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50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Evaluation of Economic Exclusions From August 2003 Final Designation; Final Rule

DEPARTMENT OF THE INTERIOR

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RIN 1018–AU06

Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Evaluation of Economic Exclusions From August 2003 Final Designation

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the Fish and Wildlife Service (Service), have re-evaluated the economic exclusions made to our previous final rule (68 FR 46683; August 6, 2003), which designated critical habitat pursuant to the Endangered Species Act of 1973, as amended (Act), for 4 vernal pool crustaceans and 11 vernal pool plants. A total of approximately 858,846 acres (ac) (347,563 hectares (ha)) of land are now designated critical habitat. This reflects exclusion of lands from the final designation for economic reasons, pursuant to section 4(b)(2) of the Act. This designation also reflects the lands previously confirmed for exclusion under 4(b)(2) of the Act for non-economic reasons (70 FR 11140; March 8, 2005). The non-economic exclusions include the boundaries of various Habitat Conservation Plans, National Wildlife Refuges and National fish hatchery lands (33,097 ac (13,394 ha)), State lands within ecological reserves and wildlife management areas (20,933 ac (8,471 ha)), Department of Defense lands within Beale and Travis Air Force Bases as well as Fort Hunter Liggett and Camp Roberts Army installations (64,259 ac (26,005 ha)), Tribal lands managed by the Mechoopda Tribe (644 ac (261 ha)), and the Santa Rosa Plateau Ecological Reserve (10,200 ac (4,128 ha)) from the final designation.

DATES: This rule becomes effective on September 12, 2005.

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 Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service, 2800 Cottage, Room W–2605, Sacramento, CA 95825. The final rule, economic analysis, and map will also be available via the Internet at *http://sacramento.fws.gov/.*

We have attempted to address all comments received during the comment periods associated with this final rule, however if you believe that your comments have not been adequately addressed then the Act provides the opportunity for you to petition the Service to amend the final critical habitat rule. Petitions should be submitted to the address above.

FOR FURTHER INFORMATION CONTACT: Arnold Roessler, at the Sacramento Fish and Wildlife Office address above; telephone (916) 414–6600; facsimile (916) 414–6712.

SUPPLEMENTARY INFORMATION:

Designation of Critical Habitat Provides Little Additional Protection to Species

In 30 years of implementing the Act, the Service has found that the designation of statutory critical habitat provides little additional protection to most listed species, while consuming significant amounts of available conservation resources. The Service's present system for designating critical habitat has evolved since its original statutory prescription into a process that provides little real conservation benefit, is driven by litigation and the courts rather than biology, limits our ability to fully evaluate the science involved, consumes enormous agency resources, and imposes huge social and economic costs. The Service believes that additional agency discretion would allow our focus to return to those actions that provide the greatest benefit to the species most in need of protection.

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

While attention to and protection of habitat is paramount to successful conservation actions, we have consistently found that, in most circumstances, the designation of critical habitat is of little additional value for most listed species, yet it consumes large amounts of conservation resources. Sidle (1987) stated, ''Because the Act can protect species with and without critical habitat designation, critical habitat designation may be redundant to the other consultation requirements of section 7.'' Currently, only 464 species or 37 percent of the 1,264 listed species in the U.S. under the jurisdiction of the Service have designated critical habitat.

We address the habitat needs of all 1,264 listed species through conservation mechanisms such as listing, section 7 consultations, the Section 4 recovery planning process, the Section 9 protective prohibitions of unauthorized take, Section 6 funding to the States, and the Section 10 incidental take permit process. The Service believes that it is these measures that may make the difference between extinction and survival for many species.

We note, however, that a recent Ninth Circuit judicial opinion, *Gifford Pinchot Task Force* v. *United States Fish and Wildlife Service*, has invalidated the Service's regulation defining destruction or adverse modification of critical habitat. On December 9, 2004, the Director issued guidance to be used in making section 7 adverse modification determinations.

Procedural and Resource Difficulties in Designating Critical Habitat

The Service has been inundated with lawsuits for our failure to designate critical habitat, and we face a growing number of lawsuits challenging critical habitat determinations once they are made. These lawsuits have subjected the Service to an ever-increasing series of court orders and court-approved settlement agreements, compliance which now consumes nearly the entire endangered species listing program budget. This leaves the Service with little ability to prioritize its activities to direct scarce listing resources to the listing program actions with the most biologically urgent species conservation needs.

The consequence of the critical habitat litigation activity is that limited listing funds are used to defend active lawsuits, to respond to Notices of Intent (NOIs) to sue relative to critical habitat, and to comply with the growing number of adverse court orders. As a result, listing petition responses, the Service's own proposals to list critically imperiled species and final listing determinations on existing proposals are all significantly delayed.

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

provides relatively little additional protection to listed species.

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

Background

The four vernal pool crustaceans involved in this critical habitat designation are the Conservancy fairy shrimp (*Branchinecta conservatio*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardi*). The 11 vernal pool plant species are Butte County meadowfoam (*Limnanthes floccosa* ssp. *californica*), Contra Costa goldfields (*Lasthenia conjugens*), Hoover's spurge (*Chamaesyce hooveri*), fleshy (or succulent) owl's-clover (*Castilleja campestris* ssp. *succulenta*), Colusa grass (*Neostapfia colusana*), Greene's tuctoria (*Tuctoria greenei*), hairy Orcutt grass (*Orcuttia pilosa*), Sacramento Orcutt grass (*Orcuttia viscida*), San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), slender Orcutt grass (*Orcuttia tenuis*), and Solano grass (*Tuctoria mucronata*).

All of the above vernal pool crustaceans and plants live in vernal pools (shallow depressions that hold water seasonally), swales (shallow drainages that carry water seasonally), and ephemeral (short duration) freshwater habitats. The vernal pool habitats of the 4 vernal pool crustaceans and 11 plants addressed in this final rule have a discontinuous distribution west of the Sierra Nevada that extends from southern Oregon through California into northern Baja California, Mexico (Holland and Jain 1978, 1988; Eriksen and Belk 1999).

Wetlands are defined by plants, soils, and frequency of flooding (Cowardin et al., 1979). There is no single, correct, indisputable, ecologically sound definition for wetlands, primarily because wetlands are so diverse and because the separation between dry and wet environments lies along a continuum (Cowardin et al., 1979). Vernal pools are a type of seasonally-flooded emergent wetland. Seasonally-flooded emergent wetlands are areas where surface water is present for extended periods, especially early in the growing season, but is absent by the end of the season in most years (Cowardin et al., 1979). Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes (plants that can grow in soils too waterlogged for most other plants), excluding mosses and lichens. This vegetation is present for most of the growing season in most years (Cowardin et al., 1979). One feature that distinguishes vernal pools from other seasonally flooded emergent wetlands is that they are dominated by annual rather than perennial species (Jokerst 1990, Zedler 1990).

Vernal pools form where there is a soil layer below or at the surface that is impermeable or nearly impermeable to water (Smith and Verrill 1998). Precipitation and surface runoff become trapped or perched above this layer. The restrictive soil layers underlying vernal pools are of four main types: hardpans, claypans, volcanic flows, and non-volcanic rock. The soil parent material underlying the vernal pools greatly influences the species composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998; Smith and Verrill 1998). Soils beneath vernal pools are extremely variable and may not be the same as soils mapped by soil surveys (Holland and Dain 1990). Vernal pools typically occur in landscapes that, on a broad scale, are shallowly sloping or nearly level, but on a fine scale may be quite bumpy. Some vernal pool landscapes are dotted with numerous rounded soil mounds known as mima mounds (Scheffer 1947).

Vernal pools begin to fill with the fall and winter rains. Before ponding occurs, there is a period during which the soil is wetted and the local water table may rise. Some pools have a substantial watershed that contributes to their water inputs; others may fill almost entirely from rain falling directly into the pool (Hanes and Stromberg 1998). Although exceptions are not uncommon, the watershed generally contributes more to the filling of larger or deeper pools, especially playa pools. Even in pools filled primarily by direct precipitation, Hanes and Stromberg (1998) report that subsurface inflows from surrounding soils can help dampen water level fluctuations during late winter and early spring. Vernal pools exhibit four major phases: (1) The wetting phase, when vernal pool soils become saturated; (2) the aquatic phase, when a perched water table develops and the vernal pool contains water; (3) a water-logged drying phase, when the vernal pool begins losing water as a result of evaporation and loss to the surrounding soils but soil moisture remains high; and (4) the dry phase, when the vernal pool and underlying soils are completely dry (Keeley and Zedler 1998). Upland areas associated with vernal pools are also an important source of nutrients to vernal pool organisms (Eriksen and Belk 1999; Wetzel 1975). Vernal pool habitats derive most of their nutrients from detritus (decaying matter) washed into pools from adjacent uplands, and these nutrients provide the foundation for a vernal pool aquatic community's food chain. Detritus (both living and dead organic matter) is a primary food source for the vernal pool crustaceans addressed in this rule (Eriksen and Belk 1999). Because vernal pools are mostly rain-fed, they tend to have low nutrient levels and dramatic daily fluctuations in pH, dissolved oxygen, and carbon dioxide (Keeley and Zedler 1998).

Both the amount and timing of rainfall in California and Oregon vary greatly from year to year. As a result, pools may fill to different extents at different times. The duration of ponding of vernal pools also varies, and in certain years some pools may not fill at all. Many characteristics of vernal pool plants and animals result from these organisms' adaptations to the highly variable and unpredictable nature of vernal pools (Holland 1976; Holland and Dains 1990; King et al. 1996; Hanes and Stromberg 1998).

Many vernal pool plants are pollinated by host-specific ground dwelling solitary bees in the Andrenidae family (Thorp and Leong 1998; Thorp 1976; Griggs 1974 as cited in Stone et al. 1988). The lifecycles of these bees are closely tied to those of the vernal pool plants and the emergence of the adult bees from their over-wintering nests within the adjacent upland habitats (within 100 meters; Leong et al. 1995) of vernal pools coincides with the flowering period of several vernal pool plant species (Lasthenia sp., Limnanthes sp., Blennosperma sp.). The upland areas provide habitat for nests, brood cells, resting and overwintering habitat for the bees so they can complete their lifecycles. These solitary, ground nesting bee species assist in pollinating and cross pollinating of several vernal pool plants (Thorp and Leong 1998).

For more information on vernal pool ecology and the species that inhabit them, see the August 6, 2003, final designation of critical habitat for the four vernal pool crustaceans and the eleven vernal pool plants (68 FR 46684) and the individual listing rules for each species (43 FR 44810; 57 FR 24192; 59 FR 48186; 62 FR 14338; 62 FR 34029).

Previous Federal Actions

In January 2004, the Butte Environmental Council and several other organizations filed a complaint alleging that we: (1) Violated both the Act, and the Administrative Procedure Act (APA) by excluding nearly 1 million ac (405,000 ha) from the final designation of critical habitat for the 15 vernal pool species; (2) violated mandatory notice-and-comment requirements under the Act and APA; and (3) engaged in an unlawful pattern, practice, and policy by failing to properly consider the economic impacts of designating critical habitat. On October 28, 2004, the court signed a Memorandum and Order in that case remanding the final designation to the Service in part. In particular, the court ordered us to: (1) Reconsider the exclusions from the final designation of critical habitat for the 15 vernal pool species, with the exception of those lands within the five California counties that were excluded based on potential economic impacts, and publish a new final determination as to those lands within 120 days; and (2) reconsider the exclusion of the five California counties based on potential economic impacts and publish a new final determination no later than July 31, 2005. The court did not alter the August 6, 2003, final lands designated as critical habitat.

In order to comply with the court order, on December 28, 2004, the Service reopened the comment period on the designation for 30 days (69 FR 77700); to solicit any new information concerning the benefits of excluding and including the lands excluded from the final rule pursuant to section 4(b)(2) of the Act on the basis of non-economic considerations. The final non-economic exclusions were published in a **Federal Register** notice on March 8, 2005 (70 FR 11140). On June 30, 2005, a Notice of Availability of the draft Economic Analysis was published (70 FR 37739) and the public comment period reopened for 20 days on the designation to solicit any new information concerning the benefits of excluding. This final rule addresses the second requirement of the remand: The reconsideration of those lands within the five California counties; Butte, Madera, Merced, Sacramento, and Solano, that were excluded based on potential economic impacts for the 15 vernal pool species, incorporates the non-economic exclusions (70 FR 11140), and finalizes the designation of critical habitat for the 4 vernal pool crustaceans and 11 vernal pool plants in California and Southern Oregon.

Summary of Comments and Recommendations

We requested written comments from the public on the proposed designation of critical habitat for the 15 vernal pool species in the proposed rule published on September 24, 2002, (67 FR 59883) and subsequent **Federal Register** notices concerning the 15 vernal pool species (67 FR 70201 and 68 FR 12336). We requested all interested parties to submit comments on the specifics of the proposal, including information related to the critical habitat designation, unit boundaries, species occurrence information and distribution, land use designations that may affect critical habitat, potential economic effects of the proposed designation, benefits associated with critical habitat designation, potential exclusions and the associated rationale for the exclusions, and methods used to designate critical habitat.

In the December 28, 2004, reopening of public comment period for noneconomic exclusions related to critical habitat designation (69 FR 77700), we requested all interested parties to submit comments on the specifics of the proposal, including information related to amount and distribution of habitat, essential habitat, rationale for including or excluding habitat, benefits associated with including or excluding critical habitat designation, current or planned activities on proposed critical habitat, and public participation in designating critical habitat.

We contacted all appropriate State and Federal agencies, county governments, elected officials, and other interested parties and invited them to comment. This was accomplished through telephone calls, letters, and news releases faxed and/or mailed to affected elected officials, media outlets, local jurisdictions, interest groups and other interested individuals. In addition, we invited public comment through the publication of legal notices in numerous newspaper and news media throughout California and Oregon. In 2002, we provided notification of the DEA and proposed rule to all interested parties. At the request of Congressman Cardoza's Office, the Merced County Board of Supervisors, and the Stanislaus County Board of Supervisors, we held two public meetings to explain the December 28, 2004, **Federal Register** notice regarding the noneconomic exclusions to the public and requested that they provide comments. We provided contacts where they could direct questions regarding the proposed designation. We also posted the associated material on our Sacramento Fish and Wildlife Office Internet site following the publication on December 28, 2004. Additionally, we made available to the public upon request individual maps of the noneconomic exclusions.

On June 30, 2005, a Notice of Availability of the revised draft economic analysis was published (70 FR 37739) and the public comment period reopened for 20 days. We asked specifically for comments on the following: (1) Assumptions reflected in the economic analysis regarding land use practices and current, planned, or reasonably foreseeable activities in the subject areas, including comments or information relating to the potential effects that the designation could have on private landowners as a result of actual or foreseeable State and local government responses due to the California Environmental Quality Act; (2) Land use practices and current, planned, or foreseeable activities in the subject areas and their possible impacts on proposed critical habitats; (3) Foreseeable economic or other impacts resulting from the proposed designation of these critical habitats, including impacts that may not have been addressed in the draft economic analysis and, in particular, any impacts on small entities or families; (4) Economic and other values associated with designating critical habitat for these species; (5) Whether our approach to critical habitat designation could be improved or modified in any way to provide for greater public participation and understanding, or to assist us in accommodating public concern and comments; (6) The draft economic analysis noted that approximately 80 percent of the total costs are represented by 25 percent of the critical habitat. We identified that we were considering excluding those areas, which were identified in Table IV–4 of the draft economic analysis as the 20 highest cost areas based on FIPS, and requested comment as to whether the Secretary should exclude these areas based on the benefits associated with exclusion or inclusion of these areas in the final critical habitat which have not already been identified. The basis of the proposed exclusion that was being considered is purely economic; (7) Whether the Secretary exclude the 35 highest cost areas based on the figures in Table IV–4 of the draft economic analysis and what are the benefits of exclusion or inclusion of these areas?; (8) Whether the Secretary exclude the 50 highest cost areas based on the

figures in Table IV–4 of the draft economic analysis and what are the benefits of exclusion or inclusion of these areas?; (9) Table IV–2 of the draft economic analysis details increases in the costs per home related to this critical habitat designation. In addition to any other exclusions, the Secretary considered excluding any areas identified as experiencing a per-home increase in excess of $3,000 from the designation of critical habitat; and requested commenters to identify any benefits related to the exclusion or inclusion of those areas; (10) Queried commenters on whether there any benefits or costs of the proposed designation that the draft economic analysis failed to capture?; and requested commenters to provide as much information as possible related to any costs or benefits that were not identified; and (11) Queried whether our approach to critical habitat designation could be improved or modified in any way to provide for greater public participation and understanding, or to assist us in accommodating public concern and comments.

We conducted outreach on the Notice of Availability for the draft economic analysis and re-opening of the public comment period on the proposed designation by contacting Federal, State and County government representatives, local news media, and interested parties who participated or had involvement in the original designation process. The information regarding the draft economic Analysis and other information and outreach materials were posted on the Sacramento Fish and Wildlife Office Web site and made available via the Internet at *http://sacramento.fws.gov/*.

We received a total of 972 comment letters during the first four comment periods, and 70 during the most recent comment period, which ended on July 20, 2005. Comments were received from Federal, Tribal, State and local agencies, and private organizations and individuals. Similar comments were grouped into several general issue categories relating specifically to the proposed critical habitat determination, the proposed exclusions, and the draft economic analysis, and are identified below. For a review of the 972 comment letters received during previous comment periods, and how these were either addressed or responded to, please refer to the our final designation of critical habitat for these species published on August 6, 2003 (68 FR 46683) and our re-evaluation of non-economic exclusions published on March 8, 2005 (70 FR 11140).

Of the 71 comment letters received during our most recent, 20-day public comment period, 18 letters contained comments of a biological nature that did not relate to the draft economic analysis or to economic issues related to the critical habitat designation. Nearly all of the letters received contained some comments relating to economic issues. We received comments from private landowners, private conservation organizations, development and investment companies, City and County governmental bodies, chambers of commerce, members of congress, and concerned citizens. We reviewed all comments received for substantive issues and new information regarding the vernal pool plants and vernal pool crustaceans. Similar comments were grouped into general issue categories relating specifically to the proposed critical habitat determination and the DEA and are identified below.

Peer Review

The proposed designation of critical habitat for the 15 vernal pool species was peer reviewed by six biologists who have knowledge of vernal pool ecosystems and the 15 species addressed in this rule. Two of the reviewers strongly endorsed the approach in the proposal that protecting vernal pools in the context of surrounding upland watersheds is crucial for the conservation and long-term survival of the listed vernal pool species, and stated that the rule placed appropriate emphasis on protecting intact vernal pool complexes. The reviewers also cited the importance of conserving a wide range of vernal pool habitat types and biological diversity. For a discussion of the peer review of vernal pool critical habitat designation, please refer to our August 6, 2003, final designation (68 FR 46683).

Comments From States

Section 4(i) of the Act states, ''the Secretary shall submit to the State agency a written justification for [her] failure to adopt regulations consistent with the agency's comments or petition.'' Comments previously received from State agencies regarding the September 24, 2002, proposal to designate critical habitat for the 15 vernal pool species (67 FR 59983) are discussed in the August 6, 2003, final designation (68 FR 46683). There were no State agency comments received during the December 28, 2004, reopening of public comment period (69 FR 77700), and no State agency comments were received as part of the 20-day public comment period on the draft economic analysis that ended on July 20, 2005 (70 FR 37739).

Other Public Comments and Responses

Comments Related to the Designation Process

Comment 1: Two commenters pointed out that the 20-day public comment period was too short and did not meet the 60-day standard established by Executive Order 12866.

Our Response: Pursuant to our implementing regulations at 50 CFR 424.16(c)(2), we are required to provide at least a 60-day public comment period on any proposal to list, delist, or reclassify a species, or designate or revise critical habitat. On August 6, 2003, we finalized critical habitat for these 15 vernal pool species. As part of the process of that rulemaking we had an initial 60-day public comment period on our proposal of critical habitat (70 FR 37739), which was extended an additional 28 days. On November 21, 2002, during this public comment period, a draft economic analysis of that proposal was released with 32 days left in the public comment period (67 FR 70201). On March 14, 2003, the public comment period for the draft economic analysis was reopened for an additional 14 days (68 FR 12336). In addition, on December 28, 2004, we opened a 30-day public comment period (69 FR 77700) on the non-economic exclusions that were included in our August 6, 2003, final rule (68 FR 46683). As such, we believe that our original designation was in compliance with our implementing regulations.

In January 2004, the Butte Environmental Council and several other organizations filed a complaint alleging that our designation of critical habitat for the 15 vernal pool species was unlawful. On October 28, 2004, the court signed a Memorandum and Order in that case remanding the final designation to the Service in part. In particular, the court ordered us to: (1) Reconsider the exclusions from the final designation of critical habitat for the 15 vernal pool species, with the exception of those lands within the five California counties that were excluded based on potential economic impacts, and publish a new final determination as to those lands within 120 days; and (2) reconsider the exclusion of the five California counties based on potential economic impacts and publish a new final determination no later than July 31, 2005. The court did not alter the August 6, 2003, final lands designated as critical habitat. A part of this reconsideration process, we reopened the public comment period for 30 days

(69 FR 77700); to solicit any new information concerning the benefits of excluding and including the lands excluded from the final rule pursuant to section 4(b)(2) of the Act on the basis of non-economic considerations. The final non-economic exclusions were published in a Federal Register notice on March 8, 2005 (70 FR 11140). On June 30, 2005, a Notice of Availability of the draft Economic Analysis was published (70 FR 37739) and the public comment period reopened for 20 days on the designation to solicit any new information concerning the benefits of excluding. The public comment period on the revised economic analysis was limited to 20 days due to the court ordered time frame to publish our final determination.

However, we believe that having the public comment period on the previous proposal for a total of 132 days and on our reconsideration of the exclusions in the previous final designation for an additional 50 days is consistent with our regulations at 50 CFR 424.16(c)(2).

Comment 2: One comment letter asserted the PCEs are so general and vague that it would be difficult to identify if one was in an area containing PCEs, and that the PCEs as written, violate the Alameda whipsnake standard as defined in *Home Builders Ass'n of Northern Cal.* v. *U.S. Fish and Wildlife Serv.* (268 F. Supp. 2d).

Our Response: The two PCEs contained in the final rule for the four crustacean species have been expanded to four PCEs in an effort to more effectively describe critical habitat and to meet the standard identified in *Home Builders Ass'n of Northern California.* The 11 plant species have two PCEs which have been refined to better describe the characteristics that describe their habitat. These PCEs have been developed using the best available scientific information on the characteristics the species need to survive and reproduce. See the ''Primary Constituent Elements'' section below for a complete description of the PCEs for each species addressed by this rule.

Comment 3: On commenter asserted that any designations issued prior to the August 6, 2004, ruling in the *Gifford Pinchot Task Force et al.* v. *USFWS* case (378 F.3d 1059, 1070 (Ninth Cir. 2004)) have not properly accounted for the resulting recovery standard and mitigation requirements and that we should withdraw the designation and reconsider the economic impacts.

Our Response: This designation of critical habitat, and associated exclusions, for the 15 species is the result of a reevaluation of essential habitat for the species throughout their range, and not just the five counties excluded in the original rule designating critical habitat. In the course of establishing this designation, we have taken into account the direction provided by the Ninth Circuit in *Gifford Pinchot.*

Comment 4: One commenter provided a lengthy legal analysis of our approach to combining the costs of listing actions with critical habitat designations, and found our approach unsatisfactory in light of a District of Columbia District Court Decision (*Cape Hatteras,* 344 F. Supp. 2d).

