development of any future HCPs to identify lands essential for the long-term conservation of *H. macradenia* and appropriate management for those lands. Furthermore, we will complete intra-Service consultation on our issuance of section 10(a)(1)(B) permits for these HCPs to ensure permit issuance will not destroy or adversely modify critical habitat.

Economic Analysis

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.

Following the publication of the proposed critical habitat designation, a draft economic analysis was conducted to estimate the potential economic effect of the designation. The draft analysis was made available for review on May 7, 2002 (67 FR 30642). We accepted comments on the draft analysis until this second public comment period closed on June 6, 2002.

Our economic analysis evaluated the potential future effects associated with the listing of *H. macradenia* as a threatened species under the Act, as well as any potential effect of the critical habitat designation above and beyond those regulatory and economic impacts associated with listing. To

quantify the proportion of total potential economic impacts attributable to the critical habitat designation, the analysis evaluated a "without section 7" baseline and compared it to a "with section 7" scenario. The "without section 7" baseline represents the level of protection currently afforded to the species under the Act, absent section 7 protective measures, and includes protections afforded by other Federal, State, and local laws such as the California Environmental Quality Act. The "with section 7" scenario identifies land-use activities likely to involve a Federal nexus that may affect the species or its designated critical habitat, which accordingly may trigger future consultations under section 7 of the Act.

Upon identifying section 7 impacts, the analysis proceeds to consider the subset of impacts that can be attributed exclusively to the critical habitat designation. The upper-bound estimate includes both jeopardy and critical habitat impacts. The subset of section 7 impacts likely to be affected solely by the designation of critical habitat represents the lower-bound estimate of the analysis. The categories of potential costs considered in the analysis included the costs associated with: (1) Conducting section 7 consultations associated with the listing or with the designation of critical habitat, including reinitiated 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; and (4) potential offsetting beneficial costs associated with critical habitat including educational benefits.

Our economic analysis recognizes that there may be costs from delays associated with reinitiating completed consultations after the critical habitat designation is made final. There may also be economic effects due to the reaction of the real estate market to critical habitat designation, as real estate values may be lowered due to a perceived increase in the regulatory burden. However, we believe these impacts will be short-term.

Based on our analysis, we have concluded that the designation of critical habitat would not result in a significant economic impact, and estimate the potential economic effects over a 10-year period would be \$338,000. Costs to Federal agencies are expected to be approximately \$62,000, primarily resulting from consultations and project modifications in the Watsonville Unit. Costs to State agencies are expected to be approximately \$57,000, primarily

resulting from consultations and project modifications by CalTrans in the Watsonville Unit. Costs to local agencies are expected to be approximately \$179,000, primarily resulting from consultations and project modifications in the Mezue and Watsonville Units. Costs to private landowners are expected to be approximately \$32,000, primarily resulting from consultations and modifications within the Rodeo Gulch and Watsonville Units. These estimates are based on the existing consultation history with agencies in this area and increased public awareness regarding the actual impacts of critical habitat designation on land values. Because of *Holocarpa macradenia's* limited distribution and the small amount of available suitable habitat, it is assumed that most projects would be subject to consultation on their potential impacts to the species, regardless of this critical habitat designation. Therefore, most potential costs are attributable co-extensively to the listing of *H. macradenia*. The designation of critical habitat is not expected to result in any significant additional regulatory protection..

Following the close of the comment period on the draft Economic Analysis, a final addendum was completed which incorporated public comments on the draft analysis. The values presented above may be an overestimate of the potential economic effects of the designation because the final designation has been reduced to encompass 1,175 ha (2,902 ac) versus the 1,360 ha (3,360 ac) proposed as critical habitat, a difference of 185 ha (458 ac).

A copy of the final economic analysis and a description of the exclusion process with supporting documents are included in our administrative record and may be obtained by contacting our Ventura Fish and Wildlife Office (see ADDRESSES section).

Required Determinations

Regulatory Planning and Review

In accordance with Executive Order 12866, this document is a significant rule and was reviewed by the Office of Management and Budget (OMB), as OMB determined that this rule may raise novel legal or policy issues. The Service has prepared an economic analysis of this action. The Service used this analysis to meet the requirement of section 4(b)(2) of the Act to determine the economic consequences of designating the specific areas as critical habitat. This analysis was made available for public comment, and we

considered comments on it during the preparation of this rule.

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

Under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (*i.e.*, small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that the rule will not have a significant economic effect on a substantial number of small entities. SBREFA also amended the Regulatory Flexibility Act to require a certification statement. In this rule, we are certifying that the critical habitat designation for *Holocarpa macradenia* will not have a significant economic impact on a substantial number of small entities. The following discussion explains our rationale.

According to the Small Business Administration (<http://www.sba.gov/size/>), 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. The Small Business Administration defines small businesses by their principal trade. For example, 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 are considered by the Small Business Administration to be small. 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.

In determining whether this rule could “significantly affect a substantial number of small entities,” the economic analysis first determined whether critical habitat could potentially affect a “substantial number” of small entities in counties supporting critical habitat areas. While SBREFA does not explicitly define “substantial number,” the Small Business Administration, as well as other Federal agencies, have interpreted this to represent an impact on 20 percent or greater of the number of small entities in any industry. In some circumstances, especially with critical habitat designations of limited extent, we may aggregate across all industries and consider whether the total number of small entities affected is substantial; though this is not one of those circumstances. In estimating the numbers of small entities potentially affected, we also considered whether their activities have any Federal involvement. Designation of critical habitat only affects activities conducted, funded, or permitted by Federal agencies. Some kinds of activities are unlikely to have any Federal involvement and so will not be affected by critical habitat designation.

Outside the existing developed areas, the projected land uses for the majority of the critical habitat consist of recreation, military storage, housing development, agriculture, cattle grazing, conservation lands for natural resource values, and possible airport expansion. Of the 11 critical habitat units identified in the proposed rule, 9 consist of fewer than 10 parcels each, and 6 of these are only 3 parcels or fewer. Future development is not likely in six of these nine units because they are primarily park lands or lands dedicated to conservation. Future development has already been permitted in the remaining three of these nine units; in these cases, we are coordinating with the appropriate State, county, and city agencies. We do not anticipate that this designation of critical habitat will result in any additional regulatory impacts on development projects already permitted in these units, and we are not aware of any Federal activities in these units that would require consultation or reinitiation of already-completed consultations for ongoing projects. As these three units are small (14 ha (35 ac) or less), it is unlikely that additional development beyond that already permitted could occur here.

The two remaining units are significantly larger in acreage and therefore encompass a more diverse

array of possible future land uses. At the current time, the 450-ha (1,110-ac) Casserly Unit consists of lands primarily designated for noncommercial agriculture, and includes hobby farms, rural residences, cattle grazing, and small animal husbandry. It also includes two golf courses. Lands within this unit may be developed in the future, although we are not aware of any plans for development at this time. The 488-ha (1,205-ac) Watsonville Unit primarily consists of lands zoned for commercial agriculture, including row crops as well as cattle grazing. The remaining portion of the unit is within the city limits of the City of Watsonville. We are aware of several possible future projects in this unit, including airport expansion, a high school development, Federal Highway Administration projects (such as rebuilding bridges or widening freeways), and housing development. Future development projects in this area will also be affected by coastal zone permitting and other State and local planning and zoning requirements.

Several of these projects may have Federal involvement, including the airport expansion that is being funded and permitted by the Federal Aviation Administration; a high school development that may require section 404 authorizations from the Army Corps of Engineers and an incidental take permit, pursuant to section 10(a)(1)(B) of the Act, from the Service; housing developments that may require 404 authorizations; and watershed and restoration management projects sponsored by the Natural Resources Conservation Service (NRCS). The requirement in section 7(a)(2) to avoid jeopardizing listed species and destroying or adversely modifying designated critical habitat may result in Federal agencies requiring certain modifications to proposed projects.

Based on our experience with section 7 consultations for all listed species, virtually all projects—including those that, in their initial proposed form, would result in jeopardy or adverse modification determinations in section 7 consultations—can be implemented successfully with, at most, the adoption of reasonable and prudent alternative measures. These measures, by definition, must be economically feasible and within the scope of authority of the Federal agency involved in the consultation. As we have a very limited consultation history for *Holocarpha macradenia*, we can only describe the general kinds of actions that may be identified in future reasonable and prudent alternatives. These are based on our understanding of the needs of the species and the threats

it faces, especially as described in the final listing rule and in this critical habitat designation, as well as our experience with similar listed plants in California. In addition, the State of California listed *H. macradenia* as an endangered species under the California Endangered Species Act in 1979, and we have also considered the kinds of actions required through State consultations for this species. The kinds of actions that may be included in future reasonable and prudent alternatives include conservation set-asides, management of competing nonnative species, restoration of degraded habitat, construction of protective fencing, and regular monitoring.

Our economic analysis identified two categories of small entities that could potentially be affected by this rule: real estate developers and the Watsonville Municipal Airport, which is operated by the City of Watsonville. The Small Business Administration defines small businesses in this sector to be entities with \$5.0 million or less in annual receipts. In determining whether this rule could “significantly affect a substantial number of these small entities,” the economic analysis first determined whether critical habitat could potentially affect a “substantial number.” While SBREFA does not explicitly define “substantial number,” our economic analysis has interpreted this to represent an impact on 20 percent or greater of the number of small entities in any single industry. This standard is similar to that adopted by other Federal agencies in their rulemaking analyses.

To be conservative, (*i.e.*, more likely to overstate impacts than understate them), the analysis assumed that a unique company will undertake each of the projected consultations in a given year, and so the number of businesses affected is equal to the total annual number of consultations (both formal and informal). The analysis estimated that, over the next ten years, the annual number of small real estate developers and airport industries that would be affected by section 7 consultations would be 0.1 and 0.2, respectively. Given that the total number of small real estate development businesses in the area is approximately 286, the annual percentage of small real estate developers affected by this rulemaking was estimated to be 0.03 percent, well below the 20 percent threshold considered to be “substantial.” Given that the total number of small airports and flying fields in the state (the area of analysis due to the regional aspects of the airport) is approximately 115, the

annual percentage of small airports affected by this rulemaking was estimated to be 0.13 percent, also well below the 20 percent threshold considered to be "substantial." While the economic analysis concluded that a substantial number of small entities would not be affected, it further analyzed whether any of the businesses likely to be affected would be "significantly" affected. Operating under the assumption that an establishment would be significantly affected if the cost of compliance exceeded three percent of its sales, the analysis determined that less than one percent of small developers and airport industries would, on average, experience a significant effect as a result of this rulemaking. Therefore, we are certifying that the designation of critical habitat for *Holocarpha macradenia* will not have a significant economic impact on a substantial number of small entities. A regulatory flexibility analysis is not required.

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

As discussed above, this rule is not a major rule under 5 U.S.C. 804(2), the Small Business Regulatory Enforcement Fairness Act. This final designation of critical habitat: (a) Does not have an annual effect on the economy of \$100 million or more; (b) will not cause a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; and (c) does 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 economic analysis for a discussion of the effects of this determination.