Our Response: In conducting economic analyses, we are guided by the 10th Circuit Court of Appeal's ruling in the New Mexico Cattle Growers Association case (248 F.3d at 1285), which directed us to consider all impacts, ''regardless of whether those impacts are attributable co-extensively to other causes.'' The draft economic analysis estimates the total cost of species conservation activities without subtracting the impact of pre-existing baseline regulations (*i.e.,* the cost estimates are fully co-extensive). By identifying the total costs attributable to listing, including the designation of critical habitat, the draft economic analysis complies with direction from the U.S. 10th Circuit Court of Appeals.

Comment 5: One commenter suggested that the Secretary of Interior should not have broad discretion to override critical habitat designation decisions that are made by biologists because it opens the door for political manipulation.

Our Response: 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 exclusions outweigh the benefits of specifying such areas as critical habitat as long as those exclusions do not result in the extinction of the listed species. The Congressional Record is clear that Congress contemplated occasions where the Secretary could exclude the entire designation. In addition, the discretion that Congress anticipated would be exercised in section 4(b)(2) of the Act is extremely broad. ''The consideration and weight given to any particular impact is completely within the Secretary's discretion'' (Congressional Research Service 1982).

Comment 6: A commenter has asserted that there may be a conflict of interest, because we have contracted with Dr. David Sunding and CRA International to develop the economic analysis of this designation of critical habitat for the 15 vernal pool species because he previously conducted a study of critical habitat economics funded by the building industry and other commercial interests. The commenter suggests that the use of an economic model originally developed in the course of this study is inappropriate.

Our Response: In asking the court to remand the original rule to the Service, we explicitly acknowledged that additional effort must be made in conducting the economic analysis in order to allow the Secretary to make exclusions on the basis of economics under section 4(b)(2). The economic analysis performed by CRA International used pubic data and information and provided for more specificity in identifying effects than any of our previous economic analyses. We believe that this approach is consistent with the spirit of the Service's representations to the court. In fact, the 4(b)(2) exclusions differ markedly from those included in our original rule. To our knowledge, CRA is the only economic contractor performing this type economic analysis with this degree of precision on a landscape basis.

We do not believe that hiring Dr. David Sunding and CRA International to conduct the economic impact analysis of this critical habitat designation, considering his prior receipt of research funding from the building industry, establishes a conflict of interest. CRA International performed a conflict check prior to initiating work on the current study and no conflicts were discovered. Neither CRA nor Dr. Sunding holds any financial interests that would be benefited as an outcome of the analysis and subsequent critical habitat designation.

Hiring a new firm, CRA, to prepare an independent economic analysis of this proposed regulation serves two purposes. First, it provides a second estimate of overall impacts that can be compared with the cost analysis that supported the 2003 final designation. Second, the new analysis provides additional detail regarding potential costs at sub-county level that was not provided in the 2003 analysis, allowing for a refinement of the 4(b)(2) decision process.

We note that the total impact estimates in the two reports are very similar. In the 2003 analysis, the estimate of the total costs of section 7 consultation related to the vernal pool species was estimated to be $1.4 billion over twenty years. In CRA's analysis,

total impacts are estimated to be $0.9 billion over twenty years. CRA reports impacts that are 65 percent of those in the 2003 study, while considering critical habitat acreage that is 75 percent of the 2003 critical habitat. The main distinction between the studies is that the CRA analysis facilitates a more spatially precise definition of impacts.

Comment 7: One commenter asserted that we violated the Act by failing to distinguish between those designated vernal pool systems that are occupied and those that are not.

Our Response: Each of the critical habitat units may include some areas that are unoccupied by the vernal pool crustaceans and vernal pool plants. ''Unoccupied'' is defined here as an area that contains no hatched vernal pool crustaceans or observed above-ground vernal pool plants, and that is unlikely to contain a viable cyst or seed bank. While section 4(b)(2) of the Act states that critical habitat shall be designated on the basis of the best available scientific data, determining the specific areas that the vernal pool crustaceans or vernal pool plants occupy is difficult because, depending on climatic factors and other natural variations in habitat conditions, the size of the localized area in which aboveground plants or hatched crustaceans appear may fluctuate dramatically from one year to another. In some years, individuals may be observed throughout a large area, and in other years they may be observed in a smaller area or not at all. Because it is logistically difficult to determine how extensive the cyst or seed bank is at any particular site, and because hatched vernal pool crustaceans or above-ground vernal pool plants may or may not be present in all vernal pools within a site every year, we cannot quantify in any meaningful way what proportion of each critical habitat unit may actually be occupied by the vernal pool crustaceans or vernal pool plants at any one time. Due to this difficulty in differentiating between occupied and unoccupied habitat, areas of unoccupied habitat may be interspersed with areas of occupied habitat in each unit.

The inclusion of unoccupied habitat in our critical habitat units reflects the dynamic nature of the habitat and the life history characteristics of the vernal pool crustaceans and vernal pool plants. Unoccupied areas provide areas into which populations might expand, provide connectivity or linkage between groups of organisms within a unit, and support populations of pollinators and seed dispersal organisms. We have designated both occupied and unoccupied areas based on the criteria in the Act and based on our belief that they are in need of special management or protection.

Comments Related to Cooperative Efforts

Comment 8: One commenter believed that this designation would hinder essential voluntary conservation efforts (Habitat Conservation Plan (HCP), Natural Communities Conservation Program (NCCP), etc.), both on-going and in the future.

Our Response: HCPs are one of the most important tools for reconciling land use with the conservation of listed species on non-Federal lands. We anticipate that future HCPs and those in progress within the range of the 15 vernal pool species will include them as a covered species and provide for their long term conservation. We expect that HCPs undertaken by local jurisdictions (*e.g.*, counties and cities) and other parties will identify, protect, and provide appropriate management for those specific lands within the boundaries of the plans that are essential for the long term conservation of the species. If an HCP that addresses the vernal pool species as covered species is ultimately approved, we will reassess the critical habitat boundaries in light of the HCP. If, consistent with available funding and program priorities, we elect to revise this designation, we will do so through a subsequent rulemaking.

The designation of critical habitat should not deter participation in the NCCP or HCP processes. Approvals issued under these processes include assurances of no additional mitigation through the HCP No Surprises regulation (63 FR 8859).

Comment 9: Numerous commenters suggested that we should exclude Placer County because the County is working on an HCP (the Placer County Conservation Plan) that would provide for the protection of the species addressed in this rule. Another commenter suggested that because the Placer Ranch development proposes to protect vernal pools and other wetlands and will mitigate impacts to any aquatic resources that their property should be excluded from this designation.

Our Response: We support and encourage the development of HCPs and conservation plans, and encourage developments to incorporate listed species protections and mitigations into their development plans. HCPs are one of the most important tools for reconciling land use with the conservation of listed species on non-Federal lands. We expect that HCPs undertaken by local jurisdictions (*e.g.*, counties and cities) and other parties will identify, protect, and provide appropriate management for those specific lands within the boundaries of the plans that are essential for the long term conservation of the species.

We do not, however, adjust the designation of critical habitat for listed species based on future planning efforts where the specific protections for listed species are not known and where the public has not yet had the opportunity to comment on those protection measures. If an HCP that addresses the vernal pool species as covered species is ultimately approved, we will reassess the critical habitat boundaries in light of the HCP. If, consistent with available funding and program priorities, we elect to revise this designation, we will do so through a subsequent rulemaking. For the standards needed for an HCP to alter the designation of critical habitat see the ''Application of Section 3(5)(A) and 4(a)(3) and Exclusions Under Section 4(b)(2) of the Act'' section below.

The economic analysis on the critical habitat for the 15 vernal pool species identified Placer County as an area with significant costs associated with the designation of critical habitat for the vernal pool fairy shrimp. As a result of the economic analysis, the Secretary has determined that it is appropriate to exclude the majority of critical habitat in western Placer County from the designation (See Relationship of Critical Habitat to Economic Impacts—Exclusions Under Section 4(b)(2) of the Act).

Comment 10: One commenter asserted that since the Western Riverside County Multi-species HCP (MSHCP) was not mentioned in the conservation efforts section of our D*raft Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* we must have determined that this effort serves no conservation benefit for vernal pool fairy shrimp and, therefore, does not meet the criteria for excluding areas from the critical habitat designation. Another commenter asserted the provisions of the MSHCP are not sufficient to ensure recovery of the vernal pool fairy shrimp.

Our Response: We discussed the conservation benefits of the, then draft, Western Riverside County MSCHP at length in our August 6, 2003, final rule designating critical habitat for the four vernal pool crustaceans and eleven vernal pool plants (68 FR 46683). In that discussion we determined that the proposed efforts, including conservation on approximately 153,000 ac (62,000 ha), were sufficient to warrant excluding Unit 33 for the vernal pool fairy shrimp. The Western Riverside County MSCHP was finalized on June 22, 2004. For a

complete description of our decision on excluding Unit 33 based on the content of the Western Riverside County MSHCP see our August 6, 2003, final rule (68 FR 46683).

Comments Related to the Impacts of Critical Habitat Designation

Comment 11: Designation will threaten the California State University (CSU) Campus development in west Placer County and prevent the development of higher learning opportunities.

Our Response: The area proposed for the development of the CSU Campus in west Placer County is within a census tract that has been excluded from designation of critical habitat on economic grounds under section 4(b)(2) of the Act.

Comment 12: Several commenters requested that we modify the areas proposed for designation as critical habitat either to increase the protections afforded the species or in an effort to better facilitate local long-range planning efforts and reduce economic impacts to private landowners.

Our Response: In developing our proposal of critical habitat for the 15 vernal pool species, we identified those areas that, based on the scientific and commercial data available, we have determined contain essential occurrences of each of the species and/or are defined by the physical and biological features essential to their conservation. We used a number of criteria in defining critical habitat including, but not limited to, the known species occurrence and distribution data, habitat types, degree of habitat fragmentation, soil and landform relationships, connectivity and dispersal factors, and conservation biology principles. After refining our proposal and weighing the best available information, we conclude that the areas designated by this final rule, including currently occupied and unoccupied areas, are essential for the conservation of these species.

We also excluded lands from the final designation that may contain vernal pool habitat, the vernal pool species, and the Primary Constituent Elements (PCEs), but that we determined to not be essential to the conservation of the vernal pool crustaceans and vernal pool plants. We believe that we used the best scientific and commercial information available in determined those areas essential for the 15 vernal pool species that were proposed as critical habitat and subsequently finalized.

Comments Related to Information Quality

Comment 13: One commenter requested that we incorporate the results of Dr. Bob Holland's biogeographical research project, as presented at the Western Section of the Wildlife Society meetings, into the designation process.

Our Response: It is the goal of the Service to utilize the most recent scientific information available. In developing critical habitat designations, we analyze all pertinent scientific and commercial information available to make our final determinations. In the development of this designation, we contacted numerous species experts and other members of the scientific community, including Dr. Holland.

Comment 14: Two letters commented that while 2,213 ac (896 ha) of the Placer Ranch development were designated as critical habitat, only 7 ac (~3 ha) are actually classified as vernal pools and that designating all these acres violates the Act.

Our Response: Placer Ranch has been excluded from this final rule designation. For a more detailed discussion, please see the section ''Relationship of Critical Habitat to Economic Impacts—Exclusions Under Section 4(b)(2) of the Act'' below.

Comment 15: Another commenter requested that poor quality vernal pool systems and those designated areas lacking the PCEs be excluded from the designation.

Our Response: Poor quality vernal pool systems are not necessarily void of listed vernal pool crustaceans or plants, and are candidates for active restoration projects. In designating critical habitat, we have considered how this designation highlights habitat that needs special management considerations or protection and helps ensure that all local habitat conservation planning efforts are consistent with conservation objectives for these species. Once a vernal pool habitat has been protected from direct filling, it is still necessary to ensure that the habitat is not rendered unsuitable for vernal pool species because of factors such as altered hydrology, contamination, nonnative species invasions, other incompatible land uses or neglect. Because their condition is already marginalized, degraded habitats are likely to be more vulnerable to these threats than pristine systems and in need of special management actions.

When determining critical habitat boundaries, we made every effort to avoid designating developed areas such as buildings, paved areas, boat ramps and other structures that lack the PCEs for the 15 vernal pool species. Any such structures inadvertently left inside critical habitat boundaries are not considered part of the unit. This also applies to land on which structures sit directly. Therefore, Federal actions limited to these areas would not trigger section 7 consultations, unless they affect the species and/or primary constituent elements in adjacent critical habitat.

Comments Related to Species Viability

Comment 16: One commenter suggested it is essential that the vernal pool systems on Travis Air Force Base (AFB) be designated as critical habitat to ensure the recovery potential of these species.

Our Response: The Act requires that the Secretary of the Interior shall designate or revise critical habitat based upon the best scientific and commercial data available, after taking into consideration the economic impact, impact to national security, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude any area from critical habitat if she determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless the failure to designate such area as critical habitat will result in the extinction of the species concerned. The two AFBs were not eligible for designation through operation of section 4(a)(3)(B) of the Act as they had approved Integrated Natural Resource Management Plans (INRMPs), which provided for the conservation of the species. For a detailed discussion of our noneconomic exclusion analysis used in our final designation of critical habitat for the 15 vernal pool species, please refer to our August 6, 2003, final designation (68 FR 46683) and in the ''Application of Section 3(5)(A) and 4(a)(3) and Exclusions Under Section 4(b)(2) of the Act'' section below.

Comment 17: We received one comment stating that core recovery areas need to be designated as critical habitat in order to ensure that recovery will occur.

Our Response: 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 conservation 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 the conservation of the species. Areas outside the critical habitat designation will continue to be subject to conservation actions that may be

implemented under section 7(a)(1), the regulatory protections afforded by the section 7(a)(2) jeopardy standard, and the applicable 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 should not control the direction and substance of future recovery plans, HCPs, or other species conservation planning efforts if new information available to these planning efforts calls for a different outcome.

Comments Related to Economic Issues

Comment 18: Several commenters stated that the DEA underestimated the delay in project completion resulting from Section 7 consultation.

Our Response: Delay times resulting from section 7 consultation were calculated based on a review of available biological opinions. Delay time was calculated based on the average number of days from submission of a completed application to the date of a final decision. We are provided with 90 days to complete a biological opinion and 45 days to issue the biological opinion to the consulting agency, for a total of 135 days from initiation to issuance (50 CFR 402.14(e)). According to the DEA (CRA International 2005) the average time for completion of a section 7 consultation is 111 days, well within our statutory timeframes.

Comment 19: Several comment letters stated that vernal pool mitigation costs in Sacramento and Placer Counties are higher than the figure used in the DEA.

Our Response: Mitigation costs were derived from a survey of mitigation banks, developers and consultants familiar with the permitting process. We believe that these data represent the best available information on mitigation costs in the affected counties.

Comment 20: One commenter stated that the DEA omits impacts related to the Lincoln Bypass and Placer Parkway projects.

Our Response: Placer County Transportation Planning Authority is in the process of developing the Tier 1 environmental report for the Placer Parkway project. Project alternatives have yet to be finalized but are expected to be mapped by September 2005. The Lincoln Bypass project is more advanced. The EIR document is complete and pending final approval; construction is anticipated to begin within two years.

The Lincoln Bypass project is entirely within Census Tract 06061021303. The Placer Parkway will likely be within Census Tract 06061021301. We note that these tracts are already within the most economically impacted group of census tracts, so inclusion of additional impacts is unlikely to have a meaningful effect on the relative ranking of these tracts.

Comment 21: The Sacramento Area Council of Governments (SACOG) wrote to comment on the population growth figures used in the DEA. The SACOG provided new forecasts that it believes are more applicable than the forecasts used in the DEA.

Our Response: Based on public comments offered by SACOG, Blueprint growth projections to 2025 by census tract were compared with the earlier growth forecasts furnished by SACOG. For the majority of census tracts, the projections were similar and substitution of the Blueprint forecasts would not have a material effect on the relative ranking of impacts by census tract.

We note that the Blueprint forecast differed substantially from earlier SACOG forecasts for Census Tract 06067008701 in Sacramento County. In this instance, the Blueprint forecast indicated that at least 12,000 fewer dwelling units would be constructed by 2025. Even in this case, however, use of the Blueprint data would not have a material effect on the relative ranking of this tract since it would remain the most economically impacted census tract in the sample.

Comment 22: One comment letter noted that the Placer Vineyards Specific Plan straddles two census tracts in Placer County.

Our Response: Since a single development accounts for a significant fraction of growth in this area, segregating impacts by Census Tract may be artificial. Thus, impacts for tracts 06061020902 and 06061021301 are aggregated in the final analysis. We excluded both census tracts from this final rule based on economic impacts. For a more detailed discussion, please see the section ''Relationship of Critical Habitat to Economic Impacts—Exclusions Under Section 4(b)(2) of the Act'' below.

Comment 23: Several comment letters stated that the DEA failed to provide a balanced assessment of economic benefits and costs in relation to the proposed critical habitat designation. One commenter also included a general list of potential benefits that may be associated with the designation of critical habitat and suggested that the Service should include such effects in its economic analysis.

Our Response: Section 4(b)(2) of the Act requires the Secretary to designate critical habitat based on 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. The Service's approach for estimating economic impacts includes both economic efficiency and distributional effects. The measurement of economic efficiency is based on the concept of opportunity costs, which reflects the value of goods and services foregone in order to comply with the effects of the designation (*e.g.*, lost economic opportunity associated with restrictions on land use). Where data are available, the economic analyses attempt to measure the net economic impact. However, no data were found that allowed for the measurement of such an impact, nor was such information submitted during the public comment period.

Most of the other benefit categories submitted by the commenter reflect broader social values, which are not the same as economic impacts. While the Secretary must consider economic and other relevant impacts as part of the final decision-making process under section 4(b)(2) of the Act, the Act explicitly states that it is the government's policy to conserve all threatened and endangered species and the ecosystems upon which they depend. Thus the Service believes that explicit consideration of broader social values for the species and its habitat, beyond the more traditionally defined economic impacts, is not necessary as Congress has already recognized the social importance of such benefits through the protections of the Act.

The Service notes that as a practical matter, it is difficult to develop credible estimates of such values as they are not readily observed through typical market transactions. The Secretary places the utmost value on conserving any and all threatened and endangered species and the habitats upon which they depend and thus considers whether the economic impacts (both positive and negative) are significant enough to merit exclusion of any particular area. In the case of this rule, the Secretary made the determination that the economic benefits of exclusion exceeded the benefit of inclusion in only 23 of 158 affected census tracts. This effectively recognizes the benefits of including areas beyond the minimum necessary to avoid extinction, despite significant economic costs.

Comment 24: Impacts relating to construction of UC Merced are assigned to the wrong Census tract.

Our Response: Impacts relating to conservation of vernal pools at the site of UC Merced are assigned to Census Tract 06047001901, which is the proper tract.

Comment 25: Several comments questioned the appropriateness of the impact methodology used to measure costs of critical habitat.

Our Response: The report was peer reviewed by two leading academics in the field of urban economics. Comments were strongly supportive of the method developed by Dr. Sunding and CRA, the data sources employed, and the assumptions underlying the analysis. Both reviewers noted that the method was consistent with generally accepted principles in urban economics, with one reviewer concluding that ''the results are credible and it is hard to see how the remaining uncertainties about the economic impacts of the regulations could be resolved by further or more sophisticated analyses.''

For information on previous public comments received refer to the August 6, 2003 final designation of critical habitat for the 15 vernal pool species (68 FR 46684) and the March 8, 2005 (70 FR 11140) final notice concerning the non-economic exclusions.

Summary of Changes From Proposed Rule

In developing the final designation of critical habitat for the 4 vernal pool crustaceans and 11 plants, we reviewed public comments received on the proposed designation of critical habitat published on September 24, 2004 (67 FR 59884), and during reopened comment periods on non-economic exclusions (December 28, 2004; 69 FR 77700) and on the second draft economic analysis (March 8, 2005; 70 FR 11140). In addition, we conducted further evaluation of lands proposed as critical habitat; refined our mapping methodologies; and exempted or excluded additional essential habitat from the final designation.

Specifically, we are making the following changes to the final rule from the proposed rule published on September 24, 2002: We mapped critical habitat more precisely by eliminating habitat areas that did not contain the PCEs based on specific information provided by commenters or by updated remote sensing data. Although we attempted to remove as many developed areas (areas that have no value as vernal pool habitat) as possible before publishing the proposed rule, we were not able to eliminate all developed areas. Since publication of the proposed rule, we were able to further eliminate a small amount of developed area, which has resulted in a more precise delineation of essential habitat containing one or more of the primary constituent elements. This resulted in a minor reduction in the total acreage published in the proposed rule. However, it is not possible to remove each and every one of these developed areas even at the refined mapping scale used: therefore, the maps of the designation still include areas that do not contain primary constituent elements. These areas are not being designated as critical habitat. Most of the units received some refinement, and a few were divided into subunits.

The common name for the species *Castilleja campestris* ssp. *succulenta* was changed in the final rule (from succulent owl's-clover to fleshy owl's-clover) to reflect the name used under the listing of the species (62 FR 14338). This was done to avoid confusion between the species' listing and the designation of critical habitat for it.

We exempted lands administered by the Department of Defense on Beale Air Force Base and Travis Air Force Base under section 4(a)(3)(B) of the Act (70 FR 11140). Lands we considered, but excluded from the final designation under section 4(b)(2) of the Act for noneconomic reasons included (1) lands administered by the U.S. Fish and Wildlife Service on the Kern, Sacramento, San Francisco Bay, and San Luis National Wildlife Refuges and the Colman National Fish Hatchery (70 FR 11140 and 68 FR 46684) (2) 16,033 ac (6,488 ha) of lands administered by the Bureau of Land Management within the Carrizo Plain National Monument (see Effects of Critical Habitat section below); (3) land owned and managed by the Mechoopda Tribe (70 FR 11140 and 68 FR 46684); (4) lands administered by Department of Defense at Fort Hunter Liggett and Camp Roberts (70 FR 11140 and 68 FR 46684) (5) lands owned and managed by the California Department of Fish and Game within the Battle Creek, Big Sandy, Grizzly Island, Hill Slough, North Grasslands, and Oroville Wildlife Areas, and within the Allensworth, Boggs Lake, Butte Creek Canyon, Calhoun Cut, Carrizo Plains, Dales Lake, Fagan Marsh, Phoenix Field, San Joaquin River, Stone Corral, and Thomes Creek Ecological Reserves (70 FR 11140 and 68 FR 46684); and (4) lands within the Skunk Hollow HCP, the Western Riverside Multiple Species HCP, Santa Rosa Plateau Ecological Reserve, and San Joaquin Multiple Species Conservation Plan (70 FR 11140 and 68 FR 46684). We excluded an additional 358,699 ac (145,160 ha) of land in 23 census tracts under section 4(b)(2) of the Act for economic reasons (see Table 2 and ''Application of Section 3(5)(A) and 4(a)(3) and Exclusions Under Section 4(b)(2) of the Act'' below).

We revised the primary constituent elements (PCEs) for all species to bring them into conformance with current guidance to more clearly define essential features. The new PCEs are described below in the Primary Constituent Elements section.

Critical Habitat

Critical habitat is defined in section 3 of the Act as—(i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. ''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. Because we previously designated critical habitat for these 15 vernal pool species, we already determined that critical habitat pursuant to the Act and implementing regulations was both prudent and determinable (refer to our September 24, 2002, proposal (67 FR 59983))

Critical habitat receives protection under section 7 of the Act through the prohibition against destruction or adverse modification of such habitat with regard to actions carried out, funded, or authorized by a Federal agency. Section 7 requires consultation on Federal actions that are likely to adversely affect critical habitat. However, the Act prohibits unauthorized take of listed species and requires authorization under either section 7 or section 10 of the Act for actions that are likely to result in take, including habitat alterations in some instances, regardless of whether critical habitat has been designated. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow government or public access to private lands.

To be included in a critical habitat designation, the habitat within the area occupied by the species must first have

features that are ''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 on which are found those physical and biological features essential to the conservation of the species (primary constituent elements), as defined at 50 Code of Federal Regulations (CFR) 424.12(b)).

Habitat occupied at the time of listing may be included in critical habitat only if the essential features thereon may require special management or protection. Thus, we do not include areas where existing management is sufficient to conserve the species. (As discussed below, such areas may also be excluded from critical habitat pursuant to section 4(b)(2).) Accordingly, when the best available scientific and commercial data do not demonstrate that the conservation needs of the species so require, we will not designate critical habitat in areas outside the geographic area occupied by the species at the time of listing. An area currently occupied by the species but was not known to be occupied at the time of listing will likely be essential to the conservation of the species and, therefore, included in the critical habitat designation.

The Service's Policy on Information Standards Under the Endangered Species Act, published in the **Federal Register** on July 1, 1994 (59 FR 34271), and Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law (Pub. L.) 106–554; H.R. 5658) and the associated Information Quality Guidelines issued by the Service, provide criteria, establish procedures, and provide guidance to ensure that decisions made by the Service represent the best scientific and commercial data available. They require Service 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 habitats, a primary source of information is generally the listing package for the species. Additional information sources include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, or other unpublished materials and expert opinion or personal knowledge. All information is used in accordance with the provisions of Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658) and the associated Information Quality Guidelines issued by the Service.

Section 4 of the Act requires that we designate critical habitat on the basis of what we know at the time of designation. Habitat is often dynamic, and species 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 populations, but are outside the critical habitat designation, will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act and to the regulatory protections afforded by the section 7(a)(2) jeopardy standard, as determined on the basis of the best available information at the time of the action. Federally funded or permitted 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

As required by sections 4(b)(1)(a) and 4(b)(2) of the Act and regulations at 50 CFR 424.12, we are to use the best scientific and commercial data available to determine areas that contain the physical and biological features essential for the conservation of the 15 vernal pool species. This included data and information contained in, but not limited to, the final rule listing the 15 species addressed herein, the Vernal Pools of Southern California Final Recovery Plan (USFWS 1998), the Delta Green Ground Beetle and Solano Grass Recovery Plan (USFWS 1985), the California Vernal Pool Assessment Preliminary Report (Keeler-Wolf 1998), Report of Science Advisors for the Eastern Merced County Natural Community Conservation Plan Habitat Conservation Plan (Noss *et al.* 2002a), research and survey observations published in peer reviewed articles, vernal pool mapping and other data collected for the development of Habitat Conservation Plans (HCPs), reports submitted by biologists holding section 10(a)(1)(A) recovery permits, biological assessments provided to us through consultations pursuant to section 7 of the Act, data collected for the development of a Wetland Conservation Plan in Oregon, reports and documents that are on file in our field offices, and personal discussions with experts outside of our agency with extensive knowledge of vernal pool species and habitats. ArcView (Environmental Systems Research Institute, Inc.), a computer Geographic Information System (GIS) program was then used to evaluate GIS data derived from a variety of Federal, State, and local agencies, and from private organizations and individuals.

We then evaluated the areas, using ArcView, defined by the overlap of the combined GIS coverages (data layers) to initially focus on which areas may provide those physical and biological features essential to the conservation of the 15 vernal pool species. The areas were further refined by using satellite imagery, watershed boundaries, geologic landform coverage, elevational modeling data, soil type coverage, vegetation/land cover data, and agricultural/urban land use data to eliminate areas that did not contain the appropriate vegetation or associated native plant species, as well as features such as cultivated agriculture fields, housing developments, and other areas that are unlikely to contribute to the conservation of the 15 vernal pool species. Several tools were used to assist us in delineating the specific areas that we believed to contain the primary constituent elements (PCEs) for each species and therefore essential to the species' conservation.

We excluded areas that do not contain one or more of the PCEs or were not essential for the conservation of the vernal pool species because: (1) The area is highly degraded and may not be restorable; (2) the area is small, highly fragmented, or isolated, and may provide little or no long-term conservation value; or (3) the area is excluded under section 4(b)(2) of the Act for national security, economic or other reasons (See ''Application of Section 3(5)(A) and 4(a)(3) and Exclusions Under Section 4(b)(2) of the Act'').

For further discussion and details of the methods used to define and delineate critical habitat for the 15 vernal pool species please refer to the **Federal Register** notice on August 6, 2003, final designation (68 FR 46683).

Primary Constituent Elements

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to propose as critical habitat, we are required to base critical habitat determinations on the best scientific and commercial data available and to consider those physical and biological features (PCEs) that are essential to the conservation of the species, and that may require special management considerations and 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 breeding, reproduction, and rearing (or development) of offspring; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

The specific characteristics of the vernal pool habitats that constitute critical habitat vary among species, and are described in the species-specific narratives below. These features contribute to the filling and drying of the vernal pool, maintain suitable periods of pool inundation, and maintain water quality and soil moisture to enable the 15 vernal pool species to carry out their lifecycles. These features include, but are not restricted to, the restrictive underlying soil layers (hardpans, claypans, volcanic flows, and non-volcanic rock) that perch water for extended periods of time, the surface soils associated with each species, and the topography that captures and delivers water to the vernal pools themselves, all of which vary by species.

We have used vernal pool complexes as the basis for determining populations of vernal pool crustaceans since the species were first proposed for listing. The final rule to list the four vernal pool crustaceans states that ''[t]he genetic characteristics of the three fairy shrimp and vernal pool tadpole shrimp, as well as ecological conditions, such as watershed contiguity, indicate that populations of these animals are defined by pool complexes rather than by individual vernal pools'' (Fugate 1992, 1998; King 1996). Therefore, the most accurate indication of the distribution and abundance of the four vernal pool crustaceans is the number of inhabited vernal pool complexes. Individual vernal pools occupied by the four species listed herein are most appropriately referred to as ''subpopulations'' (59 FR 48136).

Each of the critical habitat units likely includes some areas that are unoccupied by the vernal pool crustaceans and vernal pool plants. ''Unoccupied'' is defined here as an area that contains no hatched vernal pool crustaceans or observed above-ground vernal pool plants, and that is unlikely to contain a viable cyst or seed bank. Determining the specific areas that the vernal pool crustaceans or vernal pool plants occupy is difficult because, depending on climatic factors and other natural variations in habitat conditions, the size of the localized area in which aboveground plants or hatched crustaceans appear may fluctuate dramatically from one year to another. In some years, individuals may be observed throughout a large area, and in other years they may be observed in a smaller area or not at all. Because it is logistically difficult to determine how extensive the cyst or seed bank is at any particular site, and because hatched vernal pool crustaceans or above-ground vernal pool plants may or may not be present in all vernal pools within a site every year, we cannot quantify in any meaningful way what proportion of each critical habitat unit may actually be occupied by the vernal pool crustaceans or vernal pool plants at any one time. Therefore, areas of unoccupied habitat are probably interspersed with areas of occupied habitat in each unit. The inclusion of unoccupied habitat in our critical habitat units reflects the dynamic nature of the habitat and the life history characteristics of the vernal pool crustaceans and vernal pool plants.

The PCEs described for each species do not have to occur simultaneously within a unit for the unit to constitute critical habitat for any of the 15 vernal pool species. We determined the PCEs of critical habitat for the 15 species based on studies on their habitat and population biology, including but not limited to Kalin-Arroyo (1973); Ellias (1986); Corbin and Schoolcraft (1989); Jokerst (1989); Eng *et al.* (1990); Alexander and Schlising (1997); Helm (1998); Witham (1998); Eriksen and Belk (1999); Grosberg (2002). Additional information on species-specific PCEs is outlined below. For further discussion and details on the life history requirements of the 15 vernal pool species please refer back to the **Federal Register** notice on August 6, 2003, final designation (68 FR 46684) and the individual listing rules for each species (43 FR 44810; 57 FR 24192; 59 FR 48186; 62 FR 14338; 62 FR 34029).

Primary Constituent Elements for the Conservancy Fairy Shrimp

Most occurrences of Conservancy fairy shrimp are limited to large clay-bottomed pools that are rare within the vernal pool landscapes within California (Vollmar 2002). Helm (1998) observed that most Conservancy fairy shrimp occurrences were on Anita, Pescadero, or Peters Clay soils. Conservancy fairy shrimp are typically found in turbid and large (1 to 2 ac (0.4 ha to 0.8 ha)) to very large (88 ac (35 ha)) vernal pools (Helm and Vollmar 2002). However, the pools inhabited by conservancy fairy shrimp near the Montezuma Hills in Solano County and in Butte County are relatively small and have a low turbidity (Vollmar 2002). The species is found in large playa pools on Tuscan or Mehrten geologic formations and on Basin Rim landforms in Tehama, Merced, and Solano Counties (Helm 1998) on various soil types. The parent material of vernal pools greatly influences species composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998; Smith and Verrill 1998). Soils beneath vernal pools are extremely variable and are not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions that vary by location (Holland and Dain 1990). The Vina Plains area in Tehama County supports occurrences of the conservancy fairy shrimp within numerous large pools throughout the area (Eriksen and Belk 1999; Helm 1998; Helm and Vollmar 2002). The pools in the Sacramento National Wildlife Refuge area in Glenn and Colusa Counties as well as in parts of the San Luis National Refuge Complex in Merced County are associated with alkaline sink areas and tend to be higher in pH and salinity than in other pools where the species is found. The PCEs of critical habitat for Conservancy fairy shrimp are the habitat components that provide:

(i) Topographic features characterized by mounds and swales, and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 19 days (Helm 1998), in all but the driest years; thereby providing adequate water for incubation, maturation, and

reproduction. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(iii) Sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding.

(iv) Structure within the pools described in PCE (ii), consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

Primary Constituent Elements for the Longhorn Fairy Shrimp

Longhorn fairy shrimp occurrences are highly disjunct and scarce within the geographic range in which they occur. There are fewer areas in which this species is known to occur than any other listed vernal pool crustacean. The specific pool characteristics that determine suitability for longhorn fairy shrimp reproduction and growth are not well understood. We identified critical habitat areas essential to the conservation of longhorn fairy shrimp in three areas in which it is known to occur. In determining areas that are essential to conserve longhorn fairy shrimp, we used the best scientific and commercial data available. Longhorn fairy shrimp occurrences are known from Contra Costa County to San Luis Obispo County with an elevational variation of near 50 ft (15 m) to near 2,000 ft (600 m). A broad distribution of longhorn fairy shrimp across its geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of the species range. The vernal pool types and soils associated with the three general areas of concentration of longhorn fairy shrimp differ greatly across the geographic range of the species and leads to different species compositions and environmental conditions between longhorn fairy shrimp occurrences. Providing for a mosaic of habitat types both between and among vernal pool species is essential because it would include the full extent of the physical and environmental conditions for the species (Fugate 1992; Fugate 1998; Gonzales *et al.* 1996; Ikeda and Schlising 1990; Noss *et al.* 2002a, Platenkamp 1998; Zedler *et al.* 1979). The Altamont Pass subunits (unit 1A and B) support occurrences of the species within clear depression pools in sandstone outcrops (Eriksen and Belk 1999; East Bay Regional Parks District (EBRPD) 2001; CNDDB 2002). Midway in the species' range, the alkaline pools supporting longhorn fairy shrimp are found on Edminster loam and Turlock sandy loam. In the species' southern range, they are found on shallow alkaline Northern Claypan type vernal pools within a valley saltbush scrub matrix. The parent material of vernal pools greatly influences species composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998; Holland and Jain 1981, 1988). Soils beneath vernal pools are extremely variable and are often not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions which vary upon location (Holland and Dain 1990). The PCEs of critical habitat for longhorn fairy shrimp are the habitat components that provide:

(i) Topographic features characterized by mounds and swales, and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 23 days (Helm 1998), in all but the driest years; thereby providing adequate water for incubation, maturation, and reproduction. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(iii) Sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding.

(iv) Structure within the pools described in PCE (ii), consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

Primary Constituent Elements for the Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp are distributed across a large geographic range from southern Oregon to southern California (Eriksen and Belk 1999). Although the habitat of vernal pool fairy shrimp is highly fragmented and occurrences are isolated from each other by varying degrees across the species' range, the distribution of remaining extant occurrences is somewhat evenly spread throughout its range. Vernal pool fairy shrimp occur in a wide variety of habitat types from the Agate Desert area in southern Oregon, to throughout the Sacramento and San Joaquin valleys, the central Coast Range, and into Riverside County, California. Although some of the habitat characteristics of the species are known, specific pool characteristics that determine suitability for vernal pool fairy shrimp hatching, growth, and reproduction are not well understood. Vernal pool fairy shrimp occurrences are known to occur in eight general areas of concentration on basin rim, low terrace, high terrace, volcanic mudflow, valley floor, alkaline playa, and coastal mountain landforms. The elevational differences in the distribution of vernal pool fairy shrimp range from near 25 ft (8 m) in the Central and Sacramento Valleys to near 500 ft (150 m) in Shasta County. A broad distribution of vernal pool fairy shrimp across its geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of the species' range.

The vernal pool types and soils associated with the eight general areas of concentration of vernal pool fairy shrimp differ greatly across the geographic range of the species and lead to different species compositions and ecological conditions between vernal pool fairy shrimp occurrences. Providing for a mosaic of habitat types both between and among vernal pool species is essential because it would include the full extent of the physical and environmental conditions for the species (Barclay and Knight 1984; Bauder and McMillan 1998; Fugate 1992, 1998; Gonzales *et al.* 1996; Noss *et al.* 2002a; Noss *et al.* 2002b; Platenkamp 1998; Zedler *et al.* 1979).

Vernal pool fairy shrimp are usually found in vernal pools although they are sometimes found in a range of natural and artificially created ephemeral habitats such as alkali pools, seasonal drainages, stock ponds, vernal swales, and rock outcrops (Vollmar 2002).

Vernal pool fairy shrimp are most frequently found in small (<2,125 ft^2 (<200 m^2)) and shallow (2 in (mean of 5 cm)) pool habitats; however, this species can be found in large (480,967 ft^2 (44,534 m^2)) and very deep (48 in (122 cm)) pool habitats as well (Helm and Vollmar 2002). The landform associations for the vernal pool fairy shrimp include alluvial fans, bedrock, bedrock escarpments, basin rim, floodplain, high terrace, stream terrace, volcanic mudflow, and low terrace formations (Helm 1998). The soils that contain occurrences of vernal pool fairy shrimp in the delineated units vary significantly throughout the species' range. In the north, the rare Northern Mudflow formation underlies vernal pools in Shasta and Tehema Counties. Tehema and Butte Counties contain Northern Basalt Flow vernal pools that are limited to ancient terraces and hilltops that comprise some of the oldest geologic formations in California. Northern Volcanic Mudflow vernal pools are delineated in Butte and Yuba Counties. Throughout the Central Valley, the habitat ranges from high terrace landforms to claypan and hardpan pool types. Northern Basalt Flow vernal pools are found in Fresno County in the low elevation foothills. In the Suisun Marsh area, vernal pool fairy shrimp are found in the saline-alkaline transition zone. The parent material of vernal pools greatly influences species composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998; Holland and Jain 1981, 1988). Soils beneath vernal pools are extremely variable and are not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions which vary upon location (Holland and Dain 1990). The PCEs of critical habitat for vernal pool fairy shrimp are the habitat components that provide:

(i) Topographic features characterized by mounds and swales, and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 18 days (Helm 1998), in all but the driest years; thereby providing adequate water for incubation, maturation, and reproduction. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(iii) Sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding.

(iv) Structure within the pools described in PCE (ii), consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

Oregon

The vernal pool fairy shrimp is the only species addressed in this final rule that occurs in Oregon. Four units in Oregon are designated as essential to the conservation of vernal pool fairy shrimp (there are 29 units in California). The Oregon units occur approximately 125 mi (200 km) north of the nearest unit designated for this species in California. We identified critical habitat areas essential to the conservation of vernal pool fairy shrimp to reflect the species geographic distribution and varying habitat types and species associations across its range. Maintaining vernal pool fairy shrimp across their full geographic distribution would make the species less susceptible to environmental variation or negative impacts associated with human disturbances or natural catastrophic events across the species entire range at any one time (Grosberg 2002, Helm 1998; Hunter 1996, New 1995, Primack 1993; Redford and Richter 1999; Rossum *et al.* 2001).

Primary Constituent Elements for the Vernal Pool Tadpole Shrimp

Vernal pool tadpole shrimp occurrences are known from Shasta County to Tulare County, California, with an elevational variation of near 3 m (10 ft) to near 150 m (500 ft). The vernal pool types and soils associated with areas of concentration of vernal pool tadpole shrimp differ greatly across the geographic range of the species; these differences lead to different species compositions and environmental conditions between vernal pool tadpole shrimp occurrences. Providing for a mosaic of habitat types and conditions both between and among vernal pool species is essential because it would include the full extent of the physical and environmental conditions for the species (Barclay and Knight 1984; Bauder and McMillan 1998; Fugate 1992 and 1998; Gonzales *et al.*1996, Noss *et al.* 2002a, Noss *et al.* 2002b; Platenkamp 1998; Zedler *et al.* 1979). The soils that contain occurrences of vernal pool tadpole shrimp in the delineated units vary significantly throughout the species' range. In the north, the rare Northern Mudflow formation underlies vernal pools in Shasta and Tehema Counties. Tehema and Butte Counties contain Northern Basalt Flow vernal pools that are limited to ancient terraces and hilltops that comprise some of the oldest geologic formations in California. Northern Volcanic Mudflow vernal pools are delineated in Butte and Yuba Counties. Throughout the Central Valley, the habitat ranges from high terrace landforms to claypan and hardpan pool types. Northern Basalt Flow vernal pools are found in Fresno County in the low elevation foothills. In the Suisun Marsh area, vernal pool tadpole shrimp are found in the saline-alkaline transition zone. The parent material of vernal pools greatly influences species composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998; Holland and Jain 1981, 1988). Soils beneath vernal pools are extremely variable and are often not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions which vary upon location (Holland and Dain 1990). The PCEs of critical habitat for vernal pool tadpole shrimp are the habitat components that provide:

(i) Topographic features characterized by mounds and swales, and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 41 days (Helm 1998), in all but the driest years; thereby providing adequate water for incubation, maturation, and reproduction. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(iii) Sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools

themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding.

(iv) Structure within the pools described in PCE (ii), consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

Primary Constituent Elements for the Limnanthes Floccosa ssp. Californica (Butte County Meadowfoam)

Limnanthes floccosa ssp. *californica* is found in four general areas of concentration in a narrow band from south to north of Chico, California. The vernal pool types and soils associated with the four general areas of concentration of *L.f.* ssp. *californica* include those vernal pools on Tuscan formation or terraced-alluvials with mostly Anita, Riverbank, Redbluff, Modesto, and Redding soils. The habitat associated with *L.f.* ssp. *californica* includes saturated soils and pools with a flashy (short lived) inundation period. A vernal pool's parent material greatly influences that pool's species composition and hydrologic functioning (Hanes and Stromberg 1998; Holland and Jain 1981, 1988). Soils beneath vernal pools are extremely variable and are often not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions that vary upon location (Holland and Dain 1990).

Limnanthes floccosa ssp. *californica* is found more often within the swale system between vernal pools than in the pools themselves (Jokerst 1989). The swale habitat forms a branch or net-like pattern between the vernal pools and around mound topography and connects the vernal pools hydrologically. These swale systems are inundated by surface flow and post-storm runoff from adjacent areas and have a greater variability in environmental conditions than do the vernal pools. The swale systems also have different species compositions, depending on parent soil and moisture regime (Holland and Jain 1981, 1988; Jokerst 1989). *Limnanthes floccosa* ssp. *californica* at the southern extent of its range occurs on volcanic mudflows with Corning variant soils. Occurrences near Chico are on formations of eroded mudflow formations. *Limnanthes floccosa* ssp. *californica* in the northern extent of the species range occur on very shallow Tuscan formation soils (Dole 1988). All four areas designated as critical habitat have a different species composition, depending on soil and hydrologic conditions. We believe that providing for a mosaic of habitat types both between and among vernal pool species is essential because it would include the full extent of the physical and environmental conditions for the species (Dole 1988; Fugate 1992; Fugate 1998; Gonzales *et al.*1996; Ikeda and Schlising 1990; Noss *et al.* 2002a; Platenkamp 1998; Zedler *et al.* 1979). The PCEs of critical habitat for *L.f.* ssp. *californica* are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and non-native upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Primary Constituent Elements for the Lasthenia Conjugens (Contra Costa Goldfields)

Lasthenia conjugens occurrences are found in five centers of concentration in the northern and central Coast Range and western part of the Central Valley in Solano and Contra Costa County. By far the greatest concentration of this species is in the area east of Fairfield in Solano County. *Lasthenia conjugens* normally are found in vernal pools, swales, moist flats, and depressions within open grassy areas of woodland and valley grassland habitats. However, several historical collections were from populations growing in the saline-alkaline transition zone between vernal pools and tidal marshes on the eastern margin of the San Francisco Bay (CNDDB 2002).

Although some of the habitat characteristics of the species are known, specific pool characteristics that determine suitability for *L. conjugens* germination, growth, reproduction, and dispersal are not well understood. *Lasthenia conjugens* normally is observed in only a few of the pools within the vernal pool complexes in which it is found, and the pool characteristics that determine suitability for *L. conjugens* germination and growth are unknown. By overlapping known occurrences of *L. conjugens* with appropriate soil types, elevations, slopes, vegetation community associations, and vernal pool types, where we know *L. conjugens* to occur, we have designated what we believe is the likely distribution of the seed bank around *L. conjugens* occurrences. Due to the species' highly restricted nature and disjunct distribution, the long-term survival of L. conjugens depends upon the protection and management of all extant populations and their associated seed banks, and the maintenance of ecological functions within and between these populations. The PCEs of critical habitat for *Lasthenia conjugens* are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and non-native upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Primary Constituent Elements for the Chamaesyce Hooveri (Hoover's Spurge)

Chamaesyce hooveri is found in naturally occurring widely scattered vernal pool complexes in a narrow zone of rolling topography and remnant alluvial fans and stream terraces at the base of the Sierra Nevada foothills and two locations in alkali sink areas at the Sacramento National Wildlife Refuge and San Luis National Wildlife Refuge Complex in three general areas of concentration in Tehama, Butte, Glenn, Colusa, Stanislaus, Merced, and Tulare Counties in the Sacramento and San Joaquin Valleys (CNDDB 2002, Stone *et al.* 1988). The elevation of these areas of

concentration varies from near 50 ft (15 m) to near 500 ft (150 m). Conserving a broad geographic range of *C. hooveri* across its geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of the species' range. The vernal pool types and soils associated with the six areas of concentration of *C. hooveri* differ greatly across the geographic range of the species; these differences lead to different species compositions and environmental conditions between C. hooveri occurrences. Providing for a mosaic of habitat types both between and among vernal pool species occurrences is essential to the species' conservation because it would help insure the inclusion of the full extent of the physical and environmental conditions for the species (Fugate 1992; Fugate 1998; Gonzales *et al.* 1996; Ikeda and Schlising 1990; Noss *et al.* 2002a; Platenkamp 1998; Zedler *et al.* 1979).