Proposed and final rules designating critical habitat for listed species are issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). Competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises will not be affected by the final rule designating critical habitat for this species. Therefore, we anticipate that this final rule will not place significant additional burdens on any entity.

Executive Order 13211

On May 18, 2001, the President issued an Executive Order (E.O. 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. The primary land uses within this designated critical habitat include urban and agricultural development, recreation, open space, conservation, airport facilities, and military storage facilities. We are not aware of any energy-related facilities located within designated critical habitat. Although this rule is a significant regulatory action under Executive Order 12866, it is not expected to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action and no Statement of Energy Effects is required.

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

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

(a) This rule will not "significantly or uniquely" affect small governments. A Small Government Agency Plan is not required. Small governments will be affected only to the extent that they must ensure that any programs having Federal funds, permits, or other authorized activities must ensure that their actions will not adversely modify or destroy designated critical habitat.

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

Takings

In accordance with Executive Order 12630 ("Government Actions and Interference with Constitutionally Protected Private Property Rights"), we have analyzed the potential takings implications of designating critical habitat for *Holocarpha macradenia* in a takings implication assessment. The takings implications assessment concludes that this final rule does not pose significant takings implications.

Federalism

In accordance with Executive Order 13132, the rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with Department of the Interior policy, we requested information from, and coordinated development of this critical habitat designation, with appropriate State resource agencies in California. We will continue to coordinate any future changes in the designation of critical habitat for the *Holocarpha macradenia* with the appropriate State

agencies. Where the species is present, the designation of critical habitat imposes no additional restrictions to those currently in place, and therefore, has little incremental impact on State and local governments and their activities. The designation of critical habitat in unoccupied areas may require consultation under section 7 of the Act on non-Federal lands (where a Federal nexus occurs) that might otherwise not have occurred.

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 identified. While this definition and identification does not alter where and what federally sponsored activities may occur, it may assist these local governments in long-range planning (rather than waiting for case-by-case section 7 consultation to occur).

Civil Justice Reform

In accordance with Executive Order 12988, the Department of the Interior's Office of the Solicitor has determined that this rule does not unduly burden the judicial system and meets 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, as amended. 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 *Holocarpha macradenia*.

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. This rule will not impose new record-keeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB Control Number.

National Environmental Policy Act

We have determined that an Environmental Assessment and/or an Environmental Impact Statement as defined by the National Environmental Policy Act of 1969 need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Act. We published a notice outlining our reason for this determination in the **Federal**

Register on October 25, 1983 (48 FR 49244). This determination does not constitute a major Federal action significantly affecting the quality of the human environment.

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, "Government-to-Government Relations With Native American Tribal Governments" (59 FR 22951), Executive Order 13175, and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with federally recognized Tribes on a Government-to-Government basis. The designated critical habitat for *Holocarpha macradenia* does not

contain any Tribal lands or lands that we have identified as impacting Tribal trust resources.

References Cited

A complete list of all references cited herein, as well as others, is available upon request from the Ventura Fish and Wildlife Office (see ADDRESSES section).

Author

The author of this final rule is Constance Rutherford, Ventura Fish and Wildlife Office (see ADDRESSES section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and record keeping requirements, and 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. Section § 17.12(h) is amended by revising the entry for *Holocarpha macradenia* under "FLOWERING PLANTS," to read as follows:

§ 17.12 Endangered and threatened plants.
 * * * * *
 (h) * * *

Species		Historic range	Family	Status	When listed	Critical habitat	Special rules
Scientific name	Common name						
FLOWERING PLANTS							
* <i>Holocarpha macradenia</i> .	* Santa Cruz tarplant	* U.S.A. (CA)	* Asteraceae—Sunflower.	* T	* 690	* 17.96(a)	* NA
*	*	*	*	*	*	*	*

3. In § 17.96, amend paragraph (a) by adding an entry for *Holocarpha macradenia* in alphabetical order under Family Asteraceae to read as follows:

§ 17.96 Critical habitat—plants.

* * * * *
 (a) * * *

Family Asteraceae: *Holocarpha macradenia* (Santa Cruz tarplant)

(1) Critical habitat units are depicted for Contra Costa, Santa Cruz, and Monterey Counties, California, on the maps below.

(2) The primary constituent elements of critical habitat for *Holocarpha macradenia* are the habitat components that provide:

(i) Soils associated with coastal terrace prairies, including the Watsonville, Tierra, Elkhorn, Santa Inez, and Pinto series.

(ii) Plant communities that support associated species, including native grasses such as *Nassella* sp.(needlegrass) and *Danthonia californica* (California oatgrass); native herbaceous species such as members of the genus *Hemizonia* (other tarplants), *Perideridia gairdneri* (Gairdner's yampah), *Plagiobothrys diffusus* (San Francisco popcorn flower), and *Trifolium buckwestiorum* (Santa Cruz clover); and

(iii) Physical processes, particularly soils and hydrologic processes, that maintain the soil structure and hydrology that produce the seasonally

saturated soils characteristic of *Holocarpha macradenia* habitat.

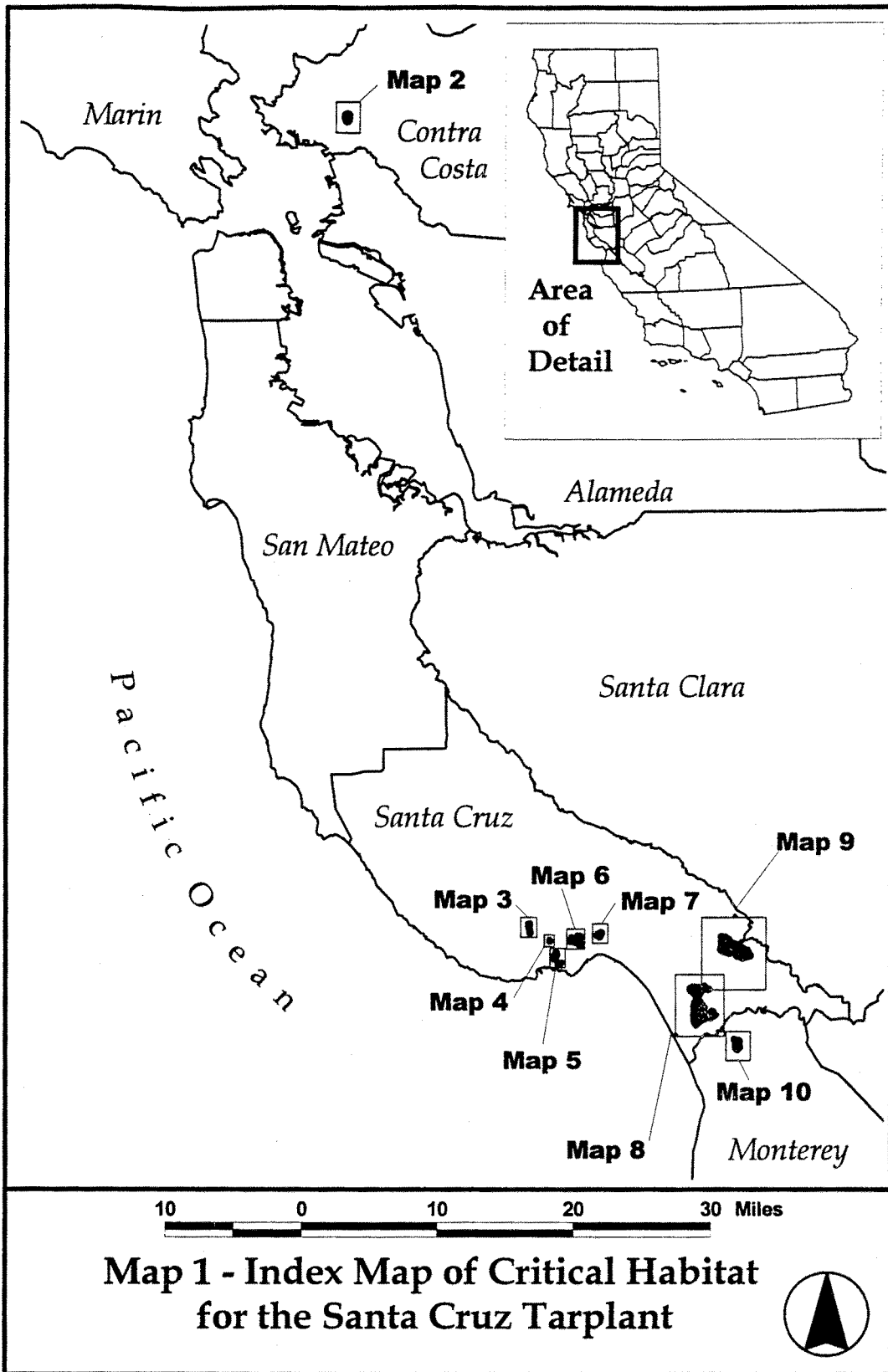
(3) Critical habitat does not include existing features and structures, such as buildings, roads, aqueducts, railroads, airport runways and buildings, other paved areas, lawns, and other urban landscaped areas not containing one or more of the primary constituent elements.

(4) Critical Habitat Map Units.

(i) Data layers defining map units were created on a base of USGS 7.5' quadrangles obtained from the State of California's Stephen P. Teale Data Center. Critical habitat units were then mapped using UTM coordinates.

(ii) Map 1—Index map follows:

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(5) *Unit A: Mezue*. Contra Costa County, California.