The distribution of *C. hooveri* reflects a diversity of vernal pool habitat types that provide habitat for the species on the alluvial fans and old stream terraces of the Sierra Nevada foothills. Vernal pool complexes that provide suitable habitat for this species include three different physiographic and edaphic settings: old high and lower old stream terrace areas with soils having an iron-silica hardpan and sites with shallow soils underlain by cemented tufaceous alluvium. The Tehama County occurrences of *C. hooveri* are associated with slightly-to-medium acid soils of the Tuscan and Anita soil series that are underlain by an iron-silica cemented hardpan (Broyles 1987). The Glenn and Colusa County occurrences at the Sacramento National Wildlife Refuge are associated with alkaline vernal pools on Willows and Riz soil types (Holland 1998; Silveira 2000; CNDDB 2002). The Stanislaus County occurrences are associated with neutral to slightly alkaline claypan soils of the Meikle series that formed in small drainages of Pleistocene alluvium. The Merced County occurrences in the Arena Plains are within saline-alkaline vernal pools on Lewis soils (USDA 2001; CNDDB 2002). The Tulare County occurrences are associated with lime-silica cemented hardpan and low-terrace neutral to slightly alkaline soils of the Madera soil series. Not all areas of *C. hooveri* have been identified as to the specific soil series or soil mapping units on which they occur. Many of the occupied vernal pools vary in size from 20,520 ft5 (1,900 m5) to 618 ac (250 ha). A vernal pool's parent material greatly influences the pool's species composition and hydrologic functioning (Hanes and Stromberg 1998; Holland and Jain 1981, 1988). Soils beneath vernal pools are extremely variable and are often not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions that vary upon location (Holland and Dain 1990). Field observations suggest that *C. hooveri* is restricted to specific microsites within the vernal pools and may behave somewhat independently, depending on environmental and edaphic conditions and are likely locally adapted (Alexander and Schlising 1997; Stone *et al.* 1988; Vollmar 2002). The PCEs of critical habitat for *C. hooveri* are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and non-native upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Primary Constituent Elements for the Castilleja campestris ssp. succulenta (Fleshy owl's-clover)

Castilleja campestris ssp. *succulenta* is found usually in low plant numbers in seven naturally occurring widely scattered vernal pool complex areas in Fresno, Madera, San Joaquin, Stanislaus, and Tuolumne Counties in the San Joaquin Valley. *Castilleja campestris* ssp. *succulenta* has a sporadic distribution within vernal pools, between vernal pools and between vernal pool complexes. The specific vernal pool characteristics that determine the suitability for *C. c.* ssp. *succulenta* germination and growth are unknown; however, it appears that the species seems to favor somewhat smaller, somewhat acidic vernal pools as compared to other vernal pool plants.

Castilleja campestris ssp. *succulenta* occurrences are known from within an elevational variation of near 160 ft (50 m) to near 1,800 ft (550 m). Conserving a broad distribution of *C. c.* ssp. *succulenta* across its geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of its range. The vernal pool types and soils associated with the six areas of concentration of *C. c.* ssp. *succulenta* differ across the geographic range of the species; these differences lead to different species compositions and environmental conditions between *C. c.* ssp. *succulenta* occurrences. Providing for a mosaic of habitat types both between and among vernal pool species occurrences is essential to the species' conservation because it would include the full extent of the physical and environmental conditions for the species (Fugate 1992; Fugate 1998; Gonzales *et al.*1996; Ikeda and Schlising 1990; Noss *et al.* 2002a; Platenkamp 1998; Zedler *et al.* 1979). The distribution of *C. c.* ssp. *succulenta* reflects a diversity of vernal pool habitat types and sizes that provide habitat for the species. We are uncertain about specific soils that may correlate with the presence of this species, although the species is irregularly found on Redding soil series. Vernal pool complexes that provide suitable habitat for this species include pools ranging in depth from 6.0 in (15 cm) to 10.0 in (25 cm), but the species is also found less frequently in shallower and deeper pools. Soil pH values for some of the vernal pools in Merced County occupied by *C. c.* ssp. *succulenta* range from 4.3 to 6.2. Although no comprehensive study has been conducted in Merced County, some vernal pools occupied by *C. c.* ssp. *succulenta* vary in size from 0.02 ac (80 m^2) to 0.12 ac (486 m^2). Merced County contains the largest aggregations of *C. c.* ssp. *succulenta*, and the occurrences of the species are found on mild to strongly acidic soils on Laguna, Mehrten, North Merced Gravels, and Riverbank Formations as well as Ione, Merthen, and Valley Springs' geological formations. The parent material of vernal pools greatly influences species' composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998; Holland and Jain 1981, 1988). Although *C. c.* ssp. *succulenta* appears to prefer the more weathered acidic, higher-terrace vernal pool complexes that are composed of volcanic tuff sand quartzite parent materials, soils beneath vernal pools are extremely variable and are often not the same as soils mapped

by soil surveys, but are usually undescribed hydric inclusions that vary upon location (Holland and Dain 1990). The PCEs of critical habitat for *C. c.* ssp. *succulenta* are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and non-native upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Primary Constituent Elements for the Neostapfia colusana (Colusa grass)

Neostapfia colusana occurrences are known from eight areas of concentration with an elevational variation of near 16 ft (5 m) to near 350 ft (100 m). Conserving a broad distribution of *N. colusana* across its geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of the species range. The vernal pool types and soils associated with the eight areas of concentration of *N. colusana* differ greatly across the geographic range of the species; these difference lead to different species compositions and environmental conditions between *N. colusana* occurrences. Providing for a mosaic of habitat types both between and among vernal pool species occurrences is essential to the species' conservation because it would include the full extent of the physical and environmental conditions for the species (Fugate 1992; Fugate 1998; Gonzales *et al.* 1996; Ikeda and Schlising 1990; Noss *et al.* 2002a; Platenkamp 1998; Zedler *et al.* 1979). The distribution of *N. colusana* reflects a diversity of vernal pool habitat types and sizes that provide habitat for the species. Vernal pool complexes that provide suitable habitat for this species include two different physiographic and edaphic settings: claypan soils of saline-alkali basins and remnant alluvial fans and old stream terrace areas with strongly acidic, gravelly, and cobbly soils having an iron-silica cemented hardpan, and shallow, slightly acidic residual soils of the Pentz series underlain by cemented tuffaceous alluvium. Additional settings for *N. colusana* are found in vernal pool complexes where resistant beds of tuffaceous deposits are exposed along intermittent drainages and, in Stanislaus County, neutral to slightly alkaline claypan soils on dissected alluvial fans. Not all areas of *N. colusana* have been identified as to the specific soil series or soil mapping units where they occur. However, in Merced County, *N. colusana* occurs on clay soils on Mehrten Formation and also on Riverbank, North Merced Gravels, and Laguna Formations. Of the Orcuttieae grasses, *N. colusana* inhabits the widest range of vernal pool sizes, with the smallest being 1,075 ft^2 (100 m^2 and the largest at 618 ac (250 ha). The parent material of vernal pools greatly influences species composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998; Holland and Jain 1981, 1988). Soils beneath vernal pools are extremely variable and are often not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions that vary by location (Holland and Dain 1990). The PCEs of critical habitat for *N. colusana* are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and non-native upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Primary Constituent Elements for the Tuctoria Greenei (Greene's Tuctoria)

Tuctoria greenei occurrences are known from eight general areas of concentration from Shasta County to Madera County with an elevational variation of from near 100 ft (30 m) to near 3,500 ft (1,067 m). Conserving a broad distribution of *T. greenei* across its geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of the its range. The vernal pool types and soils associated with the eight areas of concentration of *T. greenei* differ greatly across the geographic range of the species; these differences lead to different species compositions and environmental conditions between *T. greenei* occurrences. Providing for a mosaic of habitat types both between and among vernal pool species occurrences is essential to the species conservation because it would include the full extent of the physical and environmental conditions for the species (Fugate 1992; Fugate 1998; Gonzales *et al.*1996; Ikeda and Schlising 1990; Noss *et al.* 2002a; Platenkamp 1998; Zedler *et al.* 1979). The wide-ranging distribution of *T. greenei* reflects a diversity of vernal pool habitat types that provide habitat for the species. Vernal pool complexes that provide suitable habitat for this species include four different physiographic and edaphic settings—old high stream terrace, lower old stream terrace areas with soils having an iron-silica hardpan, sites with shallow soils underlain by cemented tuffaceous alluvium, and vernal pool complexes on claypan soils that are slightly acid to slightly alkaline. Not all areas of *T. greenei* have been identified as to the specific soil series or soil mapping units where they occur. The Butte County occurrences of *T. greenei* are associated with soils underlain by tuffaceous alluvium, are considered to occur in Northern Basalt Flow and Northern Volcanic Mudflow type vernal pool complexes, and one occurrence is found on Tuscan soils. The Tehama County occurrences are associated with slightly-to-medium acid soils of the Tuscan and Anita soil series that are underlain by an iron-silica cemented hardpan occurring vernal pools and are the only area where vernal pools are associated with this type of landform. Many of these pools are a fraction of an acre and have a short inundation period (until April or May) and fewer number of shallower larger pool sizes well over an acre with a comparatively longer inundation period

(until June or July). A vernal pool's parent material greatly influences the pool's species composition and hydrologic functioning (Hanes and Stromberg 1998; Holland and Jain 1981; 1988). Soils beneath vernal pools are extremely variable and are not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions that vary by location (Holland and Dain 1990). The PCEs of critical habitat for *T. greenei* are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and non-native upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Primary Constituent Elements for the Orcuttia Pilosa (Hairy Orcutt Grass)

Orcuttia pilosa occurrences are known from southern Tehama County in the Sacramento Valley to southern Madera County in the San Joaquin Valley with a predominate elevational variation of from near 180 ft (55 m) to near 405 ft (123 m). Conserving a broad distribution of *O. pilosa* across its geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of its range. The vernal pool types and soils associated with the six areas of concentration of *O. pilosa* differ greatly across the geographic range of the species; these differences lead to different species compositions and environmental conditions between *O. pilosa* occurrences. Providing for a mosaic of habitat types both between and among vernal pool species occurrences is essential to the species' conservation because it would include the full extent of the physical and environmental conditions for the species (Fugate 1992; Fugate 1998; Gonzales *et al.* 1996; Ikeda and Schlising 1990; Noss *et al.* 2002a; Platenkamp 1998; Zedler *et al.* 1979). The distribution of *O. pilosa* reflects a diversity of vernal pool habitat types that provide habitat for the species on the alluvial fans and old stream terraces of the Sierra Nevada foothills. Vernal pool complexes that provide suitable habitat for this species include mostly three different physiographic and edaphic settings—old high and lower old stream terrace areas with soils having an iron-silica hardpan and sites with shallow soils underlain by cemented tuffaceous alluvium. The Tehama County occurrences of *O. pilosa* are associated with slightly to medium acid soils of the Tuscan and Anita soil series that are underlain by an iron-silica cemented hardpan. Not all areas of *O. pilosa* have been identified as to the specific soil series or soil mapping units on which they occur. Many of the occupied vernal pools vary in size from 36,600 ft^2 (3,400 m^2) to 618 ac (250 ha). A vernal pool's parent material greatly influences the pool's species composition and hydrologic functioning (Hanes and Stromberg 1998; Holland and Jain 1981, 1988). Soils beneath vernal pools are extremely variable and are not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions that vary upon location (Holland and Dain 1990). The PCEs of critical habitat for *O. pilosa* are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and non-native upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands

Primary Constituent Elements for the Orcuttia Viscida (Sacramento Orcutt Grass)

Orcuttia viscida is found in naturally occurring scattered vernal pool complexes in Sacramento County, California, and is the most geographically restricted Orcuttieae species. The specific vernal pool characteristics that determine the suitability for *O. viscida* germination, growth and reproduction are not well understood. *Orcuttia viscida* occurrences are known only from eastern Sacramento County in the Sacramento Valley with a predominate elevational variation of 150 ft (45 m) to 375 ft (114 m). Conserving a broad distribution of *O. viscida* across its rather relatively narrow geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of the species range.

The vernal pool types and soils associated with the three areas of concentration of *O. viscida* differ across the geographic range of the species and leads to different species compositions and environmental conditions between *O. viscida* occurrences. Providing for a mosaic of habitat types both between and among vernal pool species occurrences is essential to the species conservation because it would include the full extent of the physical and environmental conditions for the species (Fugate 1992, Fugate 1998, Gonzales *et al.*1996, Ikeda and Schlising 1990, Noss *et al.* 2002a, Platenkamp 1998, Zedler *et al.* 1979). The distribution of *O. viscida* reflects a relatively smaller diversity of vernal pool habitat types that provide habitat for the species on the old stream terraces of the Sierra Nevada foothills. Vernal pool complexes that provide suitable habitat for this species include one physiographic and edaphic settings: remnant depositional stream terraces at the base of the Sierran foothills. The Sacramento County occurrences of *O. viscida* are associated with Redding soils that are strongly acidic underlain by an iron-silica cemented hardpan and with soils mapped in the Pentz-Pardee-Red Bluff association. Not all areas of *O. viscida* have been identified as to the specific soil series or soil mapping units where they occur. Many of the occupied vernal pools vary in size from 0.3 ac (1,000 m^2) to 2 ac (8,260 m^2). The parent material of vernal pools greatly influences species composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998, Holland and Jain 1981, 1988). Soils

beneath vernal pools are extremely variable and are often not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions that vary upon location (Holland and Dain 1990). The PCEs of critical habitat for *O. viscida* are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and non-native upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Primary Constituent Elements for the Orcuttia inaequalis (San Joaquin Valley Orcutt grass)

Orcuttia inaequalis is found in naturally occurring widely scattered vernal pool complexes in Fresno, Madera, Merced, Stanislaus, and Tulare Counties in the northeastern San Joaquin Valleys. *Orcuttia inaequalis* is the only species found just in the San Joaquin Valley. The specific vernal pool characteristics that determine the suitability for *O. inaequalis* germination, growth, and successful reproduction are unknown. However, *O. inaequalis* is a strict endemic to usually larger vernal pools that range in area from 1,500 ft^2 (140 m^2) to 12.1 ac (4.9 ha) in size and 12 in (30.5 cm) to 22 in (55.9 cm) deep but can be found in both smaller and larger and shallower and deeper vernal pools (Stone *et al.* 1988, Volmar 2002). *Orcuttia inaequalis* is found in vernal pool complexes on a variety of geological surfaces including Ione, Laguna, Merthen, Modesto, North Merced Gravels, Riverbank, Turlock Lake, and Valley Springs in the northeastern San Joaquin Valley.

Orcuttia inaequalis occurrences are known from central Merced County to northern Tulare County in the northeastern San Joaquin Valley with a predominate elevational variation of near 155 ft (47 m) to near 1,870 ft (570 m). Conserving a broad distribution *O. inaequalis* across its geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of the species range.

The vernal pool types and soils associated with the six areas of concentration of *O. inaequalis* differ greatly across the geographic range of the species and leads to different species compositions and environmental conditions between *O. inaequalis* occurrences. Providing for a mosaic of habitat types both between and among vernal pool species occurrences is essential to the species conservation because it would include the full extent of the physical and environmental conditions for the species (Fugate 1992, Fugate 1998, Gonzales *et al.* 1996, Ikeda and Schlising 1990, Noss *et al.* 2002a, Platenkamp 1998, Zedler *et al.* 1979). The distribution of *O. inaequalis* reflects a diversity of vernal pool habitat types that provide habitat for the species on the alluvial fans and old stream terraces of the Sierra Nevada foothills. Vernal pool complexes that provide suitable habitat for this species include several different physiographic and edaphic settings including; old high old stream terrace areas with Redding and related soil series, lower old stream terraces with San Joaquin and related soil series having an iron-silica hardpan but less strongly acidic sites with shallow, residual soils of the Pentz and related soil series underlain by a well-cemented tuffaceous alluvium. One occurrence in Fresno County is found in a rather shallow stony moderately to strongly acidic vernal pool complex on residual soils of the Hideaway series at a relatively high elevation. Not all areas of *O. inaequalis* have been identified as to the specific soil series or soil mapping units on which they occur. The parent material of vernal pools greatly influences species composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998, Holland and Jain 1981, 1988). Soils beneath vernal pools are extremely variable and are often not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions that vary upon location (Holland and Dain 1990). The PCEs of critical habitat for *O. inaequalis* are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and non-native upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Primary Constituent Elements for the Orcuttia tenuis (Slender Orcutt grass)

Orcuttia tenuis is found in five general areas of concentration from south Sacramento County to the Modoc Plateau and west to Lake County with an elevational variation of near 200 ft (61 m) to near 3,500 ft (1,067 m). A broad distribution of *O. tenuis* across its geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of the species range.

The vernal pool types and soils associated with the five general areas of concentration of *O. tenuis* differ greatly across the geographic range of the species and leads to different species compositions and environmental conditions between *O. tenuis* occurrences. Providing for a mosaic of habitat types both between and among vernal pool species is essential because it would include the full extent of the physical and environmental conditions for the species (Fugate 1992, Fugate 1998, Gonzales *et al.* 1996, Ikeda and Schlising 1990, Noss *et al.* 2002a, Platenkamp 1998, Zedler *et al.* 1979). The wide ranging distribution of *O. tenuis* has lead to a large diversity of vernal pool habitat types for the species. The Modoc Plateau occurrences are associated mostly with Northern Basalt Flow and Northern Volcanic Mudflow type vernal pools. These pools range in size from a fraction of an acre to well over an acre with smaller pools having a short inundation period. The parent material of vernal pools greatly influences species composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998,

Holland and Jain 1981, 1988). Soils beneath vernal pools are extremely variable and are often not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions which vary upon location (Holland and Dain 1990). The Lake County occurrences are associated with Ashflow type vernal pools and are the only area where vernal pools are associated with this type of landform. The Redding area vernal pools in the Northeastern Sacramento Valley Vernal Pool Region occur on volcanic Tuscan Formation or terrace-alluvial Redding soils. The hydrology within the terrace-alluvial pools tends to be less flashy than those with a volcanic origin (Keeler-Wolf *et al.* 1998). The soils associated with the Sacramento County occurrences include those occurring on old terrace formations. The PCEs of critical habitat for *O. tenuis* are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and non-native upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Primary Constituent Elements for the Tuctoria mucronata (Solano grass)

Tuctoria mucronata is found in two naturally occurring scattered vernal pool complex areas in Solano and Yolo Counties in the Sacramento Valley. The specific vernal pool characteristics that determine the suitability for *T. mucronata* germination and growth are unknown; however, it appears that the species seems to favor somewhat larger and deeper vernal pools as compared to other vernal pool plants.

Tuctoria mucronata occurrences are known from with an elevational variation of near 15 ft (5 m) to near 35 ft (11 m). Conserving the distribution of *T. mucronata* across its geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of the species range. The vernal pool types and soils associated with the two areas of concentration of *T. mucronata* differ across the geographic range of the species and leads to different species compositions and environmental conditions between *T. mucronata* occurrences. Providing for a mosaic of habitat types both between and among vernal pool species occurrences is essential to the species conservation because it would include the full extent of the physical and environmental conditions for the species (Fugate 1992, Fugate 1998, Gonzales *et al.* 1996, Ikeda and Schlising 1990, Noss *et al.* 2002a, Platenkamp 1998, Zedler *et al.* 1979). The distribution of *T. mucronata* reflects a diversity of vernal pool habitat types and sizes that provide habitat for the species. Vernal pool complexes that provide suitable habitat for this species include similar physiographic and edaphic settings-claypan soils of saline-alkali flood basin rims basins soils. The parent material of vernal pools greatly influences species composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998, Holland and Jain 1981, 1988). Soils beneath vernal pools are extremely variable and are often not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions that vary upon location (Holland and Dain 1990). The PCEs of critical habitat for *T. mucronata* are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE (ii), providing for dispersal and promoting hydroperiods of adequate length in the pools.

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and non-native upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Criteria Used To Identify Critical Habitat

We are designating critical habitat on lands that are occupied contain sufficient PCEs and which we have determined essential to the conservation of the 15 vernal pool species. These areas have the PCEs described below for each species. Based on the best scientific information available, all areas identified as critical habitat for the 15 vernal pool species addressed by this rule are within the historical and current ranges of each of the species and contain the specific PCEs identified below. Rather than designate every area containing PCEs, however, we designated only those areas which available evidence clearly demonstrated were essential to the conservation of each species. Areas for which the evidence available at this time was less certain were not included in this designation, although we believe these areas to be important to the species and may include them in future recovery plans. Areas essential to the conservation of the species are those that are necessary to advance at least one of the following conservation criteria:

(1) The conservation of areas representative of the geographic distribution of the species. Species that are protected across their ranges have lower chances of extinction (Soule and Simberloff 1986; Murphy *et al.* 1990; Primack 1993; Given 1994; Hunter 1996; Pavlik 1996; Noss *et al.* 1999; Grosberg 2002);

(2) The conservation of areas representative of the ecological distribution of the species. Each of the 15 vernal species is associated with various combinations of soil types, vernal pool chemistry, geomorphic surfaces (landforms), and vegetation community associations. Maintaining the full range of varying habitat types and characteristics for a species is essential because it would include the full extent of the physical and environmental conditions necessary for the species (Zedler and Ebert 1979; Ikeda and Schlising 1990; Fugate 1992; Gonzales *et al.* 1996; Fugate 1998; Platenkamp 1998; Bainbridge 2002; Noss *et al.* 2002a);

(3) The conservation of areas necessary to allow movement of cysts, pollen, and seeds between areas representative of the geographic and ecological distribution of the species. As a result of dispersal events within and between vernal pool complexes, and environmental conditions that may

prevent the emergence of dormant cysts and seeds for up to several decades, the presence of vernal pool species is dynamic in both space and time (Eriksen and Belk 1999; Noss *et al.* 2002a);

(4) In cases where more occupied areas were present than were needed for the conservation of the geographic or ecological distribution of the species, we gave priority to areas which already possessed a measure of protection or which possessed the largest unfragmented vernal pool complexes.

When determining critical habitat boundaries, we made every effort to avoid designating developed areas such as buildings, paved areas, boat ramps and other structures that lack the PCEs for the 15 vernal pool species. Any such structures inadvertently left inside critical habitat boundaries are not considered part of the unit. This also applies to land on which structures sit directly. Therefore, Federal actions limited to these areas would not trigger section 7 consultations, unless they affect the species and/or primary constituent elements in adjacent critical habitat. Additional information concerning the essential nature of these areas can be found in the previous final designation of critical habitat for these 15 vernal pool species (68 FR 46684; August 6, 2003) and also in our supporting record for this rulemaking.

Special Management Considerations or Protections

When designating critical habitat, we assess whether the areas determined to be essential for conservation may require special management considerations or protections. As we undertake the process of designating critical habitat for a species, we first evaluate lands defined by those physical and biological features essential to the conservation of the species for inclusion in the designation pursuant to section 3(5)(A) of the Act. Secondly, we then evaluate lands defined by those features to assess whether they may require special management considerations or protection.

In designating critical habitat, we also have considered how this designation highlights habitat that needs special management considerations or protection. For example, we have many regional HCPs under development, and this designation will be useful in helping applicants determine what vernal pool habitat areas should be highest priority for special management or protection, and where there may be more flexibility in conservation options. This designation will guide them and us in ensuring that all local habitat conservation planning efforts are consistent with conservation objectives for these species.

Once a vernal pool habitat has been protected from direct filling, it is still necessary to ensure that the habitat is not rendered unsuitable for vernal pool species because of factors such as altered hydrology, contamination, nonnative species invasions, or other incompatible land uses. Many of the factors that cause the decline and localized extirpation of vernal pool species can be avoided. Actions that should be avoided include the following:

(1) Actions that increase competition from invasive species as many of the species addressed in this rule are threatened by invasion of nonnative species (CNDDB 2001).

(2) Alteration of natural hydrology such as construction of dams or other structures that artificially increase the length of vernal pool inundation or construction of ditches that artificially drain vernal pools.

(3) Human degradation of vernal pools such as off-road vehicle use, dumping, and vandalism that threatens many of the species addressed in this rule.

Critical Habitat Designation

We are designating 858,846 ac (347,563 ha) of critical habitat for the 15 vernal pool species. The critical habitat areas described below constitute our best assessment at this time of areas we have determined are occupied at the time of listing, contain the primary constituent elements and that may require special management and those additional areas found to be essential to the conservation of the 15 vernal pool species.

Relationship of This Final Rule to the March 8, 2005 Final Rule Confirmation (70 FR 11140)

On March 8, 2005 (70 FR 11140), we confirmed 136,358 ac (55,182 ha) of non-economic exclusions made to our previous final rule of August 6, 2003 (68 FR 46683). This included exclusion under section 4(b)(2) of the Act for 42,914 ac (17,369 ha) of National Wildlife Refuge and National Fish Hatchery lands; 50,520 ac (20,444 ha) of Department of Defense lands; 644 ac (261 ha) of tribal lands belonging to the Mechoopda Tribe; 12,373 ac (5,007 ha) of State Wildlife Areas and Ecological Reserves owned and managed by the California Department of Fish and Game; and 10,224 ac (4,138 ha) of lands in Habitat Conservation Plans or cooperative management areas. In our re-evaluation of March 8, 2005, we exempted 19,684 ac (7,966) acres of Department of Defense lands on Beale and Travis Air Force Bases under section 4(a)(3)(B) of the Act. As noted in that rule, the reported acreages were additive individual totals of each of the 15 species. Because many of the critical habitat boundaries overlap among species, the actual total acreage excluded is less than reported in that rule.

When we reopened the comment period on noneconomic exclusions (December 28, 2004; 69 FR 77700), we requested comments and information related to amount and distribution of habitat that should be included in the designation, what habitat should be considered essential to the conservation of the species, rationale for including or excluding such habitat from the designation, benefits associated with including or excluding habitat from the designation, current or planned activities in proposed critical habitat, and requested public participation in the process of designating critical habitat. This final rule addresses all remaining non-economic exclusions not addressed in the March 8, 2005 (70 FR 11140) confirmation of exclusions made to our previous final rule, and all economic exclusions made under section 4(b)(2) based on comments received during the reopened comment periods of December 28, 2004 (69 FR 77700) and June 30, 2005 (70 FR 37739). In contrast to the March 8, 2005 final rule confirmation (70 FR 11140), the acreages published with the maps in this final rule have eliminated all overlap among species and represent the actual extent of the designation and the economic exclusions across the 15 species. As a result, acreages reported in previous notices are not always comparable to those reported in this notice.

In this rule, we have considered, but are excluding from critical habitat, a total of approximately 374,732 ac (151,648 ha) of essential habitat for one or more of the fifteen listed vernal pool species in the following areas under section 4(b)(2): lands within the boundaries of Carrizo Plain National Monument administered by the Bureau of Land Management (16,033 ac (6,488 ha)), and lands with significant economic impacts to landowners (358,699 ac (145,160 ha) within 23 census tracts in Sacramento, Butte, Placer, Solano, Monterey, Fresno, Stanislaus, Madera, Merced, Shasta, and Tehama Counties.

Description of Critical Habitat

We are designating critical habitat for the four vernal pool crustaceans and 11

vernal pool plants within the units and subunits shown in Table 1. Although all of the units are within the geographic range of the included species, we are not designating all of the areas known to be occupied by any of the four vernal pool crustaceans or 11 vernal pool plants.

TABLE 1.—SUBUNITS AND ASSOCIATED SPECIES WITHIN THE FINAL CRITICAL HABITAT DESIGNATION FOR 4 VERNAL POOL CRUSTACEANS AND 11 VERNAL POOL PLANTS IN CALIFORNIA AND SOUTHERN OREGON

Conservancy fairy shrimp	Longhorn fairy shrimp	Vernal pool fairy shrimp	Vernal pool tadpole shrimp	*Limnanthes floccosa* ssp. *californica*	*Lasthenia conjugens*	*Chamaesyce hooveri*	*Castilleja campestris* ssp. *succulenta*	*Neostapfia colusana*	*Tuctoria greenei*	*Orcuttia pilosa*	*O. viscida*	*O. inaequalis*	*O. tenuis*	*Tuctoria mucronata*
7C	13C	1A	6C	7F	8A	7C	11G	10B	5F	7C	11D	14M	5A	10B
7D	13D	1B	7A	7G	9C	7J	15E	14D	7C	7J	11E	15J	5B	
7E	14B	1C	7B	7H	10D	14C	15H	14E	7J	15G	11G	15K	5C	
7F	20A	1D	7C	7I	10E	14D	15J	14F	15B	15H		15L	5D	
7G		1E	7D	7M	10F	14E	15L	14G	15C	15I		15M	5E	
10F		1F	7E	7N	10G	14F	15M	14I	15D	15L		15N	5G	
14A		1G	7F		10H	14G	15N	14J	15E			15O	5H	
14B		2A	7G		12A	14M	15O	14K	15F			15P	5I	
14C		2B	7H		12C	15E	15Q	15B	15J			15S	15J	
14D		2C	7I		13B	15G		15C	15K			15T	5K	
14E		2D	7J		16A	15H		15D	15L			15U	5L	
14F		2E	7K		16B	15I		15E				15W	6A	
14G		3A	7L			15R		15F					6B	
15J		3B	7M			15S		15G					6C	
22A		3C	7N			15T		15H					6D	
		4A	10A			15U		15I					7A	
		4B	10B			15V		15J					7B	
		6C	10C			15W							7C	
		6E	10D										9A	
		6F	10E										9B	
		7C	10F										11E	
		7D	11A											
		7E	11E											
		7F	11F											
		7G	11G											
		7H	14B											
		7I	14C											
		10C	14D											
		10D	14E											
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		10F	14G											
		11A	14H											
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		11G	14M											
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		13B	15J											
		13E	15N											
		14A	15R											
		14B	15U											
		14C	15V											
		14D	15W											
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		22A												

We have determined that each subunit is essential for the conservation of its associated species because it is occupied by each of the associated species, it contains one or more of the PCEs for each of its associated species, and it meets one or more of the criteria used to identify essential areas (see ''Criteria Used to Identify Critical Habitat'' section). Within each subunit will therefore be found habitat with the features that are essential for reproduction, germination, hatching, maturation, feeding, shelter, and dispersal of the associated species, as described in the Primary Constituent Elements section for each species and supporting information on the life history and ecology of each of the 15 listed species found in previous rules (68 FR 46684, 43 FR 44810; 57 FR 24192; 59 FR 48186; 62 FR 14338; 62 FR 3402). In addition, that subunit also will provide for one or more of the following: (1) Areas representative of the geographic distribution of the species; (2) areas representative of the various combinations of soils, vernal pool chemistry, geomorphic surfaces, vegetation community associations, and other environmental conditions in which the species occurs; (3) areas that provide for dispersal; and (4) areas with the best conservation potential, e.g., lands already fully or partially protected, the largest unfragmented vernal pool complexes for each of its associated species.

Lands within each subunit require special management because each of the associated species is variously threatened by one or more of the following: habitat destruction, fragmentation, and degradation associated with residential, commercial, and industrial development (including associated infrastructure); highway construction; agricultural conversion; water conveyance or storage construction; incompatible human recreational use; incompatible grazing practices; nonnative plant species; sedimentation or chemical pollution from roadway or other urban runoff, or from herbicide application on adjacent lands; or small population size.

As a result, each area designated as critical habitat may require some level of management and/or protection to address the current and future threats to each of the 15 vernal pool species to ensure that they may recover. Such management considerations and protections would benefit the target species in many ways, including but not limited to the following: protecting the species from range reduction, and maintaining the ability of the species to persist at a given location by reducing habitat fragmentation, edge effects, and alteration of hydrologic regimes of occupied vernal pool complexes through establishment of conservation easements, fee title conveyance to a conservation organization, or simple avoidance of habitat destruction and degradation; preventing, reducing, or eliminating competition with invasive species that may ''crowd out'' a listed species; restoring the hydrology of vernal pool complexes that have been impacted by construction of dams and ponds that artificially increase the length of inundation, ditches that artificially drain vernal pools, or construction of berms or culverts that divert water from a vernal pool complex; enhance or restore hydrology and native species through appropriate use of fire and grazing management; reduce or eliminate human degradation of vernal pools by managing off-road vehicle use, constructing fences, and establishing education programs; and restoring historic pool and swale topography and hydrology in degraded habitats. Designation of critical habitat does not carry with it any requirement that landowners or land managers implement any special management or protection programs.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7 of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out are not likely to destroy or adversely modify critical habitat. In our regulations at 50 CFR 402.2, we define destruction or adverse modification as ''a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to: Alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.'' The Service uses the guidance issued in the Director's December 9, 2004, memorandum when making adverse modification determinations under section 7 of the Act.

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 proposed or designated. 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 proposed species or result in destruction or adverse modification of proposed critical habitat. Conference reports provide conservation recommendations to assist the agency in eliminating conflicts that may be caused by the proposed action. We may issue a formal conference report if requested by a Federal agency. Formal conference reports on proposed critical habitat contain an opinion that is prepared according to 50 CFR 402.14, as if critical habitat were designated. We may adopt the formal conference report as the biological opinion when the critical habitat is designated, if no substantial new information or changes in the action alter the content of the opinion (*see* 50 CFR 402.10(d)). The conservation recommendations in a conference report are advisory.

If a species is listed or critical habitat is designated, section 7(a)(2) requires Federal agencies to ensure that activities 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 action agency ensures that their actions do not destroy or adversely modify critical habitat.

When we issue a biological opinion concluding that a project is likely to result in the jeopardy of a listed species or 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 Secretary believes would avoid destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where critical habitat is subsequently designated and

the Federal agency has retained discretionary involvement or control over the action or such discretionary involvement or control 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.

Federal activities that may affect the 15 vernal pool species or their critical habitat will require section 7 consultation. Activities on private or State lands requiring a permit from a Federal agency, such as a permit from the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act, a section 10(a)(1)(B) permit from the Service, or some other Federal action, including funding (e.g., Federal Highway Administration or Federal Emergency Management Agency funding), will also continue to be subject to the section 7 consultation process. Federal actions not affecting listed species or critical habitat and actions on non-Federal and private lands that are not federally funded, authorized, or permitted do not require section 7 consultation.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe in any proposed or final regulation that designates critical habitat those activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation. Activities that may destroy or adversely modify critical habitat may also jeopardize the continued existence of the 15 vernal pool species. Federal activities that, when carried out, may adversely affect critical habitat for the 15 vernal pool species include, but are not limited to:

(1) Activities regulated by the Corps, Environmental Protection Agency (EPA), or NRCS under the Clean Water Act and other acts or regulations, including but not limited to, discharge of fill into waters of the U.S., and promulgation of water quality standards;

(2) Construction and maintenance of roads, highways, and rights-of way by Caltrans which may modify vernal pool habitat or affect their hydrologic functions;

(3) Sale or exchange of lands by a Federal agency to a non-Federal entity;

(4) Airport construction, improvement, or maintenance activities funded or authorized by the Federal Aviation Administration;

(5) Licensing of construction of communication sites by the Federal Communications Commission;

(6) Funding of construction or development activities by the U.S. Department of Housing and Urban Development;

(7) Military training and maneuvers on DOD lands;

(8) Execution of new water service by the BOR;

(9) Promulgation and implementation of a land use plan by a Federal agency such as the BLM, USFS, or DOD that may alter management practices for critical habitat; and

(10) Registration of pesticides by EPA.

If you have questions regarding whether specific activities may constitute adverse modification of critical habitat in California, contact the Field Supervisor, Sacramento Fish and Wildlife Office (see **ADDRESSES** section). If the critical habitat occurs in Oregon, contact the Field Supervisor, Oregon Fish and Wildlife Office, 2600 S.E. 98th Avenue, Portland, OR 97266. Requests for copies of the regulations on listed plants and wildlife, and inquiries about prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Branch of Endangered Species, 911 N.E. 11th Ave, Portland, OR 97232 (telephone 503/231–2063; facsimile 503/231–6243).

Application of Section 3(5)(A) and 4(a)(3) and Exclusions Under Section 4(b)(2) of the Act

Section 3(5)(A) of the Act defines critical habitat as the specific areas within the geographic area occupied by the species on which are found those physical and biological features (i) essential to the conservation of the species and (ii) which may require special management considerations or protection. Therefore, areas within the geographic area occupied by the species that do not contain the features essential for the conservation of the species are not, by definition, critical habitat. Similarly, areas within the geographic area occupied by the species that do not require special management or protection also are not, by definition, critical habitat. To determine whether an area requires special management, we first determine if the essential features located there generally require special management to address applicable threats. If those features do not require special management, or if they do in general but not for the particular area in question because of the existence of an adequate management plan or for some other reason, then the area does not require special management.

We consider a current plan to provide adequate management or protection if it meets two criteria: (1) The plan provides management, protection or enhancement to the PCEs at least equivalent to that provided by a critical habitat designation; and (2) the Service has reasonable expectation the management, protection or enhancement actions will continue for the foreseeable future.

Section 318 of fiscal year 2004 the National Defense Authorization Act (Pub. L. 108–136) amended the Endangered Species Act to address the relationship of Integrated Natural Resources Management Plans (INRMPs) to critical habitat by adding a new section 4(a)(3)(B). This provision prohibits the Service from designating as critical habitat any lands or other geographical areas owned or controlled by the DOD, or designated for its use, that are subject to an INRMP prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary of the Interior determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.

This provision was added subsequent to our final designation of critical habitat in 2003. However, this provision does apply to this designation. Accordingly the Service does not have the authority to designate Beale AFB or Travis AFB as those facilities have existing INRMPs that provide a benefit to the species.

Further, section 4(b)(2) of the Act states that critical habitat shall be designated, and revised, on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. An area may be excluded from critical habitat if it is determined that the benefits of exclusion outweigh the benefits of specifying a particular area as critical habitat, unless the failure to designate such area as critical habitat will result in the extinction of the species.

In our critical habitat designations, we use both the provisions outlined in sections 3(5)(A) and 4(b)(2) of the Act to evaluate those specific areas that we are proposing to designate as critical habitat as well as for those areas that are formally proposed for designation as critical habitat. Lands we have found do not meet the definition of critical habitat under section 3(5)(A) or have excluded pursuant to section 4(b)(2) include those covered by the following types of plans if they provide assurances that the conservation measures they outline will

be implemented and effective: (1) Legally operative HCPs that cover the species, (2) draft HCPs that cover the species and have undergone public review and comment (*i.e.*, pending HCPs), (3) Tribal conservation plans that cover the species, (4) State conservation plans that cover the species, and (5) National Wildlife Refuge System Comprehensive Conservation Plans.

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 a HCP that identifies conservation measures that the permittee agrees to implement for the species to minimize and mitigate the impacts of the requested incidental take. We exclude non-Federal public lands and private lands that are covered by an existing operative HCP and executed implementation agreement (IA) under section 10(a)(1)(B) of the Act from designated critical habitat if the benefits of exclusion outweigh the benefits of inclusion as discussed in section 4(b)(2) of the Act.

Relationship of Critical Habitat to the Carrizo Plain National Monument

The Bureau of Land Management (BLM) has a draft management plan for the Carrizo Plain National Monument. The draft Carrizo Plain Resource Management Plan (CPRMP) outlines management goals and conservation measures for the vernal pool fairy shrimp and the longhorn fairy shrimp, both of which occur in vernal pools within the Carrizo Plain. Goals and Implementation Guidelines of the CPRMP include management for the long-term conservation and recovery of listed plants and animals and the natural communities on which they depend, and to improve and sustain populations of federally listed species to meet conservation and recovery goals. The BLM land overlaps portions of vernal pool fairy shrimp unit 30 (16,033 ac (6,488 ha)) and longhorn fairy shrimp unit 3 (16,033 ac (6,488 ha)) in San Luis Obispo County. The BLM has initiated section 7 consultation with the Service on the CPRMP; we expect to complete the consultation by September 2005. BLM expects to finalize the draft RMP in September or October 2005 and complete all environmental compliance by June, 2006, with implementation to immediately follow. In the interim, BLM is actively managing public lands within the monument in accordance with existing biological opinions and for the recovery of federally listed species (S. Larsen, BLM., pers. comm.). We are excluding all essential habitat for the vernal pool fairy shrimp and longhorn fairy shrimp on BLM lands within the Carrizo Plain National Monument pursuant to section 4(b)(2) of the Act. Our analysis for excluding these units from proposed critical habitat is outlined below.

(1) Benefits of Inclusion

As stated previously in this rule and the March 8, 2005, confirmation (70 CFR 11140), the benefits of designating critical habitat on lands within the boundaries of areas with approved management plans are small. The Carrizo Plain National Monument is cooperatively managed by BLM, the Service, and the Department of Fish and Game and provides habitat for other listed species in addition to the two crustaceans mentioned above. The CPRMP includes management measures and designed to protect, restore, monitor, manage, and enhance the habitat of the two crustacean species, and is thereby expected to aid in the conservation of the species. The CPRMP seeks to accomplish these goals for the two species through the implementation of specific conservation objectives. The principal benefit of designating critical habitat is that federally authorized or funded activities on BLM administered lands in the Carrizo Plain National Monument that may affect a species' critical habitat would require consultation with us under section 7 of the Act using a conservation standard for adverse modification based on the Ninth Circuit's decision in *Gifford Pinchot*.

(2) Benefits of Exclusion

The benefits of excluding lands within the CPRMP from critical habitat designation include relieving the agencies managing the area of the burden of engaging in any additional regulatory process that might be imposed by the designation of critical habitat. Many management plans, particularly large regional plans, take many years to develop and, upon completion, become regional conservation plans that are both consistent with, and promote, the recovery objectives for listed species that are covered within the plan area. Additionally, many of these plans provide conservation benefits to unlisted sensitive species or State listed species. Imposing an additional regulatory review after a plan is completed solely as a result of the designation of critical habitat may undermine conservation efforts and partnerships in many areas. In fact, it could result in the loss of species' benefits if resources are diverted from substantive resource protection to procedural regulatory efforts.

A related benefit of excluding lands within planned management areas from critical habitat designation is the unhindered, continued ability to seek new partnerships with potential future participants including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement conservation actions that we would be unable to accomplish otherwise. If lands within a planning area are designated as critical habitat, it would likely have a negative effect on our ability to establish new partnerships that involve numerous participants and address landscape-level conservation of species and habitats. By preemptively excluding these lands, we preserve our current partnerships and encourage additional conservation actions in the future.

The cooperatively developed CPRMP is based on a conservation standard of long-term conservation and recovery for ''listed plants and animals and the natural communities on which they depend.'' Specific measures and goals outlined in the CPRMP include: (1) Improve and sustain populations of federally and State listed plant and animal species to meet conservation and recovery goals; (2) implementation of agency-approved protocols for listed species surveys, take avoidance and conservation measures; (3) Surveys for sensitive resources would be completed prior to conducting any activities that have the potential to affect natural communities and species of management concern; (3) areas supporting the longhorn fairy shrimp and vernal pool fairy shrimp would be avoided to the greatest extent possible; (4) personnel familiar with the sensitive resource may be required to be present during activities which may affect sensitive resources to ensure that activities are conducted in such a way as to avoid and minimize disruption and disturbance of these resources; and (5) compensation for unavoidable adverse effects (BLM in litt. 2005). Thus, the CPRMP is based on a conservation standard. The development and implementation of the CPRMP provides other important conservation benefits, including the development of biological information to guide the conservation efforts and assist in species conservation, public education through participation in the planning process, and the creation of innovative solutions to conserve species while still allowing a variety of land uses managed in a compatible manner.

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

We have evaluated the draft CPRMP as it applies to the areas being designated as critical habitat for two of the 15 vernal pool species. The exclusion of these lands from critical habitat will help preserve the partnerships that we have developed with the local cooperators in the development of the CPRMP. The educational benefits of critical habitat, including informing the public of areas that are essential for the long-term survival and conservation of the species are still accomplished through the BLM's land use planning processes and associated outreach and public participation. Both the longhorn fairy shrimp and the vernal pool fairy shrimp will be managed on BLM administered lands under a conservation standard. We would likely lose the benefits that accrue from the partnerships that have been developed while realizing no additional conservation benefit, should critical habitat be designated for the two listed crustacean species in the area covered by the CPRMP. For these reasons, we believe that the benefits of exclusion exceed the benefits of designating critical habitat on lands administered by BLM within the Carrizo Plain National Monument within unit 3 for longhorn fairy shrimp and unit 30 for vernal pool fairy shrimp.

(4) Exclusion Will Not Result in Extinction of the Species

We believe that exclusion of these lands will not result in extinction of vernal pool fairy shrimp or longhorn fairy shrimp, as they are considered occupied habitat. Any actions which might adversely affect these two crustaceans would have a Federal nexus and must undergo a consultation with the Service under the requirements of section 7 of the Act. The jeopardy standard of section 7, and routine implementation of habitat conservation through the section 7 process as discussed in the economic analysis, provide assurance that the species will not go extinct. In addition, the two crustacean species are protected from take under section 9 of the Act. The exclusion leaves these protections unchanged from those that would exist if the excluded areas were designated as critical habitat.

As discussed above, the excluded lands will be managed with explicit objectives to enhance and recover listed species populations. The CPRMP includes numerous conservation measures that provide conservation benefits at least equal to those that would result from a critical habitat designation. Objectives of the CPRMP include (1) conserving and protecting listed plants and animals and their natural communities including the vernal pool fairy shrimp and longhorn fairy shrimp in the Carrizo Plain; (2) incorporating a range of habitat and population management and enhancement measures; (3) fully mitigating the impacts of covered species; (4) maintaining ecosystem processes; and, (5) contributing to the recovery of covered species.

Additionally, critical habitat is being designated for both species in other areas that will be accorded the protection from adverse modification by federal actions using the conservation standard based on the Ninth Circuit decision in *Gifford Pinchot*. Vernal pool fairy shrimp are also protected on lands such as conservation banks covered by perpetual conservation easements and managed specifically for listed vernal pool species and their habitat *e.g.*, the following conservation banks: Arroyo Seco, Bryte Ranch, Clay Station, Laguna Creek, Sunrise Douglas, Aqua Fria, Viera Sandy Mush, Kennedy Table, Dolan Ranch, Dove Ridge, Wildlands '' Sheridan, Stillwater Plains, and Fitzgerald Ranch; National Wildlife Refuges, *e.g.*, Sacramento NWR and San Francisco NWR; and also on a variety of natural areas managed primarily for natural values, *e.g.*, Vina Plains Ecological Reserve, Jepson Plains, Grasslands Ecological Area, Stone Corral Ecological Preserve.

Relationship of Critical Habitat to Economic Impacts—Exclusions Under Section 4(b)(2) of the Act

This section allows the Secretary to exclude areas from critical habitat for economic reasons if she determines that the benefits of such exclusion exceed the benefits of designating the area as critical habitat, unless the exclusion will result in the extinction of the species concerned. This is a discretionary authority Congress has provided to the Secretary with respect to critical habitat. Although economic and other impacts may not be considered when listing a species, Congress has expressly required their consideration when designating critical habitat.