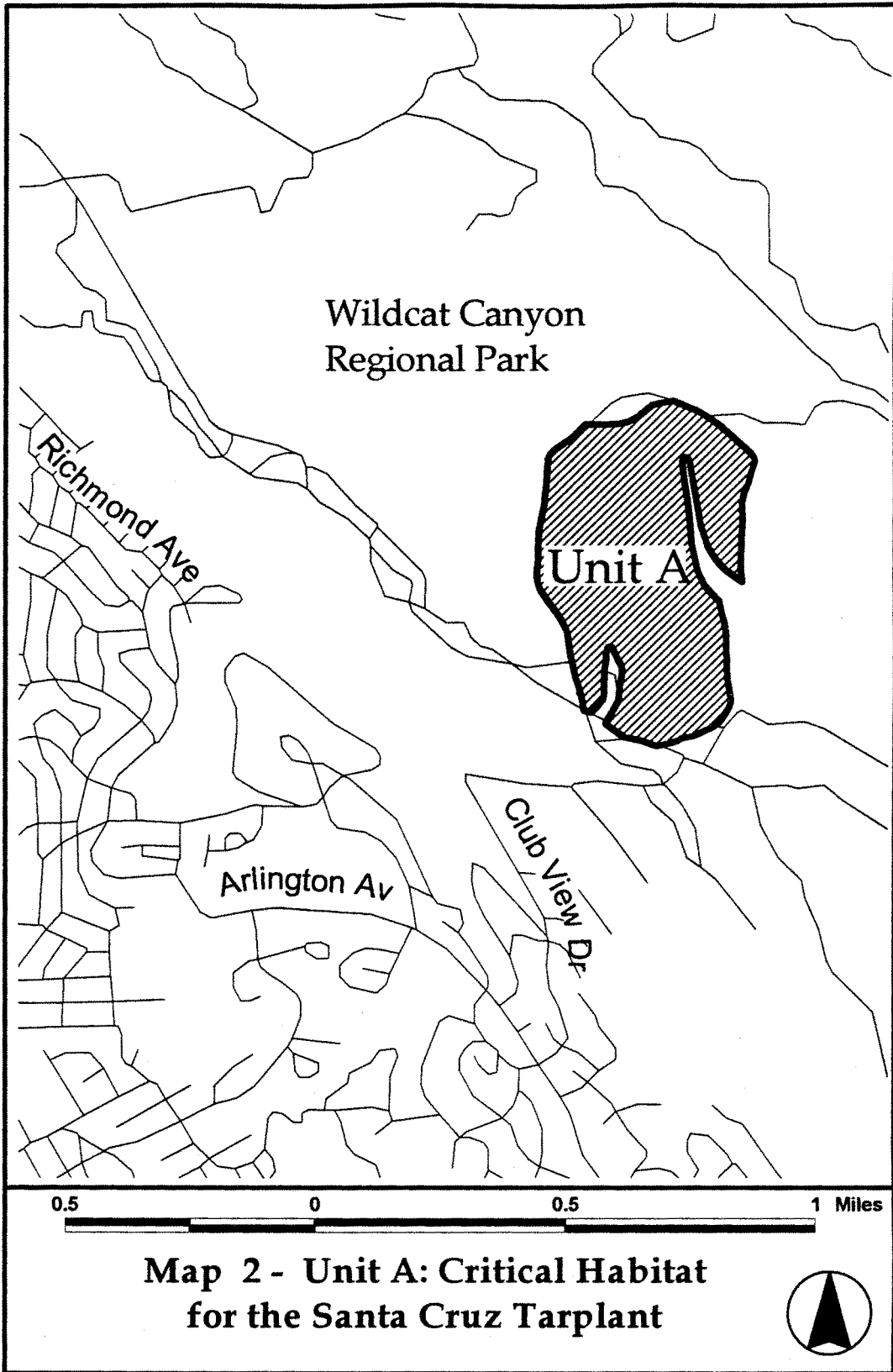
(i) From USGS 1:24,000 quadrangle map Richmond. Lands bounded by the following UTM zone 10, NAD83

coordinates (E, N): 562046, 4199420; 562047, 4199460; 562063, 4199550; 562066, 4199570; 562070, 4199600; 562073, 4199650; 562074, 4199670; 562076, 4199690; 562076, 4199690; 562079, 4199700; 562085, 4199710; 562100, 4199720; 562116, 4199730; 562133, 4199740; 562149, 4199750; 562179, 4199780; 562190, 4199800; 562230, 4199800; 562270, 4199800; 562299, 4199800; 562324, 4199800; 562357, 4199820; 562382, 4199840; 562403, 4199860; 562466, 4199870; 562548, 4199840; 562579, 4199820; 562616, 4199790; 562703, 4199720; 562717, 4199700; 562723, 4199690; 562724, 4199680; 562722, 4199670; 562712, 4199650; 562705, 4199620; 562699, 4199600; 562690, 4199580;

562684, 4199550; 562687, 4199490; 562684, 4199440; 562683, 4199390; 562680, 4199340; 562686, 4199300; 562629, 4199340; 562599, 4199370; 562577, 4199410; 562556, 4199480; 562520, 4199680; 562513, 4199690; 562500, 4199690; 562496, 4199680; 562498, 4199650; 562520, 4199510; 562526, 4199420; 562537, 4199380; 562544, 4199340; 562567, 4199290; 562598, 4199250; 562615, 4199240; 562621, 4199200; 562629, 4199170; 562636, 4199120; 562637, 4199070; 562638, 4199010; 562640, 4198990; 562645, 4198960; 562649, 4198920; 562648, 4198910; 562632, 4198880; 562615, 4198860; 562592, 4198840; 562554, 4198820; 562530, 4198810; 562499, 4198800; 562483, 4198800; 562465, 4198790; 562417, 4198780; 562371, 4198800; 562314, 4198810; 562255, 4198850; 562280, 4198890; 562291, 4198910; 562299, 4198930;

562299, 4198950; 562301, 4198970; 562309, 4199010; 562308, 4199030; 562306, 4199040; 562293, 4199060; 562288, 4199070; 562276, 4199090; 562271, 4199090; 562264, 4199090; 562264, 4199090; 562258, 4199080; 562258, 4199060; 562253, 4199020; 562251, 4198990; 562252, 4198940; 562251, 4198930; 562250, 4198930; 562242, 4198920; 562229, 4198900; 562212, 4198880; 562188, 4198890; 562184, 4198920; 562174, 4198960; 562163, 4199000; 562155, 4199030; 562151, 4199050; 562146, 4199070; 562136, 4199130; 562135, 4199140; 562132, 4199150; 562118, 4199180; 562108, 4199190; 562092, 4199220; 562078, 4199230; 562058, 4199270; 562049, 4199280; 562045, 4199290; 562043, 4199300; 562041, 4199310; 562041, 4199330; 562042, 4199350; 562044, 4199360; 562046, 4199420.

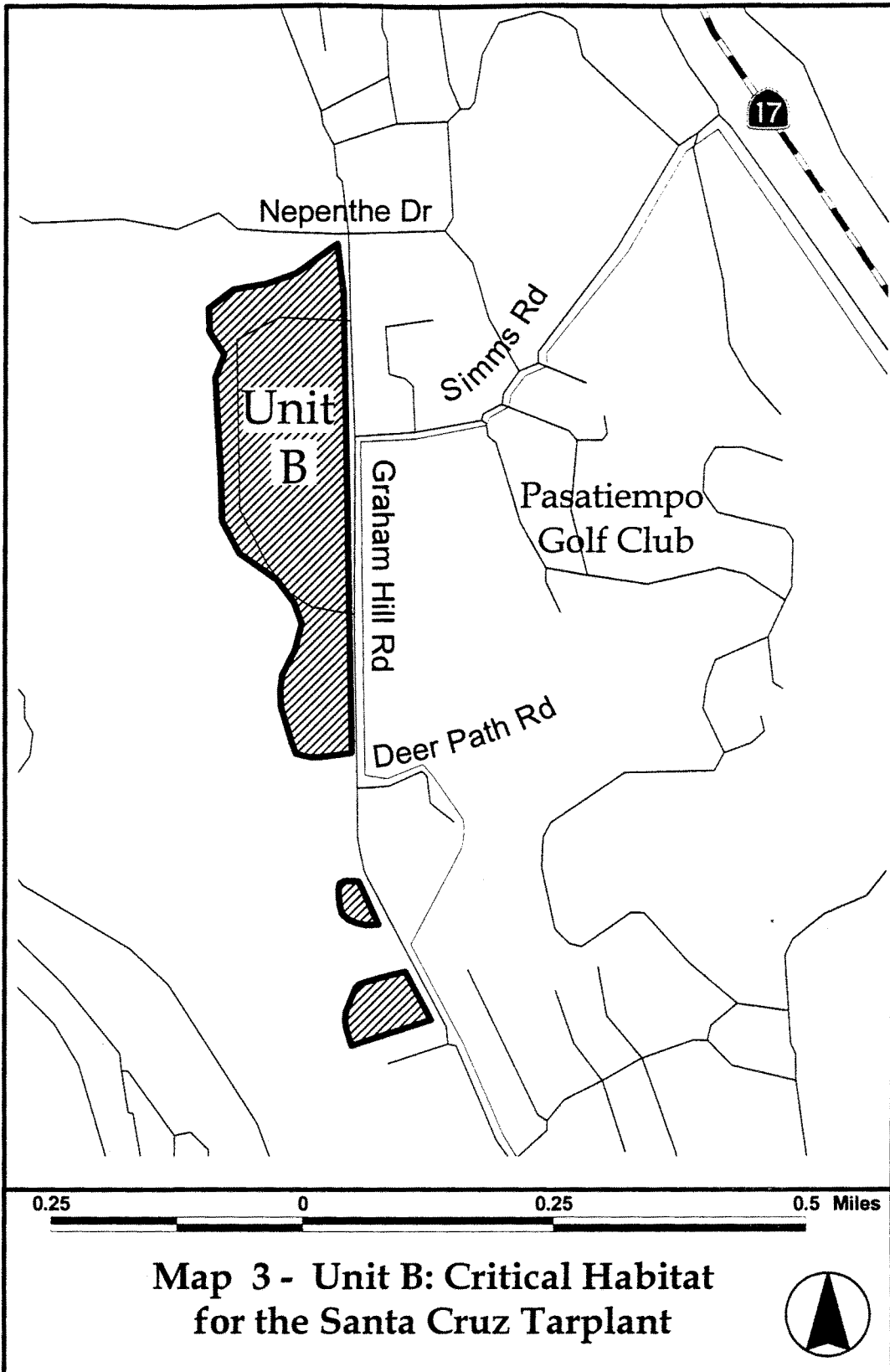
(ii) Map 2 of Unit A follows:



(6) *Unit B: Graham Hill*. Santa Cruz County, California.
(i) Unit B (Graham Hill north subunit). From USGS 1:24,000 quadrangle map Felton. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 585905, 4096930; 585915, 4096850; 585930, 4096130; 585930, 4096110; 585879, 4096100; 585863, 4096100; 585841, 4096110; 585833, 4096130; 585817, 4096180; 585815, 4096210; 585819, 4096240; 585840, 4096280; 585850, 4096320; 585837, 4096350; 585810, 4096390; 585749, 4096430; 585721, 4096480;

585719, 4096560; 585710, 4096710; 585724, 4096750; 585701, 4096790; 585699, 4096820; 585739, 4096850; 585791, 4096860; 585839, 4096880; 585905, 4096930.
(ii) Unit B (Graham Hill central subunit). From USGS 1:24,000 quadrangle map Felton. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 585912, 4095900; 585919, 4095900; 585928, 4095910; 585942, 4095900; 585974, 4095840; 585954, 4095830; 585939, 4095840; 585925, 4095840; 585915, 4095850;

585912, 4095870; 585910, 4095880; 585910, 4095890; 585912, 4095900.
(iii) Unit B (Graham Hill south subunit). From USGS 1:24,000 quadrangle map Felton. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 586017, 4095760; 586058, 4095680; 585931, 4095640; 585928, 4095650; 585922, 4095670; 585920, 4095680; 585922, 4095690; 585930, 4095710; 585937, 4095730; 585944, 4095740; 585955, 4095740; 585976, 4095750; 586017, 4095760.
(iv) Map 3 of Unit B follows:



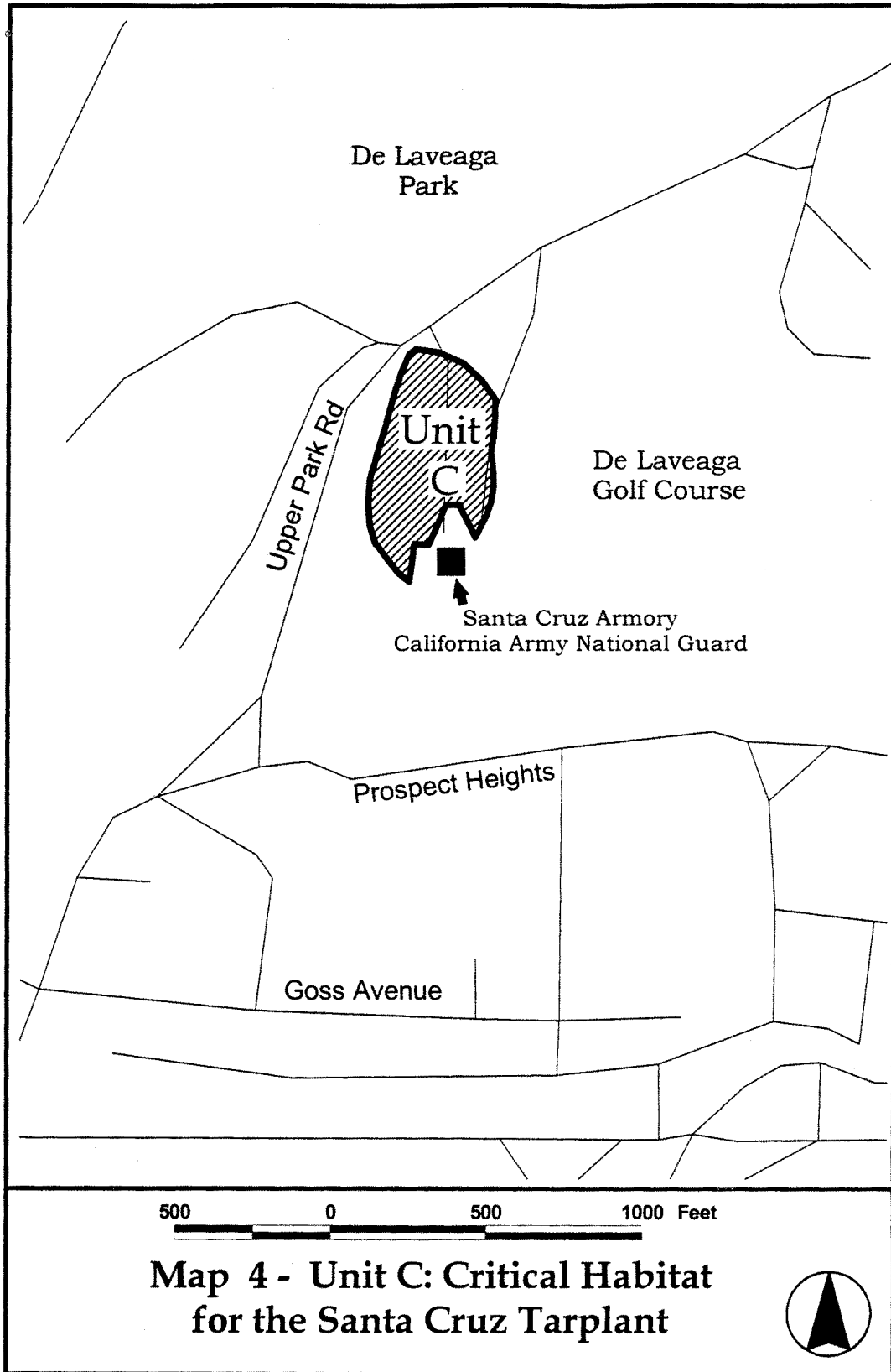
(7) *Unit C: (De Laveaga)*. Santa Cruz County, California.

(i) From USGS 1:24,000 quadrangle map Santa Cruz. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 588446, 4094810; 588468, 4094810; 588492, 4094800; 588510, 4094780; 588523, 4094760;

588523, 4094740; 588522, 4094730; 588519, 4094710; 588522, 4094690; 588522, 4094680; 588519, 4094660; 588515, 4094650; 588504, 4094630; 588488, 4094660; 588476, 4094660; 588459, 4094620; 588445, 4094620; 588440, 4094590; 588429, 4094590;

588417, 4094610; 588406, 4094620; 588401, 4094640; 588399, 4094660; 588401, 4094690; 588410, 4094720; 588416, 4094740; 588424, 4094770; 588432, 4094790; 588439, 4094810; 588446, 4094810.

(ii) Map 4 of Unit C follows:



(8) *Unit D: Arana Gulch*. Santa Cruz County, California.

From USGS 1:24,000 quadrangle maps Santa Cruz and Soquel. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 589295, 4093310; 589315, 4093270; 589338, 4093210; 589358, 4093170; 589399, 4093120; 589404, 4093100; 589399, 4093030; 589401, 4092990; 589400, 4092940; 589391, 4092900; 589386, 4092860; 589375, 4092830; 589353, 4092780; 589340, 4092750; 589340, 4092730; 589325, 4092690; 589310, 4092640; 589290, 4092600; 589272, 4092590; 589252, 4092570; 589238, 4092550; 589229, 4092530; 589221, 4092500; 589195, 4092460; 589161, 4092490; 589139, 4092530; 589120,

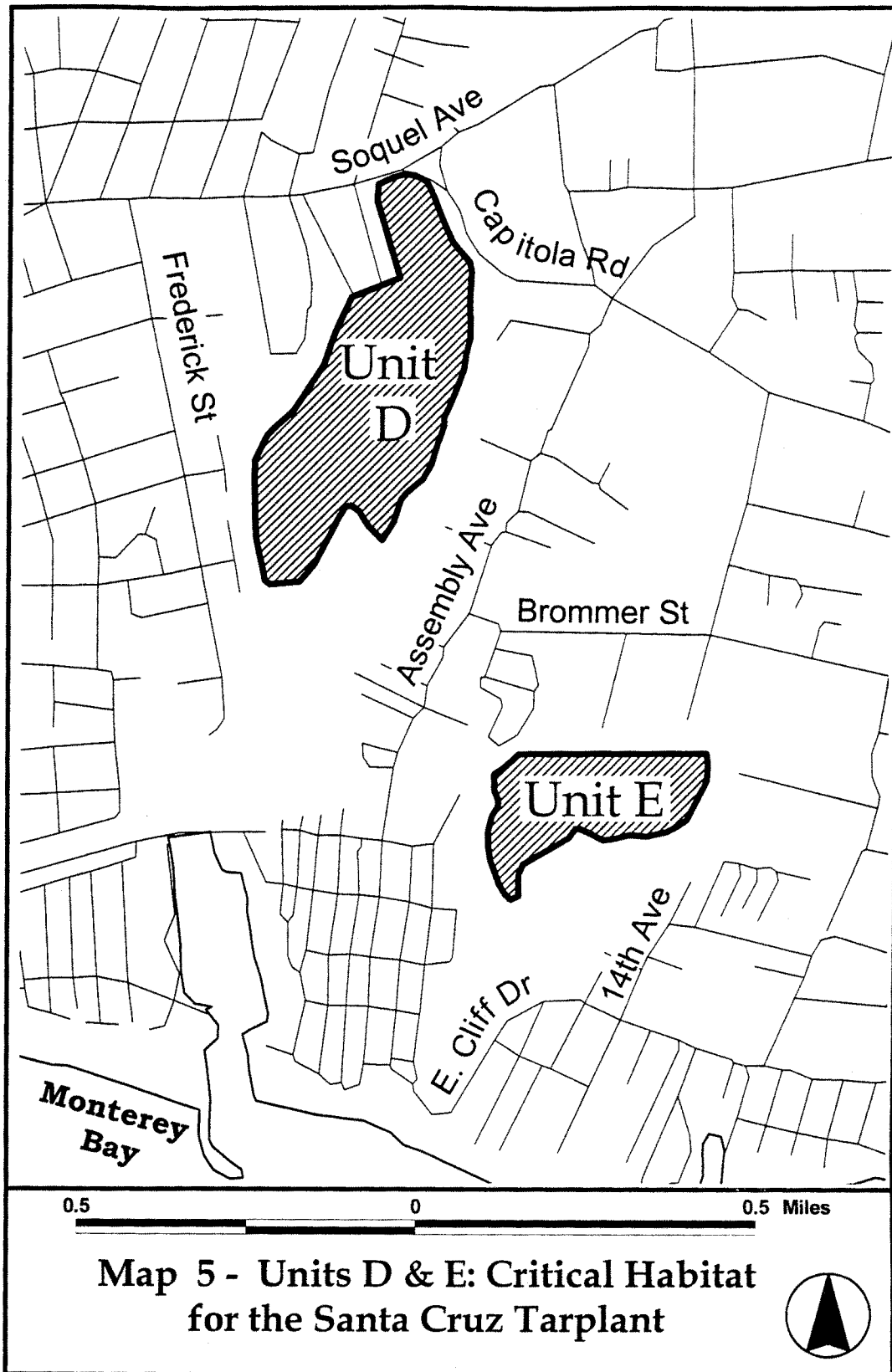
4092540; 589108, 4092540; 589092, 4092510; 589057, 4092450; 589033, 4092400; 588999, 4092360; 588929, 4092350; 588916, 4092360; 588894, 4092470; 588891, 4092560; 588890, 4092650; 588919, 4092710; 588946, 4092730; 588980, 4092760; 589053, 4092880; 589080, 4092950; 589119, 4093040; 589234, 4093080; 589178, 4093270; 589181, 4093310; 589214, 4093320; 589245, 4093330; 589268, 4093330; 589295, 4093310.

(9) *Unit E: Twin Lakes*. Santa Cruz County, California.

(i) From USGS 1:24,000 quadrangle map Soquel. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 589964, 4091950; 589967, 4091930; 589964, 4091890;

589918, 4091800; 589899, 4091780; 589871, 4091770; 589823, 4091760; 589784, 4091760; 589744, 4091750; 589722, 4091750; 589692, 4091760; 589667, 4091780; 589656, 4091770; 589640, 4091750; 589616, 4091740; 589559, 4091710; 589532, 4091690; 589521, 4091660; 589521, 4091640; 589522, 4091620; 589504, 4091610; 589489, 4091620; 589476, 4091640; 589455, 4091700; 589450, 4091730; 589449, 4091770; 589458, 4091800; 589472, 4091830; 589473, 4091840; 589465, 4091860; 589464, 4091890; 589463, 4091900; 589482, 4091920; 589506, 4091940; 589522, 4091950; 589964, 4091950.

(ii) Map 5 of Units D and E follows:



(10) *Unit F: Rodeo Gulch*. Santa Cruz County, California.

From USGS 1:24,000 quadrangle map Soquel. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 590971, 4094630; 590995, 4094740; 591007, 4094780; 591037, 4094830; 591069, 4094860; 591095, 4094900; 591125, 4094960; 591182, 4094940; 591196, 4094940; 591199, 4094950; 591207, 4094980; 591216, 4095000; 591225, 4095030; 591220, 4095050; 591225, 4095090; 591232, 4095130; 591241, 4095160; 591252, 4095180; 591265, 4095180; 591291, 4095170; 591321, 4095140; 591353, 4095050; 591393, 4094970; 591301, 4094960; 591293, 4094950; 591299, 4094910; 591300, 4094850; 591293, 4094810; 591275, 4094750; 591252, 4094660; 591224, 4094650; 591185, 4094630; 591097, 4094630; 590971, 4094630.

(11) *Unit G: Soquel Unit*. Santa Cruz County, California.

(i) *Unit G (Soquel north subunit)*. From USGS 1:24,000 quadrangle maps Soquel and Laurel. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 592050, 4095340; 592094, 4095290; 592102, 4095240; 592112, 4095200; 592119, 4095200; 592130, 4095200; 592158, 4095210; 592173, 4095220; 592180, 4095230; 592193, 4095270; 592211, 4095320; 592218, 4095330; 592227, 4095330; 592257, 4095330; 592275, 4095330; 592299, 4095330; 592393, 4095340; 592404, 4095330; 592411, 4095220; 592423, 4095180; 592425, 4095140; 592414, 4095130; 592381, 4095120; 592290, 4095120; 592177, 4095120; 592165, 4095120; 592159, 4095120; 592149, 4095110; 592138, 4095100; 592129, 4095090; 592116, 4095090;

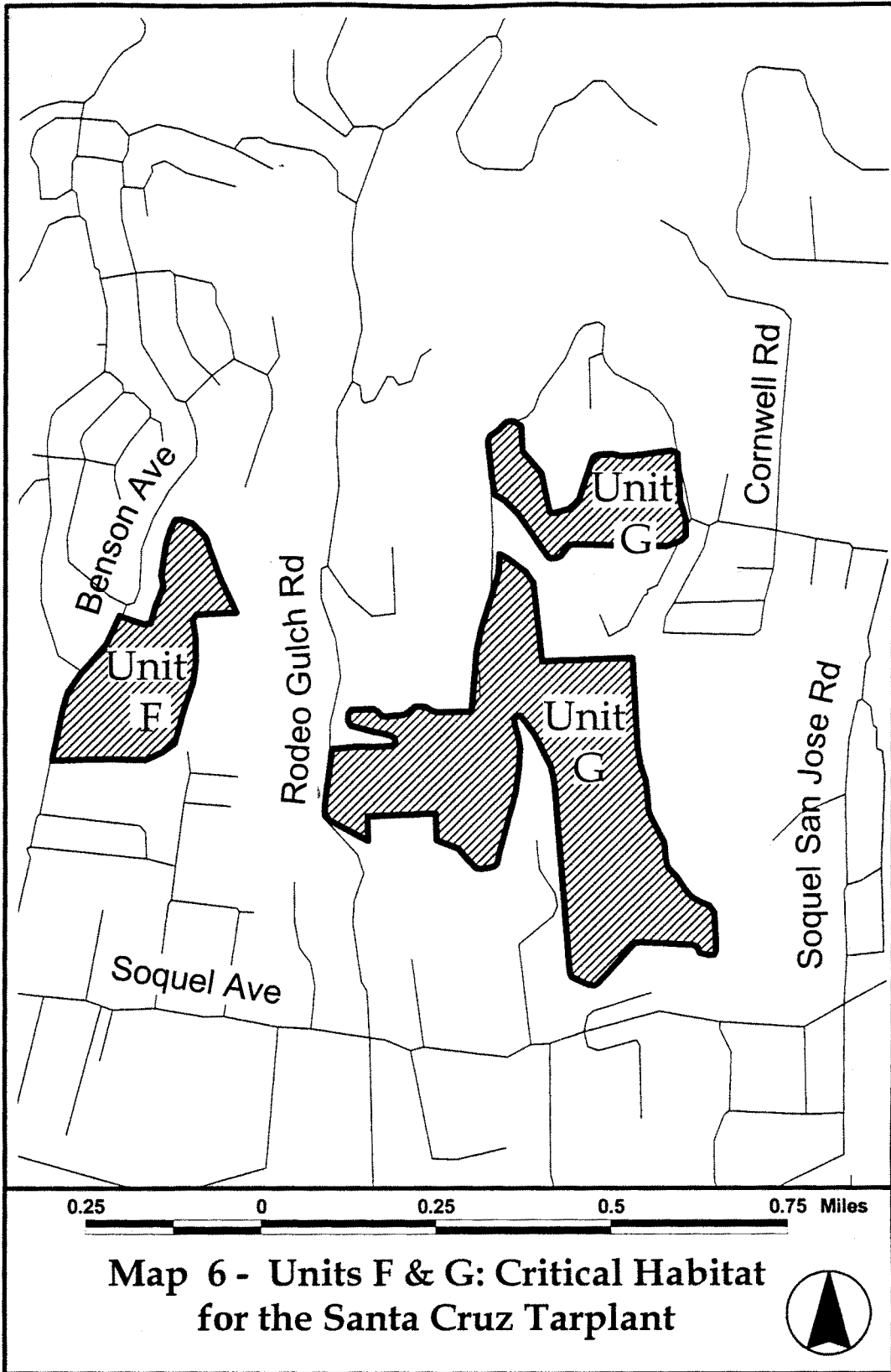
592109, 4095100; 592041, 4095190; 592009, 4095220; 591986, 4095240; 591980, 4095270; 591970, 4095360; 591971, 4095360; 591973, 4095370; 591995, 4095390; 592012, 4095400; 592021, 4095410; 592031, 4095400; 592046, 4095390; 592050, 4095340.

(ii) *Unit G (Soquel north area)*. From USGS 1:24,000 quadrangle maps Soquel and Laurel. Lands bounded by the following UTM zone 10 NAD83 coordinates (E, N): 592050, 4095340; 592094, 4095290; 592102, 4095240; 592112, 4095200; 592119, 4095200; 592130, 4095200; 592158, 4095210; 592173, 4095220; 592180, 4095230; 592193, 4095270; 592211, 4095320; 592218, 4095330; 592227, 4095330; 592257, 4095330; 592275, 4095330; 592299, 4095330; 592393, 4095340; 592404, 4095330; 592411, 4095220; 592423, 4095180; 592425, 4095140; 592414, 4095130; 592381, 4095120; 592290, 4095120; 592177, 4095120; 592165, 4095120; 592159, 4095120; 592149, 4095110; 592138, 4095100; 592129, 4095090; 592116, 4095090; 592109, 4095100; 592041, 4095190; 592009, 4095220; 591986, 4095240; 591980, 4095270; 591970, 4095360; 591971, 4095360; 591973, 4095370; 591995, 4095390; 592012, 4095400; 592021, 4095410; 592031, 4095400; 592046, 4095390; 592050, 4095340.

(iii) *Unit G (Soquel south subunit)*. From USGS 1:24,000 quadrangle maps Soquel and Laurel. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 592076, 4095040; 592097, 4094850; 592304, 4094860; 592315, 4094660; 592322, 4094620; 592334, 4094580; 592341, 4094510; 592347, 4094490; 592354, 4094480; 592375, 4094440; 592378, 4094430;

592380, 4094400; 592385, 4094380; 592406, 4094360; 592430, 4094320; 592442, 4094310; 592460, 4094300; 592478, 4094290; 592491, 4094280; 592494, 4094210; 592495, 4094190; 592491, 4094180; 592478, 4094180; 592458, 4094180; 592452, 4094200; 592442, 4094200; 592326, 4094210; 592311, 4094210; 592224, 4094110; 592216, 4094110; 592204, 4094110; 592165, 4094130; 592161, 4094140; 592126, 4094560; 592123, 4094590; 592117, 4094610; 592105, 4094630; 592087, 4094670; 592074, 4094690; 592057, 4094720; 592047, 4094730; 592036, 4094730; 592032, 4094720; 592036, 4094700; 592043, 4094680; 592047, 4094650; 592043, 4094610; 592036, 4094550; 592000, 4094420; 591994, 4094390; 591987, 4094380; 591973, 4094380; 591957, 4094380; 591944, 4094380; 591904, 4094420; 591855, 4094440; 591853, 4094500; 591833, 4094500; 591696, 4094500; 591696, 4094440; 591606, 4094490; 591597, 4094510; 591596, 4094520; 591613, 4094650; 591617, 4094650; 591676, 4094660; 591718, 4094660; 591751, 4094660; 591759, 4094670; 591757, 4094680; 591749, 4094680; 591738, 4094690; 591704, 4094690; 591656, 4094710; 591651, 4094720; 591651, 4094730; 591657, 4094740; 591711, 4094750; 591720, 4094740; 591726, 4094730; 591736, 4094730; 591777, 4094730; 591790, 4094740; 591797, 4094740; 591806, 4094750; 591819, 4094750; 591831, 4094750; 591845, 4094740; 591856, 4094740; 591935, 4094740; 591946, 4094880; 591956, 4094930; 591995, 4095060; 591998, 4095100; 592017, 4095090; 592059, 4095060; 592076, 4095040.

(iv) Map 6 of Units F and G follows:



**Map 6 - Units F & G: Critical Habitat
for the Santa Cruz Tarplant**



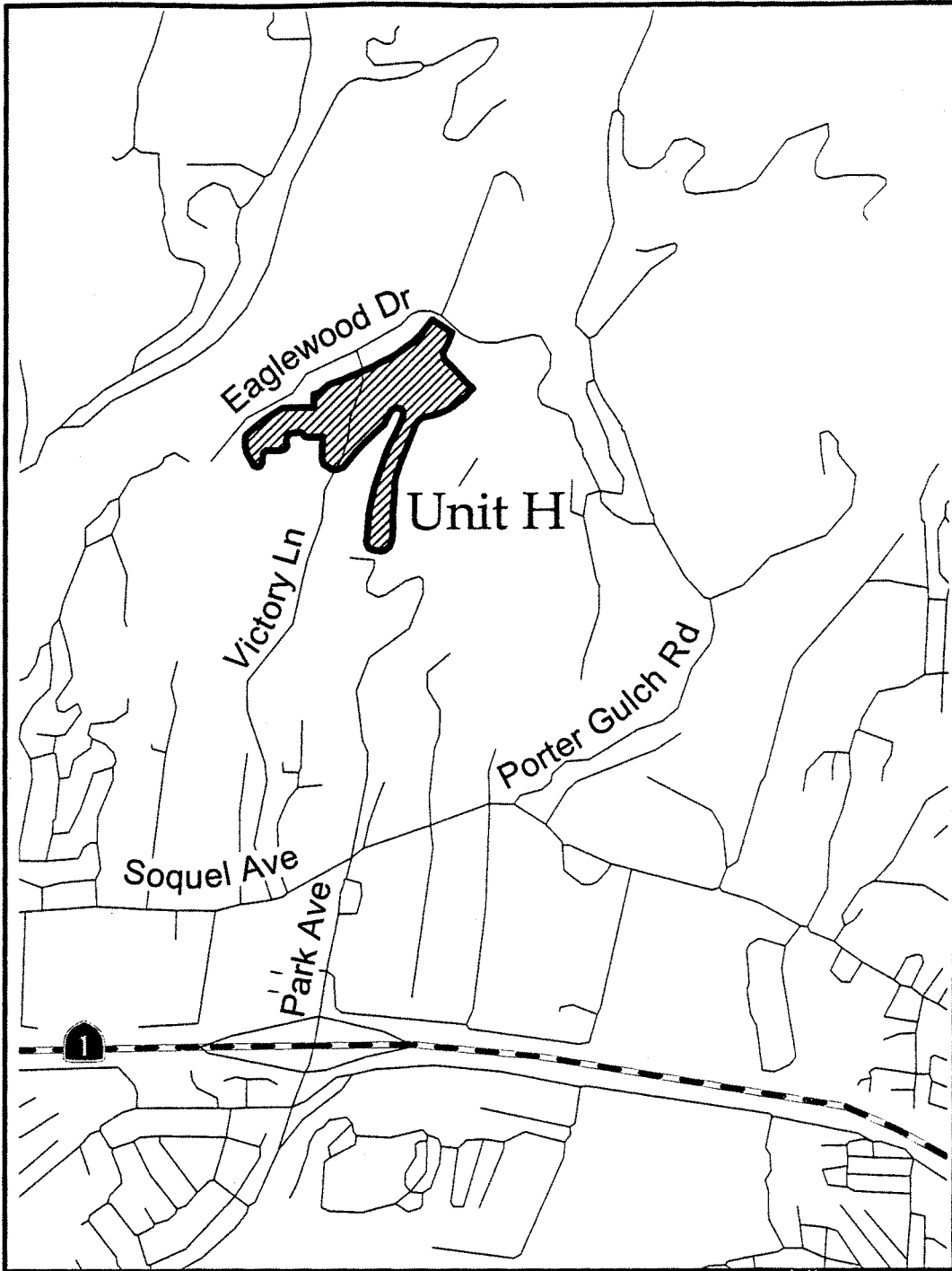
(12) *Unit H: Porter Gulch*. Santa Cruz County, California.

(i) From USGS 1:24,000 quadrangle maps Soquel and Laurel. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 594615, 4095600; 594643, 4095630; 594684, 4095640; 594774, 4095680; 594850, 4095720; 594898, 4095750; 594929, 4095780; 594958, 4095820; 595017, 4095780; 595008, 4095760; 594990, 4095720; 594993, 4095700; 595020, 4095680; 595057, 4095630; 595081, 4095610; 595068, 4095600; 595061, 4095590; 595045, 4095580; 595013, 4095550; 594989, 4095540; 594967, 4095530; 594929, 4095520; 594917, 4095520; 594907, 4095500; 594893, 4095470; 594857, 4095380; 594846,

4095340; 594843, 4095320; 594842, 4095290; 594839, 4095250; 594838, 4095180; 594835, 4095150; 594828, 4095130; 594816, 4095120; 594800, 4095120; 594785, 4095120; 594772, 4095130; 594765, 4095130; 594760, 4095140; 594758, 4095150; 594760, 4095170; 594766, 4095230; 594779, 4095310; 594819, 4095420; 594856, 4095500; 594867, 4095520; 594869, 4095540; 594863, 4095550; 594848, 4095560; 594837, 4095550; 594833, 4095540; 594828, 4095540; 594810, 4095500; 594776, 4095470; 594747, 4095440; 594718, 4095410; 594689, 4095370; 594669, 4095370; 594652, 4095370; 594639, 4095380; 594627, 4095380; 594622, 4095400; 594624,

4095470; 594606, 4095470; 594587, 4095460; 594571, 4095470; 594565, 4095480; 594557, 4095480; 594549, 4095480; 594530, 4095480; 594518, 4095470; 594514, 4095460; 594517, 4095440; 594509, 4095430; 594498, 4095430; 594473, 4095430; 594462, 4095430; 594453, 4095430; 594444, 4095420; 594442, 4095410; 594441, 4095390; 594436, 4095380; 594427, 4095380; 594415, 4095380; 594411, 4095390; 594394, 4095420; 594390, 4095440; 594390, 4095450; 594391, 4095470; 594410, 4095490; 594457, 4095530; 594502, 4095550; 594542, 4095560; 594597, 4095560; 594597, 4095600; 594615, 4095600.

(ii) Map 7 of Unit H follows:



**Map 7 - Unit H: Critical Habitat
for the Santa Cruz Tarplant**



(13) *Unit I: Watsonville Unit*. Santa Cruz County, California.

(i) *Unit I (Watsonville north subunit)*.

From USGS 1:24,000 quadrangle map Watsonville West. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 606195, 4088630; 606299, 4088730; 606331, 4088750; 606365, 4088760; 606454, 4088750; 606492, 4088750; 606515, 4088750; 606535, 4088760; 606555, 4088800; 606560, 4088840; 606580, 4088880; 606607, 4088890; 606660, 4088900; 606927, 4088910; 606938, 4088530; 606930, 4088220; 606810, 4088090; 606689, 4087970; 606652, 4088040; 606596, 4088110; 606522, 4088170; 606490, 4088210; 606437, 4088250; 606362, 4088300; 606303, 4088340; 606274, 4088370; 606263, 4088390; 606252, 4088430; 606234, 4088450; 606219, 4088480; 606215, 4088520; 606199, 4088590; 606195, 4088630.

(ii) *Unit I (Airport subunit)*. From USGS 1:24,000 quadrangle map Watsonville West. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 607026, 4087500; 606967, 4087520; 607005, 4087620; 607031, 4087670; 607046, 4087710; 607073, 4087750; 607095, 4087820; 607136, 4087830; 607137, 4087860; 607146, 4087980; 607140, 4088020; 607145, 4088050; 607158, 4088060; 607202, 4088060; 607247, 4088050; 607252, 4088090; 607292, 4088090; 607378, 4088100; 607383, 4088250; 607306, 4088240; 607226, 4088240; 607201, 4088250; 607184, 4088270; 607159, 4088300; 607147, 4088310; 607147, 4088340; 607158, 4088380; 607195, 4088470; 607203, 4088510; 607212, 4088560; 607222, 4088620; 607226, 4088650; 607227, 4088710; 607240, 4088750; 607241, 4088780; 607236, 4088820; 607246, 4088840; 607340, 4088840; 607846, 4088860; 607947, 4089000; 608079, 4089030; 608191, 4088860; 608477, 4088700; 608460, 4088620; 608641, 4088590; 608652, 4088610; 608746, 4088570; 608602, 4088450; 607932, 4088550; 607689, 4088150; 607267, 4087440; 607312, 4087430; 607297, 4087340; 607239, 4087340; 607201, 4087350; 607181, 4087320; 607148, 4087320; 607031, 4087350; 606969, 4087370; 607026, 4087500.

(iii) *Unit I (Watsonville south subunit)*. From USGS 1:24,000 quadrangle map Watsonville West. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 609032, 4085780; 609074, 4085770; 609198, 4085730; 609153, 4085610; 609208, 4085430; 609333, 4085390; 609504, 4085250; 609242, 4085080; 609191, 4085230; 609164, 4085310;

609006, 4085250; 609123, 4085020; 608761, 4084800; 608590, 4085160; 608651, 4085380; 608760, 4085450; 608869, 4085480; 608941, 4085530; 608976, 4085570; 609032, 4085580; 609040, 4085630; 608979, 4085640; 608931, 4085660; 608920, 4085700; 608928, 4085730; 608957, 4085760; 608995, 4085780; 609032, 4085780.

(iv) *Unit I (Highway 1 north subunit)*.

From USGS 1:24,000 quadrangle map Watsonville West. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 607333, 4087090; 607348, 4087150; 607389, 4087150; 607449, 4087090; 607498, 4087060; 607570, 4087060; 607570, 4086940; 607558, 4086930; 607333, 4087090.

(v) *Unit I (Highway 1 south subunit)*.

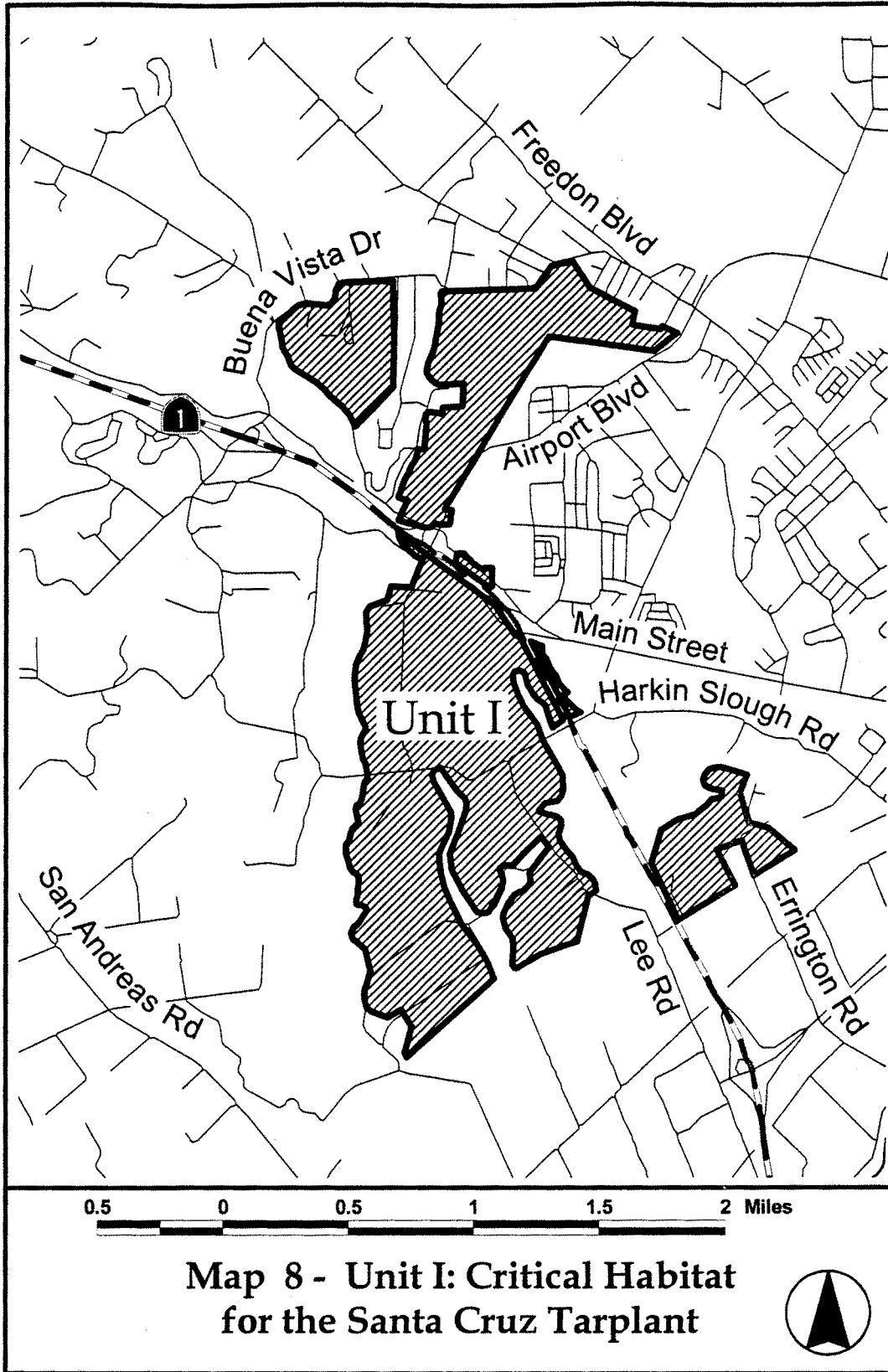
From USGS 1:24,000 quadrangle map Watsonville West. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 607819, 4086590; 607892, 4086560; 607893, 4086520; 607900, 4086500; 607920, 4086470; 607931, 4086440; 607946, 4086410; 607978, 4086370; 608003, 4086320; 608031, 4086280; 608057, 4086260; 608029, 4086240; 608063, 4086190; 608101, 4086160; 608138, 4086130; 608069, 4086100; 607819, 4086590.