In general, we have considered in making the following exclusions that all of the costs and other impacts predicted in the economic analysis may not be avoided by excluding the area, due to the fact that all but three of the areas in question are currently occupied by one or more of the listed crustacean species and there will be requirements for consultation under Section 7 of the Act, or for permits under section 10 (henceforth ''consultation''), for any take of these species, which should also serve to protect the habitat of the plant species in the same pools, and other protections for the species exist elsewhere in the Act and under State and local laws and regulations. In conducting economic analyses, we are guided by the 10th Circuit Court of Appeal's ruling in the New Mexico Cattle Growers Association case (248 F.3d at 1285), which directed us to consider all impacts, ''regardless of whether those impacts are attributable co-extensively to other causes.'' As explained in the analysis, due to possible overlapping regulatory schemes and other reasons, there are also some elements of the analysis that may overstate some costs.

Conversely, the Ninth Circuit has recently ruled (''Gifford Pinchot'', 378 F.3d at 1071) that the Service's regulations defining ''adverse modification'' of critical habitat are invalid because they define adverse modification as affecting both survival and recovery of a species. The Court directed us to consider that determinations of adverse modification should be focused on impacts to recovery. While we have not yet proposed a new definition for public review and comment, compliance with the Court's direction may result in additional costs associated with the designation of critical habitat (depending upon the outcome of the rulemaking). In light of the uncertainty concerning the regulatory definition of adverse modification, our current methodological approach to conducting economic analyses of our critical habitat designations is to consider all conservation-related costs. This approach would include costs related to sections 4, 7, 9, and 10 of the Act, and should encompass costs that would be considered and evaluated in light of the *Gifford Pinchot* ruling.

In addition, we have received several credible comments on the economic analysis contending that it underestimates, perhaps significantly, the costs associated with this critical habitat designation. Both of these factors are a balancing consideration against the possibility that some of the costs shown in the economic analysis might be attributable to other factors, or are overly high, and so would not necessarily be avoided by excluding the area for which the costs are predicted from this critical habitat designation.

We recognize that we have excluded a significant portion of the proposed critical habitat. Congress expressly

contemplated that exclusions under this section might result in such situations when it enacted the exclusion authority. House Report 95–1625, stated on page 17: ''Factors of recognized or potential importance to human activities in an area will be considered by the Secretary in deciding whether or not all or part of that area should be included in the critical habitat * * * In some situations, no critical habitat would be specified. In such situations, the Act would still be in force prevent any taking or other prohibited act * * *.'' (emphasis supplied). We accordingly believe that these exclusions, and the basis upon which they are made, are fully within the parameters for the use of section 4(b)(2) set out by Congress.

The draft economic analysis published on June 30, 2005 (70 FR 37739) reanalyzed the economic effects to the 35 counties in which we had proposed designating critical habitat. The counties most impacted by the critical habitat designation to the new housing industry include Sacramento ($374 million), Butte ($145 million), Placer ($120 million), Solano ($87 million), Fresno ($43 million), Stanislaus ($33 million), Madera ($32 million), Monterey ($29 million), Shasta ($20 million), Tehama ($19 million) and Merced ($16 million). Further, economic impacts are unevenly distributed within counties. The analysis was conducted at the census tract level, resulting in a high degree of spatial precision compared to our previous economic analysis (March 14, 2003; 68 FR 12336), in which economic effects could not be deconstructed below the county level.

In the base scenario where critical habitat reduces the amount of new housing, designation of vernal pool critical habitat results in nearly $1.0 billion in losses to consumers and producers between the present and 2025. In the event that on-site avoidance can be accomplished through density increases alone, welfare losses from vernal pool critical habitat would be $820 million over the same time period.

Sacramento County is expected to experience the largest economic impacts from critical habitat ''nearly $375 million in consumer and producer surplus losses. As shown in the map of impacts in Sacramento County, these impacts are concentrated in census tracts close to downtown Sacramento. Economic impacts generally decline in those census tracts which are progressively further from the city center. This pattern is generally repeated in other counties.

A copy of the final economic analysis with supporting documents are included in our administrative record and may be obtained by contacting U.S. Fish and Wildlife Service, Branch of Endangered Species (see **ADDRESSES** section).

Application of Section 4(b)(2)—Economic Exclusion to 23 Census Tracts

We have considered, but are excluding from critical habitat for three of the four listed vernal pool crustaceans and 11 listed vernal pool plants, essential habitat in the 23 census tracts and counties listed in Table 2. No critical habitat for longhorn fairy shrimp is contained within any of the 23 census tracts. Therefore, critical habitat for 14 of the 15 listed vernal species is affected by exclusion of critical habitat for economic reasons.

TABLE 2.—EXCLUDED CENSUS TRACTS, ASSOCIATED SPECIES, AND COSTS

Census tract	Species	County	Welfare impact in draft EA ($)	Adjustments after public comment and review	Total adjusted cost
06067008701	Vernal pool tadpole shrimp, Vernal pool fairy shrimp, *Orcuttia viscida, Orcuttia tenuis*.	Sacramento	304,224,384	−70,565,264	233,659,120
06007000900	Vernal pool tadpole shrimp, Vernal pool fairy shrimp, *Limnanthes floccosa* ssp. *californica*.	Butte	88,974,848	0	88,974,848
06061021301	Vernal pool fairy shrimp	Placer	74,583,712	0	74,583,712
06061021303	Vernal pool fairy shrimp	Placer	37,184,144	0	37,184,144
06095252309	*Lasthenia conjugens*, Vernal pool tadpole shrimp, Vernal pool fairy shrimp.	Solano	28,771,992	0	28,771,992
06095253500	Vernal pool tadpole shrimp, Vernal pool fairy shrimp, Conservancy fairy shrimp, *Tuctoria mucronata, Lasthenia conjugens, Neostapfia colusana*.	Solano	27,448,252	0	27,448,252
06053014103	*Lasthenia conjugens*	Monterey	26,854,790	0	26,854,790
06067009315	*Orcuttia viscida, Orcuttia tenuis*, Vernal pool tadpole shrimp, Vernal pool fairy shrimp.	Sacramento	24,236,570	0	24,236,570
06019005515	Vernal pool fairy shrimp, *Orcuttia inaequalis, Castilleja campestris* ssp. *succulenta*.	Fresno	22,912,350	0	22,912,350
06067009200	Vernal pool tadpole shrimp, Vernal pool fairy shrimp, *Orcuttia viscida, Orcuttia tenuis*.	Sacramento	21,195,492	0	21,195,492
06099000102	Vernal pool fairy shrimp, *Castilleja campestris* ssp. *succulenta, Chamaesyce hooveri, Tuctoria greenei, Neostapfia colusana*.	Stanislaus	16,931,104	0	16,931,104
06007000101	Vernal pool fairy shrimp	Butte	16,364,906	0	16,364,906

TABLE 2.—EXCLUDED CENSUS TRACTS, ASSOCIATED SPECIES, AND COSTS—Continued

Census tract	Species	County	Welfare impact in draft EA ($)	Adjustments after public comment and review	Total adjusted cost
06067008600	Vernal pool tadpole shrimp, Vernal pool fairy shrimp *Orcuttia tenuis*.	Sacramento	16,254,806	0	16,254,806
06019005511	*Orcuttia inaequalis, Castilleja campestris* ssp. *succulenta,* Vernal pool fairy shrimp.	Fresno	13,001,144	0	13,001,144
06039000105	Vernal pool tadpole shrimp, Vernal pool fairy shrimp, *Tuctoria greenei, Orcuttia pilosa, Castilleja campestris* ssp. *succulenta Orcuttia inaequalis*.	Madera	12,117,652	0	12,117,652
06007001400	Conservancy fairy shrimp, Vernal pool tadpole shrimp, Vernal pool fairy shrimp, *Limnanthes floccosa* ssp. *californica, Tuctoria greenei, Orcuttia pilosa, Chamaesyce hooveri, Orcuttia tenuis*.	Butte	11,405,310	+2,436,015	13,841,325
06089010802	*Orcuttia tenuis*	Shasta	10,167,456	0	10,167,456
06099000101	Vernal pool fairy shrimp, *Neostapfia colusana*.	Stanislaus	9,925,463	0	9,925,463
06007002200	Vernal pool tadpole shrimp, *Limnanthes floccosa* ssp. *californica, Tuctoria greenei, Orcuttia pilosa, Chamaesyce hooveri*.	Butte	8,825,428	0	8,825,428
06095252502	*Lasthenia conjugens*	Solano	7,993,725	0	7,993,725
06047001901	.....	Merced	5,759,870	+10,000,000	15,759,870
06103000900	.....	Tehama	5,359,834	+6,093,965	11,453,799
06061020902	.....	Placer	2,462,844	***	74,583,712
Total	.....	.....	779,373,528		740,920,792

*** Placer Vineyards straddles two census tracts; impacts for tracts 06061020902 and 06061021301 were aggregated in the final analysis. See ''Summary of Comments and Recommendations Section.''

The Notice of Availability of the revised draft economic analysis (70 FR 37739) solicited public comment on the potential exclusion of the 20 highest cost areas. As we finalized the economic analysis, we identified high costs associated with the critical habitat designation to public projects in Tehama and Merced County. These public projects were the development of the UC Merced campus and the widening of Highway 99 in Tehama County. The final economic analysis indicates additional costs in census tracts in which these projects were located were $10,000,000 for UC Merced and $6,093,965 for Highway 99. On the basis of the significance of these costs, we determined these two census tracts also should be excluded. In addition, information received during the comment period indicated that the Placer Vineyards Specific Plan was located in two census tracts in Placer County, one of which was identified in the Draft Economic Analysis as being in one of the 20 highest cost areas, and one of which was not. As a result, impacts for the two affected census tracts were aggregated in the final analysis, which significantly increased the costs in the second census tract (See ''Summary of Comments and Recommendations Section''). For this reason, it too, is being excluded from the final critical habitat designation.

(1) Benefits of Inclusion of the 23 Excluded Census Tracts

The areas excluded are currently occupied by one or more of the three listed vernal pool crustaceans or the 11 listed vernal pool plants, as shown in Table 2. If these areas were designated as critical habitat, any actions with a Federal nexus which may adversely affect the critical habitat would require a consultation with us, as explained above in the section of this notice entitled ''Effects of Critical Habitat Designation''. Primary constituent elements in these areas would be protected from destruction or adverse modification by federal actions using a conservation standard based on the Ninth Circuit's decision in *Gifford Pinchot*. This requirement would be in addition to the requirement that proposed Federal actions avoid likely jeopardy to the species' continued existence. However, inasmuch as all but three of these units are currently occupied by one or more of the crustacean species, consultation for activities which may adversely affect the species, including possibly significant habitat modification (see definition of ''harm'' at 50 CFR 17.3), would be required, even without the critical habitat designation. The requirement to conduct such consultation would occur regardless of whether the authorization for incidental take occurs under either section 7 or section 10 of the Act. For the three units occupied only by one or more of the plant species, there is still a requirement for a jeopardy analysis to ensure Federal actions are note likely to jeopardize the continued existence of the species.

We determined, however, in the economic analysis that designation of critical habitat could result in approximately $800,000,000 in costs in these 23 census tracts, the majority of which are directly related to residential development impacts. We believe that

the potential decrease in residential housing development that could be caused by this designation of critical habitat for the 15 vernal pool species would minimize impacts to and potentially provide some protection to the species, the vernal pool complexes where they reside, and the physical and biological features essential to their conservation (*i.e.*, their primary constituent elements). Thus, this decrease in residential housing development would directly translate into a potential benefit to the species that would result from this designation.

Another possible benefit of a critical habitat designation is education of landowners and the public regarding the potential conservation value of these areas. This may focus and contribute to conservation efforts by other parties by clearly delineating areas of high conservation values for certain species. However, we believe that this education benefit has largely been achieved, or is being achieved in equal measure by other means. As explained above, this is the second iteration of the critical habitat process for these lands, which has included both public comment periods and litigation, all with accompanying publicity. In addition, we published the *Draft Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* in October, 2004, and are working to finalize this plan by the court-ordered deadline of December 15, 2005. The draft recovery plan identifies areas that are important for the conservation of each of the 15 listed vernal pool species. Upon publication of the draft recovery plan, we held numerous workshops throughout the state to educate the public about recovery strategies for the species covered by the plan, including all 15 of the listed vernal pool species considered in this final rule. In addition to identifying specific areas that are important for the conservation of the 15 listed vernal pool species, the recovery plan details the actions necessary to achieve self-sustaining populations of each listed species in the wild so they will no longer require protection under the Act. The recovery plan provides information geared to the general public, landowners, and agencies about areas that are important for the conservation of each listed vernal pool species and what actions they can implement to further the conservation of vernal pool species within their own jurisdiction and capabilities, and contains provisions for ongoing public outreach and education as part of the recovery process.

In summary, we believe that inclusion of the 23 census tracts as critical habitat would provide some additional Federal regulatory benefits for the species. However, that benefit is limited to some degree by the fact that the proposed critical habitat is occupied by the species, and therefore there must, in any case, be consultation with the Service over any Federal action which may affect one or more of the 14 listed vernal pool species within those 23 census tracts. The additional educational benefits which might arise from critical habitat designation are largely accomplished through the multiple opportunities for public notice and comments which accompanied the development of this regulation, publicity over the prior litigation, and public outreach associated with the development of the draft and, ultimately, the implementation of the final recovery plan for vernal pool species.

(2) Benefits of Exclusion of the 23 Excluded Census Tracts

The economic analysis conducted for this proposal estimates that the costs associated with designating these 23 census tracts would be approximately $740,920,792. These costs would be associated with each of the 14 listed vernal pool species in amounts shown in Table 2 above. By excluding these census tracts, some or all of these costs will be avoided. Two important public-sector projects, UC Merced and the widening of Highway 99, will avoid the costs associated with critical habitat designation.

(3) Benefits of Exclusion Outweigh the Benefits of Inclusion of the 23 Census Tracts

We believe that the benefits from excluding these lands from the designation of critical habitat—avoiding the potential economic and human costs, both in dollars and jobs, predicted in the economic analysis—exceed the educational and regulatory benefits which could result from including those lands in this designation of critical habitat.

We have evaluated and considered the potential economic costs on the residential development industry relative to the potential benefit for the 15 vernal pool species and their primary constituent elements derived from the designation of critical habitat. We believe that the potential economic impact of up to approximately $800 million on the development industry significantly outweighs the potential conservation and protective benefits for the species and their primary constituent elements derived from the residential development not being constructed as a result of this designation.

We also believe that excluding these lands, and thus helping landowners avoid the additional costs that would result from the designation, will contribute to a more positive climate for Habitat Conservation Plans and other active conservation measures which provide greater conservation benefits than would result from designation of critical habitat—even in the post-*Gifford Pinchot* environment—which requires only that the there be no adverse modification resulting from actions with a Federal nexus. We therefore find that the benefits of excluding these areas from this designation of critical habitat outweigh the benefits of including them in the designation.

We believe that the ongoing recovery planning process provides at least equivalent value to the public, State and local governments, scientific organizations, and Federal agencies in providing information about habitat that is essential to the conservation of the three vernal pool crustacean species and 11 vernal pool plants, and in facilitating conservation efforts through heightened public awareness of the plight of the listed species. The draft recovery plan contains explicit objectives for ongoing public education, outreach, and collaboration at local, state, and federal levels, and between the private and public sectors, in recovering the four listed crustaceans.

(4) Exclusion Will Not Result in Extinction of the Species

Conservancy Fairy Shrimp, Vernal Pool Fairy Shrimp, Vernal Pool Tadpole Shrimp

We believe that exclusion of these lands will not result in the extinction of Conservancy fairy shrimp, vernal pool fairy shrimp or vernal pool tadpole shrimp, as they are considered occupied habitat. Actions which might adversely affect these four crustaceans are expected to have a Federal nexus, and would thus undergo a section 7 consultation with the Service. The jeopardy standard of section 7, and routine implementation of habitat preservation through the section 7 process, as discussed in the economic analysis, provide assurance that the species will not go extinct. In addition, the three crustaceans are protected from take under section 9 of the Act. The exclusion leaves these protections unchanged from those that would exist if the excluded areas were designated as critical habitat.

Critical habitat is being designated for all three species in other areas that will

be accorded the protection from adverse modification by Federal actions using the conservation standard based on the Ninth Circuit decision in *Gifford Pinchot.* Additionally, all species occur on lands protected and managed either explicitly for the species, or indirectly through more general objectives to protect natural values, this provides protection from extinction while recovery measures are being implemented. For example, Conservancy fairy shrimp is protected on lands such as conservation banks and other natural areas protected by perpetual conservation easements and managed specifically for the species *e.g.*, Viera-Sandy Mush, Vina Plains. The species also occurs on lands managed to protect and enhance wetland values under the Wetlands Reserve Program of the Natural Resource Conservation Service. Vernal pool fairy shrimp are protected on lands such as conservation banks protected by perpetual conservation easements and managed specifically for the species and its habitat, *e.g.*, Arroyo Seco, Bryte Ranch, Clay Station, Laguna Creek, Sunrise Douglas, Aqua Fria, Viera Sandy Mush, Kennedy Table, Dolan Ranch, Dove Ridge, Wildlands—Sheridan, Stillwater Plains, Campbell Ranch and Fitzgerald Ranch; National Wildlife Refuges, *e.g.*, Sacramento NWR Complex, San Francisco NWR, and San Luis NWR Complex; and also on a variety of natural areas managed to maintain and enhance natural values, *e.g.*, Vina Plains Ecological Reserve, Jepson Plains, Grasslands Ecological Area, Stone Corral Ecological Preserve, Howard Ranch. Vernal pool tadpole shrimp occur on lands with perpetual conservation easements managed explicitly for the species on conservation banks, *e.g.*, Stillwater Plains, Campbell Ranch, Arroyo Seco, Bryte Ranch, Clay Station, Laguna Creek, Sunrise Douglas, Viera Sanda Mush, Kennedy Table, Dolan Ranch, Dove Ridge, Wildlands—Sheridan, and Fitzgerald Ranch; National Wildlife Refuges, *e.g.*, Sacramento NWR Complex, San Francisco NWR, and San Luis NWR Complex; and a variety of natural areas managed to maintain and enhance natural values, *e.g.*, Nature Conservancy easements, Vina Plains Ecological Reserve, Jepson Plains, Grasslands Ecological Area, Dale's Lake Ecological Reserve, Stone Corral Ecological Preserve, Big Table Mountain Ecological Preserve.

We believe that exclusion of the 23 census tracts will not result in extinction of any of the 11 listed vernal pool plants, as they are considered occupied habitat. Federal Actions which might adversely affect these 11 listed plants would thus undergo a consultation with the Service under the requirements of section 7 of the Act. The jeopardy standard of section 7, and routine implementation of habitat preservation as part of the section 7 process, as discussed in the draft economic analysis, provide insurance that the species will not go extinct. The exclusion leaves these protections unchanged from those that would exist if the excluded areas were designated as critical habitat.

Critical habitat is being designated for all 11 species in other areas that will be accorded the protection from adverse modification by federal actions using the conservation standard based on the Ninth Circuit decision in *Gifford Pinchot.* Additionally, all species occur on lands protected and managed either explicitly for the species, or indirectly through more general objectives to protect natural values, this factor acting in concert with the other protections provided under the Act for these lands absent designation of critical habitat on them, and acting in concert with protections afforded each species by the remaining critical habitat designation for each species, lead us to find that exclusion of these 23 census tracts will not result in extinction of any of these 11 listed vernal pool plants. *Limnanthes floccosa* ssp. *californica* occurs on land protected by conservation easements on several small reserves in Butte County and at the Dove Ridge Conservation Bank. *Lasthenia conjugens* exists on protected lands on San Francisco Bay National Wildlife Refuge, Fort Ord, and Travis Air Force Base, and the State Route 4 Preserve. *Chamaesyce hooveri* occurs on the Sacramento NWR Complex, the Vina Plains Ecological Preserve, Stone Corral Ecological Reserve, and the Bert King Ranch. *Castilleja campestris* spp. *succulenta* occurs on protected lands within the Big Table Mountain Ecological Reserve and the Big Table Mountain Preserve, the Kennedy Table Conservation Bank, and the Flying M Ranch. *Neostapfia colusana* occurs on protected lands within the Jepson Prairie Preserve and the Flying M Ranch. *Tuctoria greenei* occurs on protected lands within the Vina Plains Preserve and on the Sacramento NWR Complex. *Orcuttia pilosa* occurs on protected lands within the Vina Plains Preserve and the Sacramento NWR Complex. *Orcuttia viscida* occurs on protected lands within the Phoenix Field Ecological Reserve, the Arroyo Seco Conservation Bank, and the Sunrise Douglas preserve. *Orcuttia inaequalis* occurs on protected lands on the Flying M Ranch and on an ecological reserve managed by the California Department of Fish and Game. *Orcuttia tenuis* occurs on protected lands at the Boggs Lake Preserve, the Vina Plains Preserve, the Dale's Lake Ecological Reserve, the Stillwater Plains Conservation Banks, the Arroyo Seco Conservation Bank, and the Sunrise Douglas preserve. *Tuctoria mucronata* occurs on protected land on the Jepson Prairie Preserve.

Required Determinations

Regulatory Planning and Review

In accordance with Executive Order 12866, this document is a significant rule in that it may raise novel legal and policy issues, but will not have an annual effect on the economy of $100 million or more or affect the economy in a material way. Due to the tight timeline for publication in the **Federal Register**, the Office of Management and Budget (OMB) has not formally reviewed this rule. As explained above, we prepared an economic analysis of this action. We 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. We also used it to help determine whether to exclude any area from critical habitat, as provided for under section 4(b)(2), if we determine that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless we determine, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species.

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

Under the Regulatory Flexibility Act (RFA) (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever 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 effect 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 an agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a statement of factual basis for certifying

that the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA also amended the RFA to require a certification statement.

Small entities include small organizations, such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; as well as small businesses. Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. To determine if potential economic impacts to these small entities are significant, we consider the types of activities that might trigger regulatory impacts under this rule, as well as the types of project modifications that may result. In general, the term ''significant economic impact'' is meant to apply to a typical small business firm's business operations.

To determine if the rule could significantly affect a substantial number of small entities, we consider the number of small entities affected within particular types of economic activities (*e.g.*, housing development, grazing, oil and gas production, timber harvesting). We apply the ''substantial number'' test individually to each industry to determine if certification is appropriate. However, the SBREFA does not explicitly define ''substantial number'' or ''significant economic impact.'' Consequently, to assess whether a ''substantial number'' of small entities is affected by this designation, this analysis considers the relative number of small entities likely to be impacted in an area. 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. In estimating the number of small entities potentially affected, we also consider 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. In areas where the species is present, Federal agencies already are required to consult with us under section 7 of the Act on activities they fund, permit, or implement that may affect bull trout. Federal agencies also must consult with us if their activities may affect critical habitat. Designation of critical habitat, therefore, could result in an additional economic impact on small entities due to the requirement to reinitiate consultation for ongoing Federal activities.

Small Business Impacts

Small businesses represent a substantial share of firms in the new home construction sector. Critical habitat is not expected to result in significant small business impacts since revenue losses are less than one percent of total small business revenues in affected areas.

In general, two different mechanisms in section 7 consultations could lead to additional regulatory requirements for the approximately four small businesses, on average, that may be required to consult with us each year regarding their project's impact on the 15 vernal pool species and their habitats. First, if we conclude, in a biological opinion, that a proposed action is likely to jeopardize the continued existence of a species or adversely modify its critical habitat, we can offer ''reasonable and prudent alternatives.'' Reasonable and prudent alternatives are alternative actions that can be implemented in a manner consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that would avoid jeopardizing the continued existence of listed species or result in adverse modification of critical habitat. A Federal agency and an applicant may elect to implement a reasonable and prudent alternative associated with a biological opinion that has found jeopardy or adverse modification of critical habitat. An agency or applicant could alternatively choose to seek an exemption from the requirements of the Act or proceed without implementing the reasonable and prudent alternative. However, unless an exemption were obtained, the Federal agency or applicant would be at risk of violating section 7(a)(2) of the Act if it chose to proceed without implementing the reasonable and prudent alternatives.