(vi) *Unit I (Harkins Slough subunit)*.

From USGS 1:24,000 quadrangle map Watsonville West. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N): 606736, 4084900; 606721, 4084900; 606703, 4084900; 606698, 4084920; 606703, 4084940; 606709, 4084960; 606710, 4085000; 606715, 4085030; 606715, 4085050; 606715, 4085080; 606707, 4085090; 606698, 4085100; 606678, 4085110; 606661, 4085140; 606634, 4085230; 606632, 4085260; 606635, 4085290; 606651, 4085310; 606667, 4085370; 606677, 4085390; 606695, 4085410; 606713, 4085420; 606695, 4085510; 606701, 4085540; 606721, 4085550; 606733, 4085580; 606742, 4085610; 606745, 4085650; 606756, 4085690; 606773, 4085710; 606759, 4085800; 606744, 4085830; 606736, 4085870; 606725, 4085930; 606729, 4085960; 606741, 4085990; 606761, 4086020; 606756, 4086050; 606735, 4086090; 606715, 4086130; 606704, 4086180; 606689, 4086350; 606690, 4086390; 606696, 4086440; 606715, 4086490; 606746, 4086540; 606762, 4086620; 606767, 4086650; 606766, 4086700; 606762, 4086780; 606786, 4086810; 606896, 4086850; 606923, 4086940; 607053, 4086940; 607125, 4087120; 607085, 4087130; 607002, 4087200; 606976, 4087250; 606968, 4087280; 607157, 4087140; 607286, 4087040; 607497, 4086890; 607591, 4086820; 607719, 4086630; 607746, 4086620;

608027, 4086080; 607960, 4086030; 607945, 4086070; 607914, 4086180; 607889, 4086200; 607861, 4086220; 607830, 4086260; 607799, 4086310; 607782, 4086380; 607764, 4086400; 607738, 4086400; 607715, 4086390; 607705, 4086370; 607705, 4086350; 607713, 4086320; 607741, 4086240; 607771, 4086180; 607825, 4086100; 607863, 4086050; 607891, 4085970; 607999, 4085770; 608023, 4085720; 608026, 4085670; 608026, 4085630; 608016, 4085590; 607990, 4085560; 607945, 4085560; 607911, 4085550; 607871, 4085500; 607932, 4085480; 607985, 4085460; 608013, 4085440; 608016, 4085410; 608006, 4085380; 607995, 4085350; 608006, 4085310; 608054, 4085240; 608087, 4085210; 608107, 4085160; 608143, 4085110; 608184, 4085090; 608219, 4085060; 608233, 4085030; 608237, 4084990; 608186, 4084950; 608118, 4084660; 607891, 4084590; 607817, 4084540; 607733, 4084490; 607718, 4084490; 607703, 4084510; 607705, 4084540; 607708, 4084590; 607708, 4084640; 607703, 4084680; 607659, 4084750; 607643, 4084810; 607647, 4084850; 607672, 4084900; 607715, 4084960; 607746, 4084980; 607777, 4084990; 607821, 4085040; 607812, 4085100; 607937, 4085270; 607886, 4085330; 607769, 4085220; 607709, 4085150; 607649, 4085150; 607619, 4085130; 607642, 4085070; 607644, 4085050; 607639, 4085020; 607562, 4084870; 607547, 4084850; 607527, 4084850; 607499, 4084850; 607474, 4084850; 607385, 4084990; 607313, 4085120; 607306, 4085190; 607301, 4085230; 607313, 4085260; 607359, 4085370; 607405, 4085500; 607407, 4085550; 607397, 4085580; 607341, 4085640; 607242, 4085780; 607199, 4085760; 607186, 4085730; 607196, 4085690; 607293, 4085520; 607308, 4085490; 607311, 4085460; 607295, 4085370; 607241, 4085250; 607232, 4085220; 607232, 4085190; 607242, 4085100; 607269, 4085010; 607303, 4084920; 607375, 4084780; 607484, 4084640; 607545, 4084530; 607586, 4084420; 607028, 4083920; 607011, 4083950; 607058, 4084120; 607036, 4084150; 606990, 4084230; 606906, 4084180; 606797, 4084220; 606768, 4084240; 606753, 4084300; 606753, 4084330; 606758, 4084360; 606765, 4084380; 606774, 4084410; 606791, 4084480; 606759, 4084610; 606696, 4084670; 606680, 4084680; 606672, 4084700; 606667, 4084720; 606684, 4084760; 606698, 4084770; 606712, 4084780; 606736, 4084810; 606756, 4084840; 606770, 4084860; 606758, 4084890; 606736, 4084900.

(vii) *Map 8 of Unit I follows:*



**Map 8 - Unit I: Critical Habitat
for the Santa Cruz Tarplant**

(14) *Unit J: Casserly*. Santa Cruz County, California.

(i) From USGS 1:24,000 quadrangle maps Loma Prieta, Mt. Madona, Watsonville East, and Watsonville West.

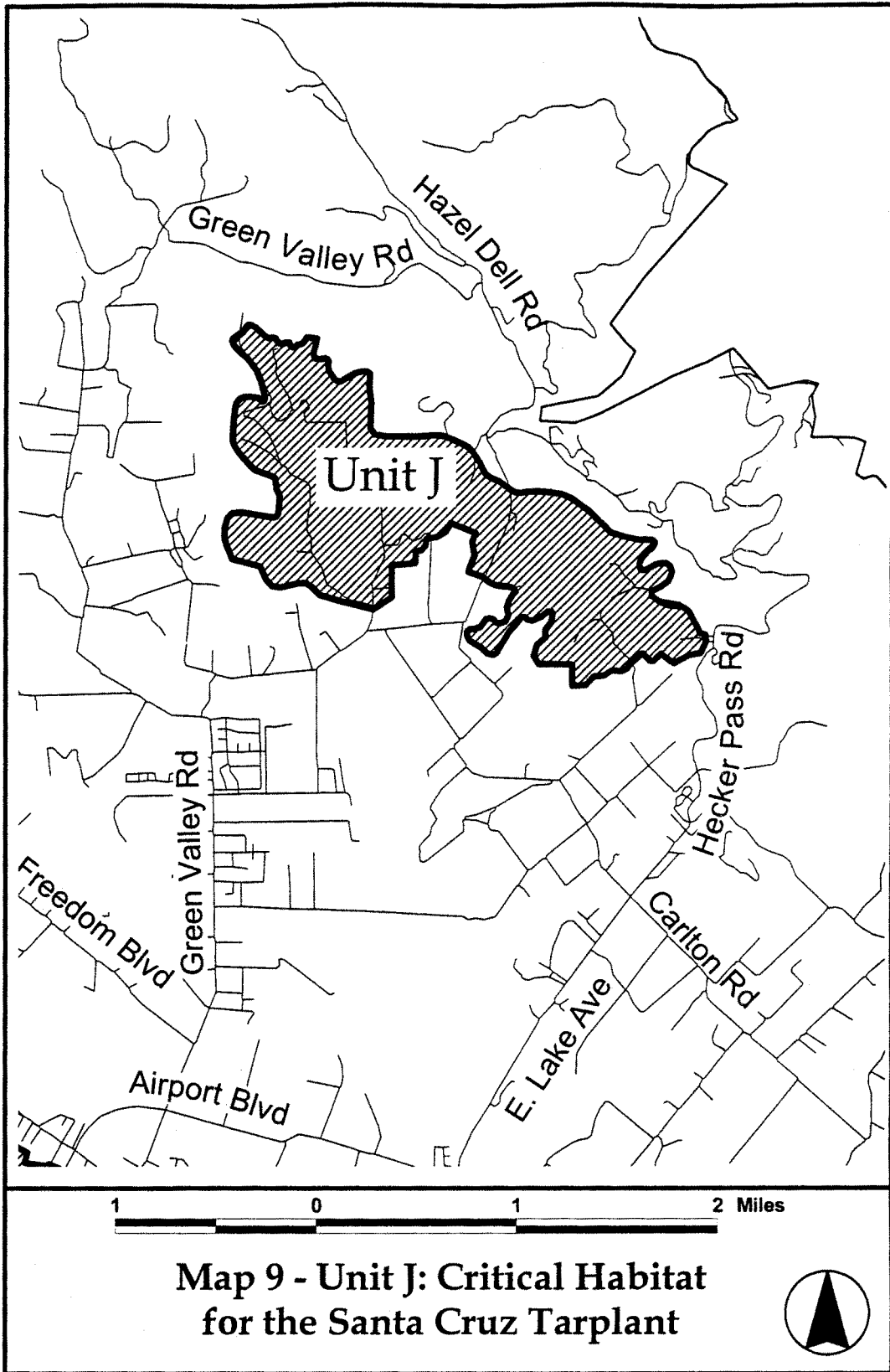
Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N):

610201, 4094760; 610253, 4094770;
610315, 4094760; 610340, 4094730;
610351, 4094720; 610366, 4094730;
610368, 4094750; 610363, 4094780;
610346, 4094860; 610330, 4094910;
610300, 4094980; 610231, 4095070;
610143, 4095150; 610117, 4095190;
610107, 4095220; 610111, 4095230;
610169, 4095280; 610196, 4095290;
610217, 4095330; 610236, 4095340;
610262, 4095340; 610289, 4095330;
610366, 4095260; 610399, 4095240;
610412, 4095240; 610428, 4095240;
610453, 4095240; 610471, 4095210;
610499, 4095190; 610524, 4095200;
610548, 4095210; 610563, 4095200;
610577, 4095170; 610599, 4095160;
610619, 4095170; 610630, 4095180;
610659, 4095190; 610678, 4095200;
610695, 4095220; 610702, 4095240;
610711, 4095250; 610730, 4095240;
610750, 4095240; 610789, 4095230;
610783, 4095210; 610777, 4095180;
610768, 4095150; 610761, 4095120;
610763, 4095090; 610779, 4095070;
610809, 4095070; 610832, 4095070;
610851, 4095080; 610872, 4095070;
610880, 4095050; 610878, 4095010;
610879, 4094990; 610881, 4094980;
610911, 4094930; 610924, 4094910;
610946, 4094890; 610964, 4094890;
610982, 4094890; 611082, 4094950;
611126, 4094960; 611161, 4094970;
611190, 4094970; 611213, 4094950;
611216, 4094930; 611211, 4094870;
611210, 4094830; 611226, 4094710;
611217, 4094510; 611258, 4094460;
611358, 4094440; 611566, 4094440;
611639, 4094440; 611754, 4094460;

611806, 4094450; 611867, 4094430;
612002, 4094360; 612045, 4094320;
612071, 4094280; 612100, 4094230;
612136, 4094160; 612158, 4094130;
612214, 4094100; 612248, 4094090;
612354, 4094010; 612393, 4094000;
612433, 4093990; 612493, 4094000;
612575, 4094010; 612678, 4094000;
612764, 4093980; 612836, 4093950;
612974, 4093850; 613106, 4093720;
613136, 4093690; 613169, 4093670;
613269, 4093640; 613373, 4093620;
613483, 4093620; 613505, 4093590;
613499, 4093570; 613482, 4093550;
613451, 4093520; 613409, 4093480;
613386, 4093440; 613380, 4093410;
613391, 4093380; 613409, 4093380;
613441, 4093380; 613522, 4093420;
613553, 4093430; 613596, 4093430;
613625, 4093410; 613641, 4093360;
613631, 4093320; 613615, 4093290;
613563, 4093250; 613496, 4093210;
613479, 4093190; 613480, 4093170;
613542, 4093120; 613617, 4093090;
613699, 4093090; 613732, 4093080;
613772, 4093050; 613790, 4093020;
613855, 4092900; 613866, 4092870;
613909, 4092860; 613918, 4092810;
613905, 4092770; 613871, 4092710;
613783, 4092690; 613730, 4092670;
613661, 4092630; 613624, 4092650;
613555, 4092700; 613496, 4092640;
613468, 4092650; 613409, 4092710;
613316, 4092620; 613285, 4092580;
613240, 4092560; 613167, 4092570;
613101, 4092530; 613023, 4092520;
612958, 4092450; 612847, 4092450;
612846, 4092620; 612576, 4092620;
612538, 4092680; 612564, 4092770;
612630, 4092830; 612631, 4092890;
612676, 4092950; 612688, 4093020;
612680, 4093040; 612651, 4093040;
612603, 4093000; 612561, 4092980;
612529, 4092970; 612490, 4092980;
612464, 4093000; 612439, 4093000;
612409, 4092950; 612333, 4092870;

612269, 4092760; 612242, 4092710;
612214, 4092690; 612167, 4092710;
612109, 4092760; 612022, 4092810;
612003, 4092850; 612002, 4092880;
612023, 4092900; 612065, 4092900;
612111, 4092920; 612145, 4092970;
612159, 4092990; 612183, 4092990;
612212, 4092980; 612227, 4092960;
612259, 4092950; 612312, 4092970;
612336, 4093010; 612323, 4093080;
612339, 4093130; 612369, 4093180;
612390, 4093200; 612383, 4093220;
612353, 4093240; 612307, 4093250;
612235, 4093250; 612181, 4093280;
612123, 4093320; 612011, 4093360;
612028, 4093410; 612061, 4093490;
612043, 4093600; 612069, 4093670;
611870, 4093750; 611832, 4093680;
611760, 4093640; 611676, 4093620;
611667, 4093570; 611636, 4093530;
611587, 4093520; 611584, 4093430;
611398, 4093410; 611395, 4093160;
611331, 4093110; 611251, 4093060;
610986, 4093130; 610818, 4093180;
610752, 4093240; 610709, 4093270;
610662, 4093270; 610498, 4093240;
610429, 4093250; 610382, 4093310;
610351, 4093370; 610333, 4093410;
610109, 4093470; 610090, 4093520;
610066, 4093570; 610046, 4093640;
610050, 4093710; 610070, 4093790;
610114, 4093830; 610182, 4093840;
610443, 4093800; 610465, 4093800;
610477, 4093820; 610483, 4093860;
610489, 4093950; 610489, 4093980;
610467, 4094020; 610456, 4094100;
610442, 4094120; 610426, 4094130;
610385, 4094150; 610296, 4094180;
610278, 4094190; 610255, 4094210;
610220, 4094250; 610188, 4094290;
610152, 4094330; 610121, 4094380;
610115, 4094410; 610110, 4094460;
610121, 4094590; 610133, 4094680;
610140, 4094710; 610154, 4094730;
610175, 4094750; 610201, 4094760.

(ii) Map 9 of Unit J follows:



**Map 9 - Unit J: Critical Habitat
for the Santa Cruz Tarplant**

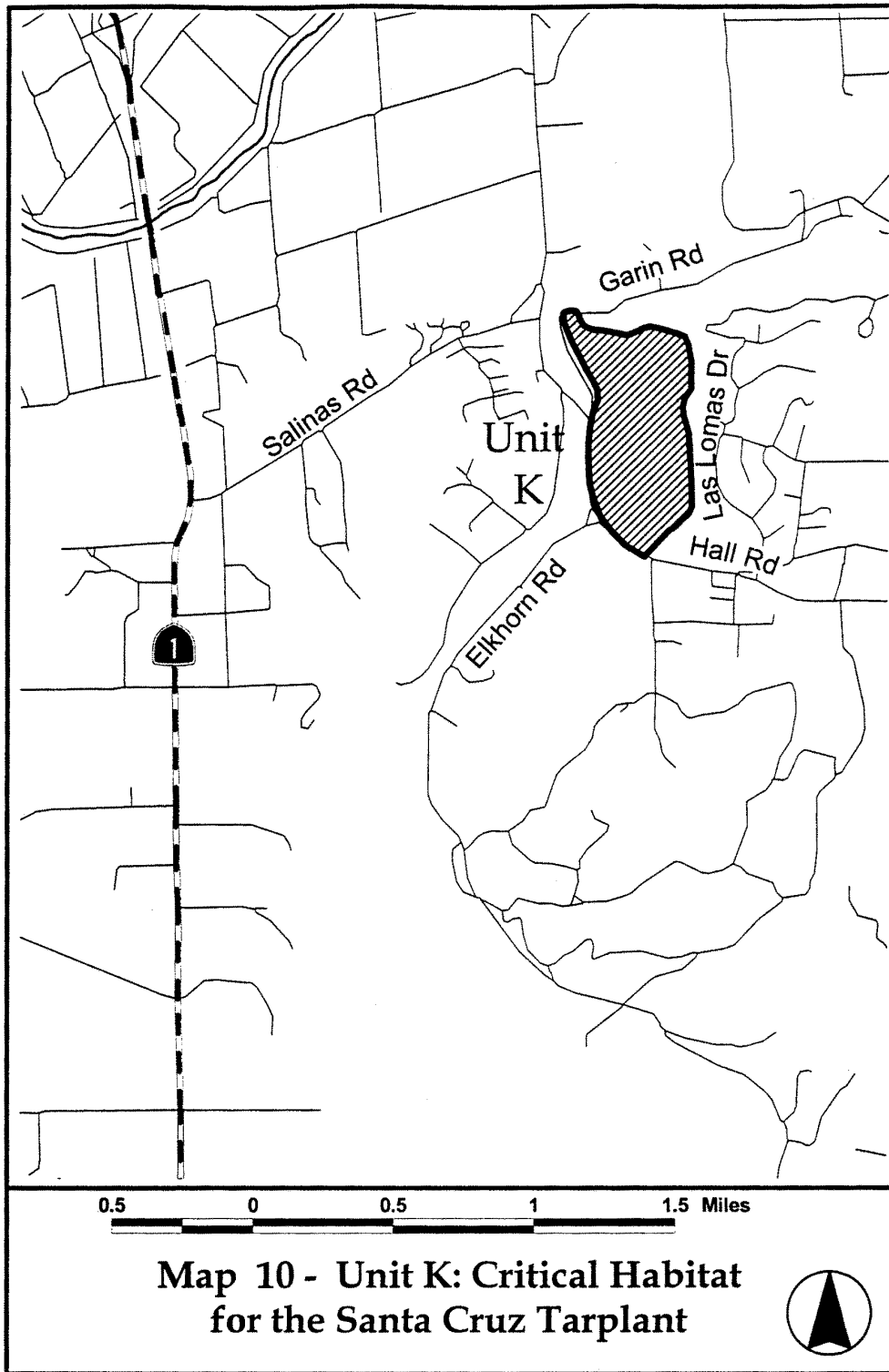


(15) *Unit K: Elkhorn*. Santa Cruz County, California.
(i) From USGS 1:24,000 quadrangle maps Watsonville East, Prunedale. Lands bounded by the following UTM zone 10, NAD83 coordinates (E, N):
611931, 4081300; 611930, 4081420;
611939, 4081530; 611956, 4081610;
611983, 4081680; 611981, 4081740;
611956, 4081790; 611918, 4081860;
611877, 4081940; 611839, 4082020;
611806, 4082090; 611787, 4082150;

611788, 4082180; 611796, 4082190;
611834, 4082200; 611862, 4082190;
611875, 4082170; 611885, 4082140;
611902, 4082110; 611916, 4082100;
611967, 4082090; 612005, 4082090;
612065, 4082080; 612155, 4082060;
612210, 4082080; 612247, 4082100;
612283, 4082110; 612348, 4082090;
612423, 4082080; 612481, 4082050;
612501, 4082000; 612519, 4081910;
612517, 4081840; 612517, 4081750;
612499, 4081720; 612478, 4081690;

612469, 4081640; 612473, 4081600;
612504, 4081490; 612509, 4081400;
612518, 4081210; 612520, 4081080;
612504, 4081040; 612475, 4081010;
612428, 4080960; 612393, 4080940;
612333, 4080880; 612255, 4080790;
612142, 4080860; 612070, 4080930;
612001, 4081020; 611957, 4081120;
611940, 4081200; 611931, 4081300.

(ii) Map 10 of Unit K follows:



* * * * *

Dated: September 30, 2002.
Craig Manson,
*Assistant Secretary for Fish and Wildlife and
Parks.*
[FR Doc. 02-25370 Filed 10-15-02; 8:45 am]
BILLING CODE 4310-55-C