Second, if we find that a proposed action is not likely to jeopardize the continued existence of a listed animal or plant species, we may identify reasonable and prudent measures designed to minimize the amount or extent of take and require the Federal agency or applicant to implement such measures through non-discretionary terms and conditions. We may also identify discretionary conservation recommendations designed to minimize or avoid the adverse effects of a proposed action on listed species or critical habitat, help implement recovery plans, or to develop information that could contribute to the recovery of the species.

Based on our experience with consultations pursuant to section 7 of the Act 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 alternatives. These measures, by definition, must be economically feasible and within the scope of authority of the Federal agency involved in the consultation. 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, as described in the final listing rule and this critical habitat designation. Within the final CHUs, the types of Federal actions or authorized activities that we have identified as potential concerns are:

(1) Regulation of activities affecting waters of the United States by the Corps under section 404 of the Clean Water Act;

(2) Regulation of timber harvest, grazing, mining, and recreation by the USFS and BLM;

(3) Road construction and maintenance, right-of-way designation, and regulation of agricultural activities;

(4) Hazard mitigation and post-disaster repairs funded by the Federal Emergency Management Agency; and

(5) Activities funded by the EPA, U.S. Department of Energy, or any other Federal agency.

It is likely that a developer or other project proponent could modify a project or take measures to protect the 15 vernal pool species. The kinds of actions that may be included if future reasonable and prudent alternatives become necessary include conservation set-asides, management of competing nonnative species, restoration of degraded habitat, and regular monitoring. These are based on our understanding of the needs of the species and the threats it faces, as described in the final listing rule and proposed critical habitat designation. These measures are not likely to result

in a significant economic impact to project proponents.

In summary, we have considered whether this would result in a significant economic effect on a substantial number of small entities. We have determined, for the above reasons and based on currently available information, that it is not likely to affect a substantial number of small entities. Federal involvement, and thus section 7 consultations, would be limited to a subset of the area designated. The most likely Federal involvement could include Corps permits, permits we may issue under section 10(a)(1)(B) of the Act, Federal Housing Administration funding for road improvements, hydropower licenses issued by FERC, and regulation of timber harvest, grazing, mining, and recreation by the USFS and BLM. A regulatory flexibility analysis is not required.

Small Business Regulatory Enforcement Fairness Act (5 U.S.C 801 et seq.) (SBREFA)

Under SBREFA, this rule is not a major rule. Our detailed assessment of the economic effects of this designation is described in the economic analysis. Based on the effects identified in the economic analysis, we believe that this rule will not have an annual effect on the economy of $100 million or more, will not cause a major increase in costs or prices for consumers, and will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises. Refer to the final economic analysis for a discussion of the effects of this determination.

Executive Order 13211

On May 18, 2001, the President issued Executive Order 13211 on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. This final rule to designated critical habitat for the 15 vernal pool species is not expected to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action and no Statement of Energy Effects is required.

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

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

(a) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, Tribal governments, or the private sector and includes both ''Federal intergovernmental mandates'' and ''Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)–(7). ''Federal intergovernmental mandate'' includes a regulation that ''would impose an enforceable duty upon State, local, or tribal governments'' with two exceptions. It excludes ''a condition of federal assistance.'' It also excludes ''a duty arising from participation in a voluntary Federal program,'' unless the regulation ''relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,'' if the provision would ''increase the stringency of conditions of assistance'' or ''place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding'' and the State, local, or Tribal governments ''lack authority'' to adjust accordingly. (At the time of enactment, these entitlement programs were: Medicaid; Aid to Family with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement.) ''Federal private sector mandate'' includes a regulation that ''would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance; or (ii) a duty arising from participation in a voluntary Federal program.''

The designation of critical habitat does not impose a legally binding duty on non-Federal government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities who receive Federal funding, assistance, permits or otherwise require approval or authorization from a Federal agency for an action may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply; nor would critical habitat shift the costs of the large entitlement programs listed above on to State governments.

(b) We do not believe that this rule will significantly or uniquely affect small governments because it 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. As such, Small Government Agency Plan is not required.

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 Interior and Department of Commerce policy, we requested information from, and coordinated development of, this final critical habitat designation with appropriate State resource agencies in California and Oregon. The designation of critical habitat in areas currently occupied by the 15 vernal pool species 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 may have some benefit to these governments in that the areas essential to the conservation of the species are more clearly defined, and the PCEs of the habitat necessary to the survival of the species are specifically identified. While making 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 consultations to occur).

Civil Justice Reform

In accordance with Executive Order 12988, the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the Order. We are designating critical habitat in accordance with the provisions of the Endangered Species Act. This final rule uses standard property descriptions and identifies the PCEs within the designated areas to assist the public in understanding the habitat needs of the 15 vernal pool species.

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

This rule does not contain any new collections of information that require approval by the Office of Management and Budget (OMB) under the Paperwork Reduction Act. This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act

It is our position that, outside the Tenth Circuit, we do not need to prepare environmental analyses as defined by the NEPA in connection with designating critical habitat under the Endangered Species Act of 1973, as amended. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This assertion was upheld in the courts of the Ninth Circuit (*Douglas County* v. *Babbitt*, 48 F.3d 1495 (9th Cir. Ore. 1995), cert. denied 116 S. Ct. 698 (1996).]

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 Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. We have excluded Tribal trust lands of the Mechoopda Indian Tribe of Chico Rancheria, California, from this final critical habitat designation pursuant to section 4(b)(2) of the Act. Please refer to Relationship of Critical Habitat to Tribal Lands for further discussion of our exclusion of these Tribal trust lands.

References Cited

A complete list of all references cited in this rulemaking is available upon request from the Field Supervisor, Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service (see **ADDRESSES** section).

Author(s)

Primary authors of this package are the staff of the Sacramento Fish and Wildlife Office.

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

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

PART 17—[AMENDED]

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

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

■ 2. Amend § 17.11(h) by revising the entries for ''Fairy shrimp, Conservancy'', ''Fairy shrimp, longhorn'', ''Fairy shrimp, vernal pool'', and ''Tadpole shrimp, vernal pool'' under CRUSTACEANS in the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
CRUSTACEANS							
*	*	*	*	*	*	*	
Fairy shrimp, Conservancy.	*Branchinecta conservatio.*	U.S.A. (CA)	Entire	E	552	17.97	NA
Fairy shrimp, longhorn.	*Branchinecta longiantenna.*	U.S.A. (CA)	Entire	E	552	17.97	NA
*	*	*	*	*	*	*	
Fairy shrimp, vernal pool.	*Branchinecta lynchi*	U.S.A. (CA, OR)	Entire	E	552	17.97	NA
*	*	*	*	*	*	*	
Tadpole shrim, vernal pool.	*Lepidurus packardi*	U.S.A. (CA)	Entire	E	552	17.97	NA

■ 3. Amend § 17.12(h) by revising the entries for *Castilleja campestris* ssp. *succulenta* (fleshy owl's-clover), *Chamaesyce hooveri* (Hoover's spurge), *Lasthenia conjugens* (Contra Costa goldfields), *Limnanthes floccosa* ssp. *californica* (Butte County meadowfoam), *Neostapfia colusana* (Colusa grass), *Orcuttia inaequalis* (San Joaquin Valley Orcutt grass), *Orcuttia pilosa* (hairy Orcutt grass), *Orcuttia tenuis* (slender Orcutt grass), *Orcuttia viscida* (Sacramento Orcutt grass), *Tuctoria greenei* (Greene's tuctoria), and *Tuctoria mucronata* (Solano grass) under FLOWERING PLANTS in the List of Endangered and Threatened 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							
*	*	*	*	*	*		*
Castilleja campestris ssp. *succulenta.*	Fleshy owl's-clover	U.S.A. (CA)	Scrophulariaceae	T	611	17.97	NA
*	*	*	*	*	*		*
Chamaesyce hooveri	Hoover's spurge	U.S.A. (CA)	Euphorbiaceae	T	611	17.97	NA
*	*	*	*	*	*		*
Lasthenia conjugens	Contra Costa goldfields.	U.S.A. (CA)	Asteraceae	E	619	17.97	NA
*	*	*	*	*	*		*
Limnanthes floccosa ssp. *californica.*	Butte County meadowfoam.	U.S.A. (CA)	Limnanthaceae	E	471	17.97	NA
*	*	*	*	*	*		*
Neostapfia colusana	Colusa grass	U.S.A. (CA)	Poaceae	T	611	17.97	NA
*	*	*	*	*	*		*
Orcuttia inaequalis ...	San Joaquin Valley Orcutt grass.	U.S.A. (CA)	Poaceae	T	611	17.97	NA
Orcuttia pilosa	Hairy Orcutt grass ..	U.S.A. (CA)	Poaceae	T	611	17.97	NA
Orcuttia tenuis	Slender Orcutt grass.	U.S.A. (CA)	Poaceae	T	611	17.97	NA
Orcuttia viscida	Sacramento Orcutt grass.	U.S.A. (CA)	Poaceae	T	611	17.97	NA
*	*	*	*	*	*		*
Tuctoria greenei	Greene's tuctoria	U.S.A. (CA)	Poaceae	T	611	17.97	NA
Tuctoria mucronata ..	Solano grass	U.S.A. (CA)	Poaceae	T	44	17.97	NA
*	*	*	*	*	*		*

■ 4. In § 17.95(h), remove the critical habitat entries for Conservancy fairy shrimp (*Branchinecta conservatio*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardi*).

■ 5. In § 17.96(a), remove the critical habitat entries for Family Asteraceae: *Lasthenia conjugens* (Contra Costa goldfields), Family Euphorbiaceae: *Chamaesyce hooveri* (Hoover's spurge), Family Limnanthaceae: *Limnanthes floccosa* ssp. *californica* (Butte County meadowfoam), Family Poaceae: *Neostapfia colusana* (Colusa grass), Family Poaceae: *Orcuttia inaequalis* (San Joaquin Valley Orcutt grass), Family Poaceae: *Orcuttia pilosa* (hairy Orcutt grass), Family Poaceae: *Orcuttia tenuis* (slender Orcutt grass), Family Poaceae: *Orcuttia viscida* (Sacramento Orcutt grass), Family Poaceae: *Tuctoria greenei* (Greene's tuctoria), Family Poaceae: *Tuctoria mucronata* (Solano grass), and Family Scrophulariaceae: *Castilleja campestris* ssp. *succulenta* (fleshy owl's-clover).

■ 6. Add a new § 17.97 to read as follows:

§ 17.97 Critical habitat; 15 vernal pool species in California and southern Oregon.

(a) The paragraphs in this section provide maps and legal descriptions of general critical habitat areas designated for the following 15 species: Conservancy fairy shrimp (*Branchinecta conservatio*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), *Castilleja campestris* ssp. *succulenta* (fleshy owl's-clover), *Chamaesyce hooveri* (Hoover's spurge), *Lasthenia conjugens* (Contra Costa goldfields), *Limnanthes floccosa* ssp. *californica* (Butte County meadowfoam), *Neostapfia colusana* (Colusa grass), *Orcuttia inaequalis* (San Joaquin Valley Orcutt grass), *Orcuttia pilosa* (hairy Orcutt grass), *Orcuttia tenuis* (slender Orcutt grass), *Orcuttia viscida* (Sacramento Orcutt grass), *Tuctoria greenei* (Greene's tuctoria), and *Tuctoria mucronata* (Solano grass).

(b) Critical habitat units are depicted for Jackson County, Oregon, and the following counties in California: Alameda, Amador, Butte, Colusa, Contra Costa, Fresno, Glenn, Kings, Lake, Lassen, Madera, Mariposa, Mendocino, Merced, Modoc, Monterey, Napa, Placer, Plumas, Sacramento, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Shasta, Siskiyou, Solano, Stanislaus, Tehama, Tulare, Tuolumne, Ventura, Yolo, and Yuba.

(c) Within the areas designated as critical habitat for the 15 vernal pool species, the primary constituent elements are as follows:

(1) The primary constituent elements of critical habitat for Conservancy fairy shrimp (*Branchinecta conservatio*) are the habitat components that provide:

(i) Topographic features characterized by mounds and swales and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools described in paragraph (c)(1)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools;

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 19 days, in all but the driest years; thereby providing adequate water for

incubation, maturation, and reproduction. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands;

(iii) Sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding; and

(iv) Structure within the pools described in paragraph (c)(1)(ii) of this section, consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

(2) The primary constituent elements of critical habitat for longhorn fairy shrimp (*Branchinecta longiantenna*) are the habitat components that provide:

(i) Topographic features characterized by mounds and swales and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools described in paragraph (c)(2)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools;

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 23 days, in all but the driest years; thereby providing adequate water for incubation, maturation, and reproduction. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands;

(iii) Sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding; and

(iv) Structure within the pools described in paragraph (c)(2)(ii) of this section, consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

(3) The primary constituent elements of critical habitat for vernal pool fairy shrimp (*Branchinecta lynchi*) are the habitat components that provide:

(i) Topographic features characterized by mounds and swales and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools described in paragraph (c)(3)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools;

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 18 days, in all but the driest years; thereby providing adequate water for incubation, maturation, and reproduction. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands;

(iii) Sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding; and

(iv) Structure within the pools described in paragraph (c)(3)(ii) of this section, consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

(4) The primary constituent elements of critical habitat for vernal pool tadpole shrimp (*Lepidurus packardi*) are the habitat components that provide:

(i) Topographic features characterized by mounds and swales and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools described in paragraph (c)(4)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools;

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 41 days, in all but the driest years; thereby providing adequate water for incubation, maturation, and reproduction. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands;

(iii) Sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding; and

(iv) Structure within the pools described in paragraph (c)(4)(ii) of this section, consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

(5) The primary constituent elements of critical habitat for *Limnanthes floccosa* ssp. *californica* (Butte County meadowfoam) are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in paragraph (c)(5)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(6) The primary constituent elements of critical habitat for *Lasthenia conjugens* (Contra Costa goldfields) are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described

in paragraph (c)(6)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools;

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands; and

(7) The primary constituent elements of critical habitat for *Chamaesyce hooveri* (Hoover's spurge) are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in paragraph (c)(7)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(8) The primary constituent elements of critical habitat for *Castilleja campestris* ssp. *succulenta* (Fleshy owl's-clover) are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in paragraph (c)(8)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(9) The primary constituent elements of critical habitat for *Neostapfia colusana* (Colusa grass) are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in paragraph (c)(9)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(10) The primary constituent elements of critical habitat for *Tuctoria greenei* (Greene's tuctoria) are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in paragraph (c)(10)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(11) The primary constituent elements of critical habitat for *Orcuttia pilosa* (hairy Orcutt grass) are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in paragraph (c)(11)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(12) The primary constituent elements of critical habitat for *Orcuttia viscida* (Sacramento Orcutt grass) are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in paragraph (c)(12)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and

nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(13) The primary constituent elements of critical habitat for *Orcuttia inaequalis* (San Joaquin Valley Orcutt grass) are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in paragraph (c)(13)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(14) The primary constituent elements of critical habitat for *Orcuttia tenuis* (slender Orcutt grass) are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in paragraph (c)(14)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(15) The primary constituent elements of critical habitat for *Tuctoria mucronata* (Solano grass) are the habitat components that provide:

(i) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in paragraph (c)(15)(ii) of this section, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

(ii) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

(d) Maps of the critical habitat for Conservancy fairy shrimp (*Branchinecta conservatio*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), *Limnanthes floccosa* ssp. *californica* (Butte County meadowfoam), *Lasthenia conjugens* (Contra Costa goldfields), *Chamaesyce hooveri* (Hoover's spurge), *Castilleja campestris* ssp. *succulenta* (fleshy (or succulent) owl's-clover), *Neostapfia colusana* (Colusa grass), *Tuctoria greenei* (Greene's tuctoria), *Orcuttia pilosa* (hairy Orcutt grass), *Orcuttia viscida* (Sacramento Orcutt grass), *Orcuttia inaequalis* (San Joaquin Valley Orcutt grass), *Orcuttia tenuis* (slender Orcutt grass), and *Tuctoria mucronata* (Solano grass) follow. The legal descriptions of these critical habitat units are provided in paragraph (e) of this section.

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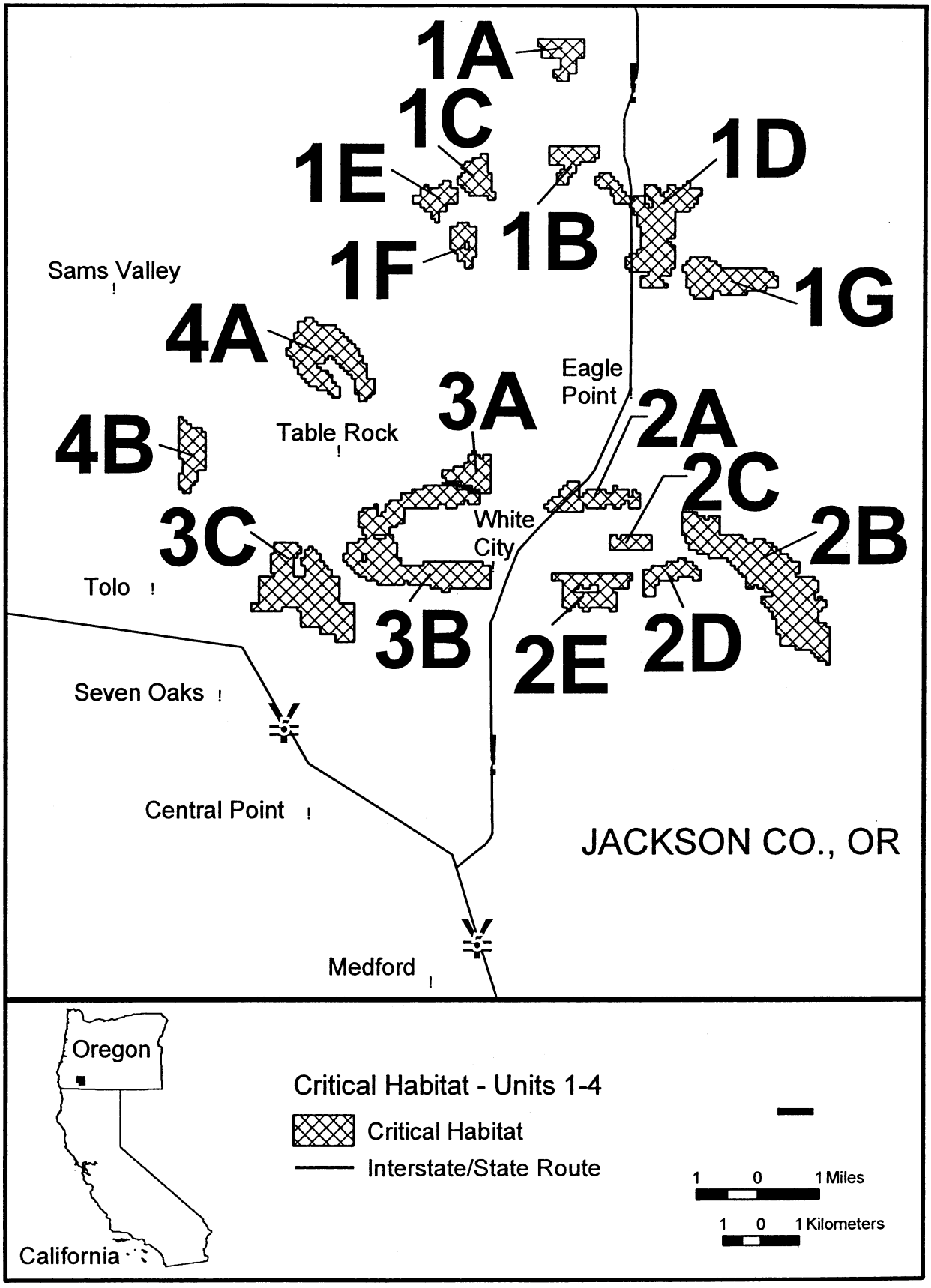
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Eagle Point
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2A
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2C
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3C
White City
Tolo
3B
2E
2D
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Central Point
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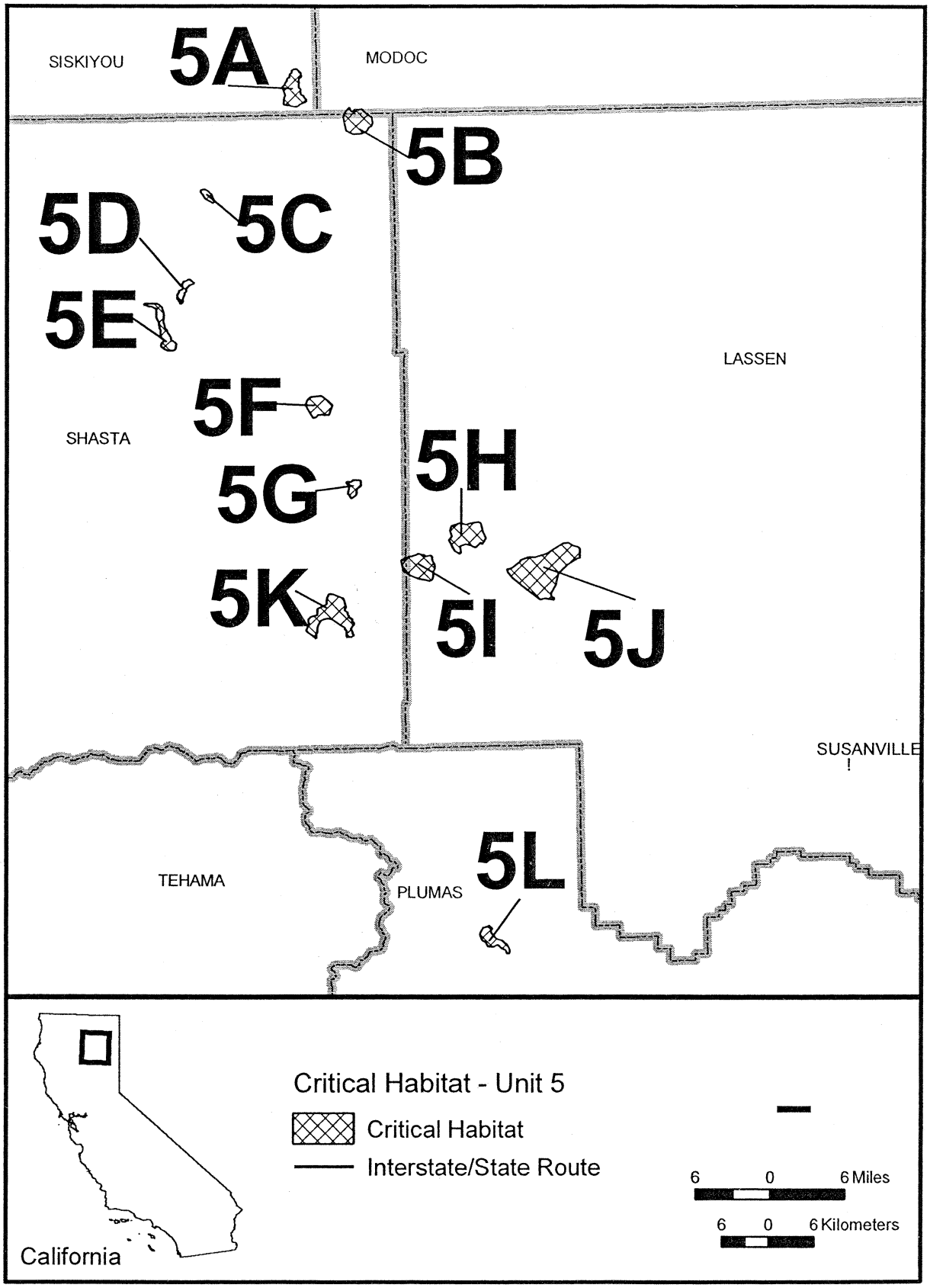
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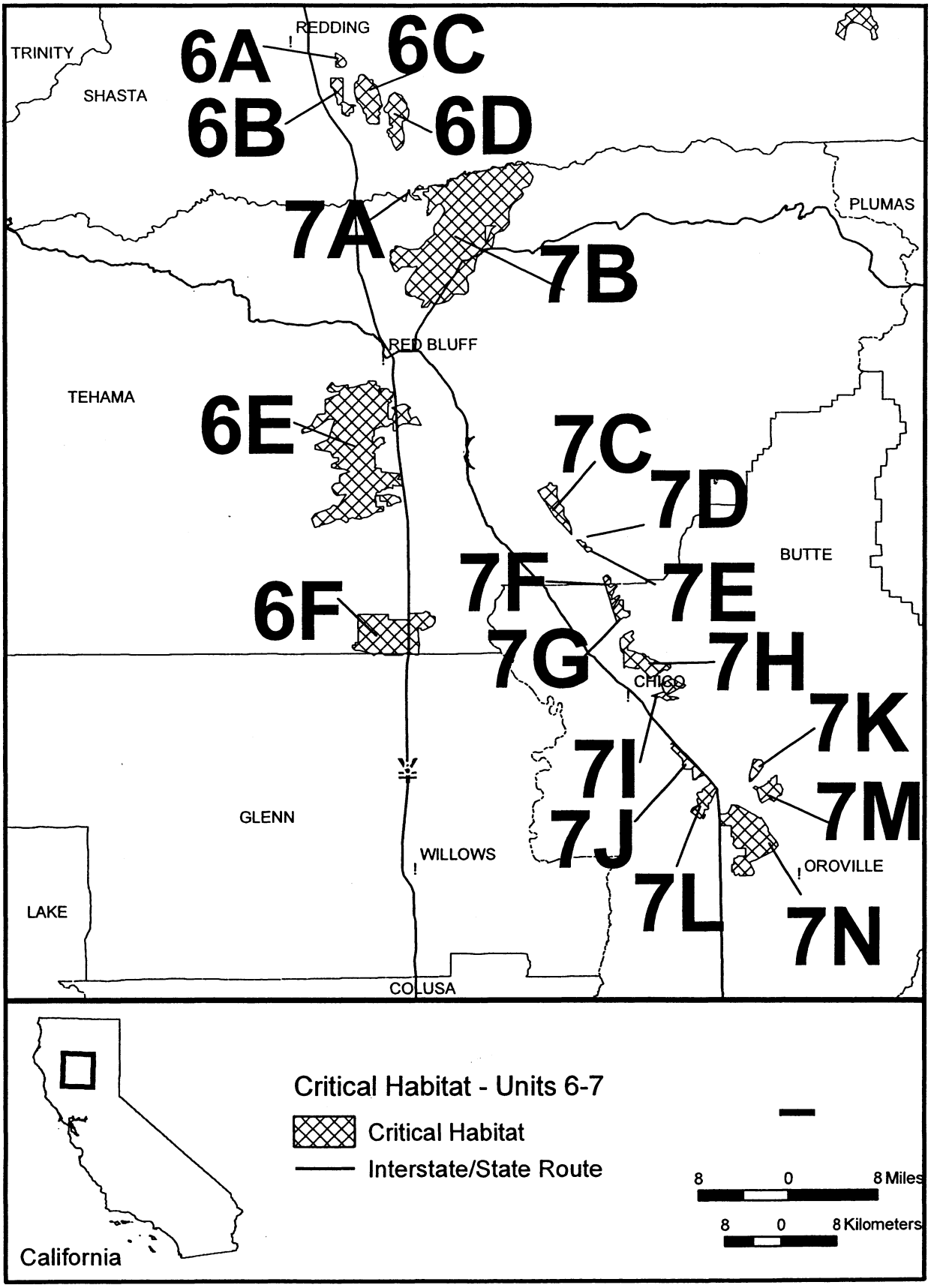
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7D
BUTTE
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7G
7H
CHICO
7K
7I
7M
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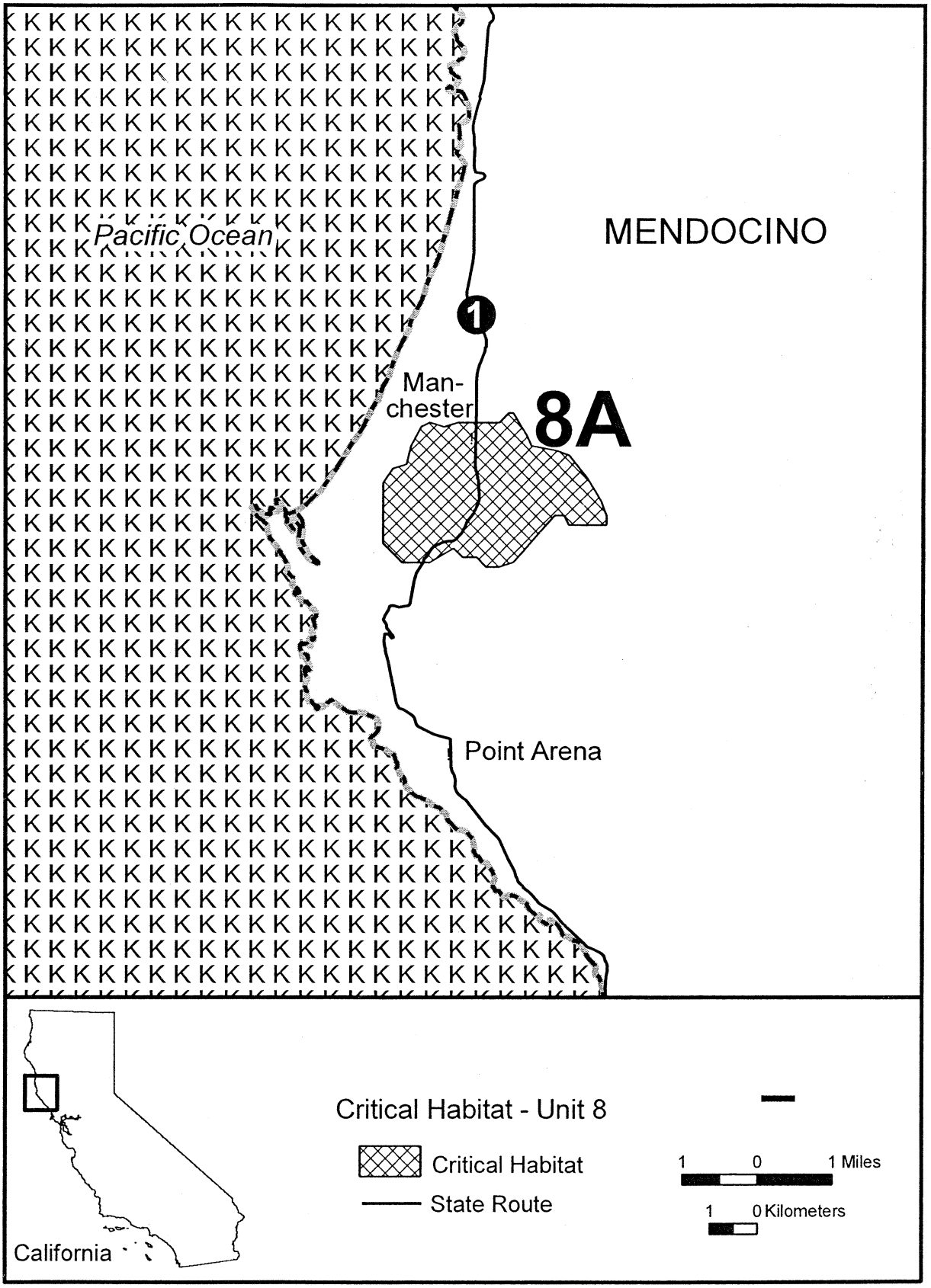
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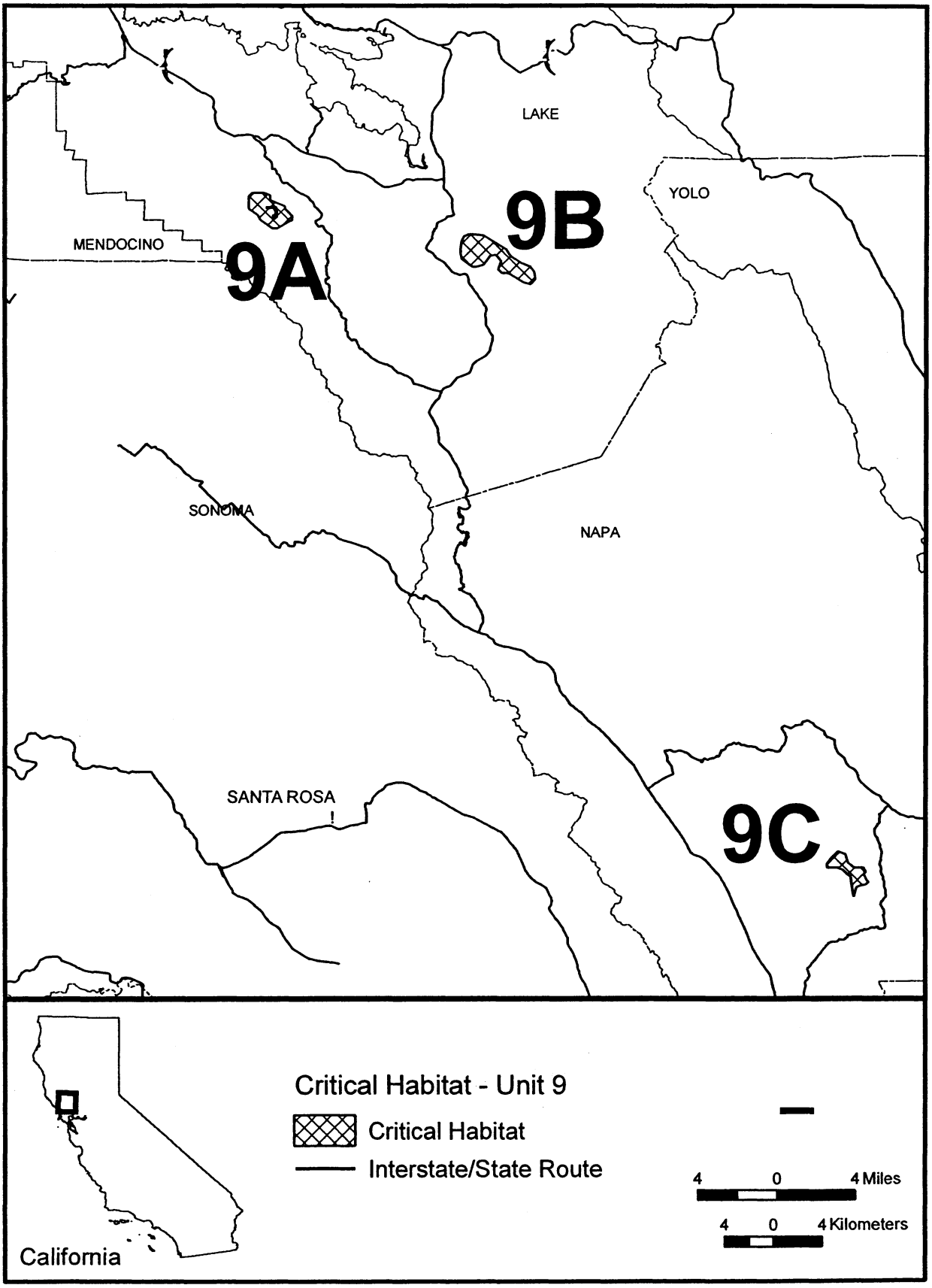
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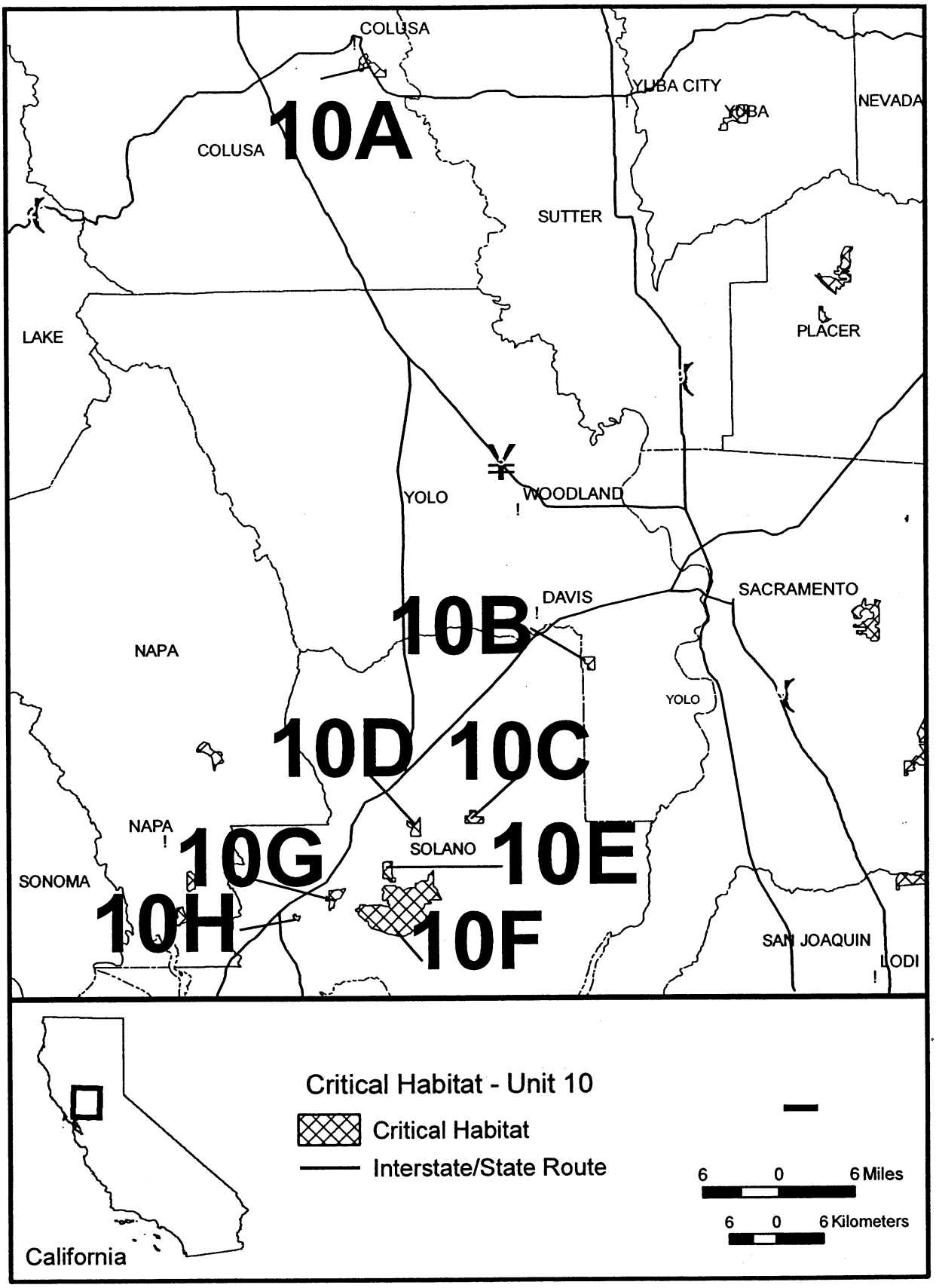
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10B
NAPA
YOLO
10D
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NAPA
10G
SOLANO
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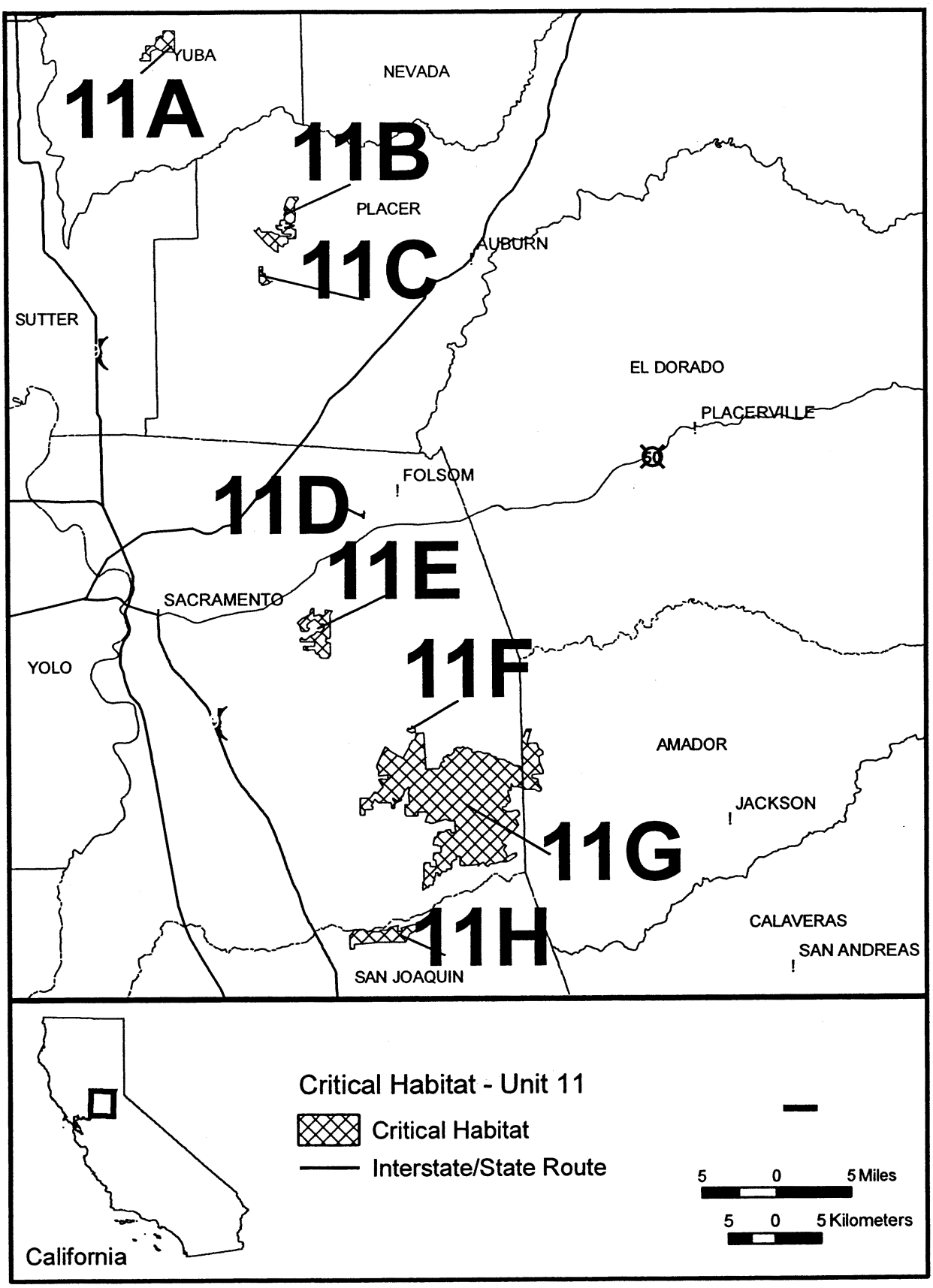
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11E
SACRAMENTO
YOLO
11F
AMADOR
JACKSON
11G
11H
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California
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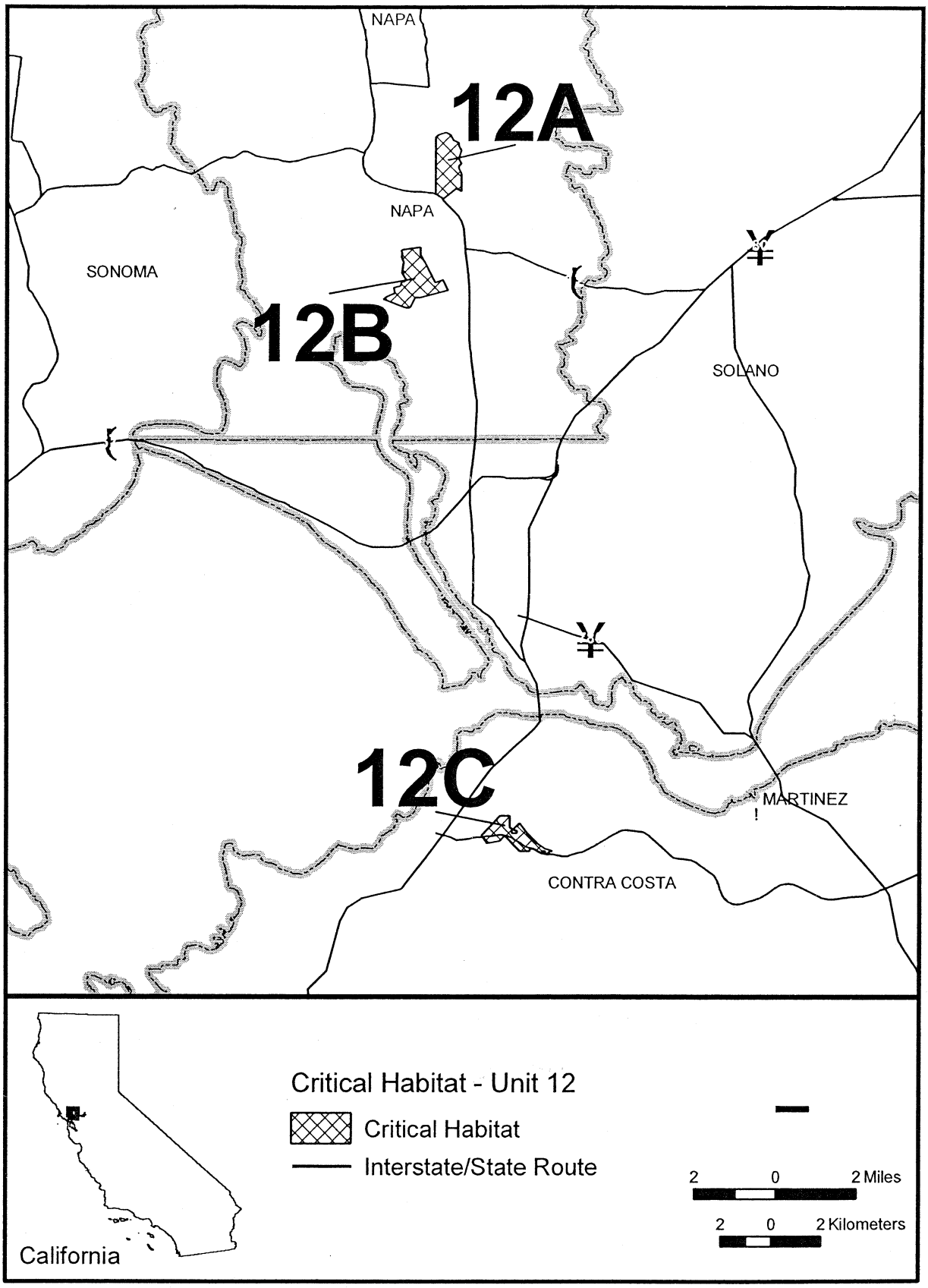
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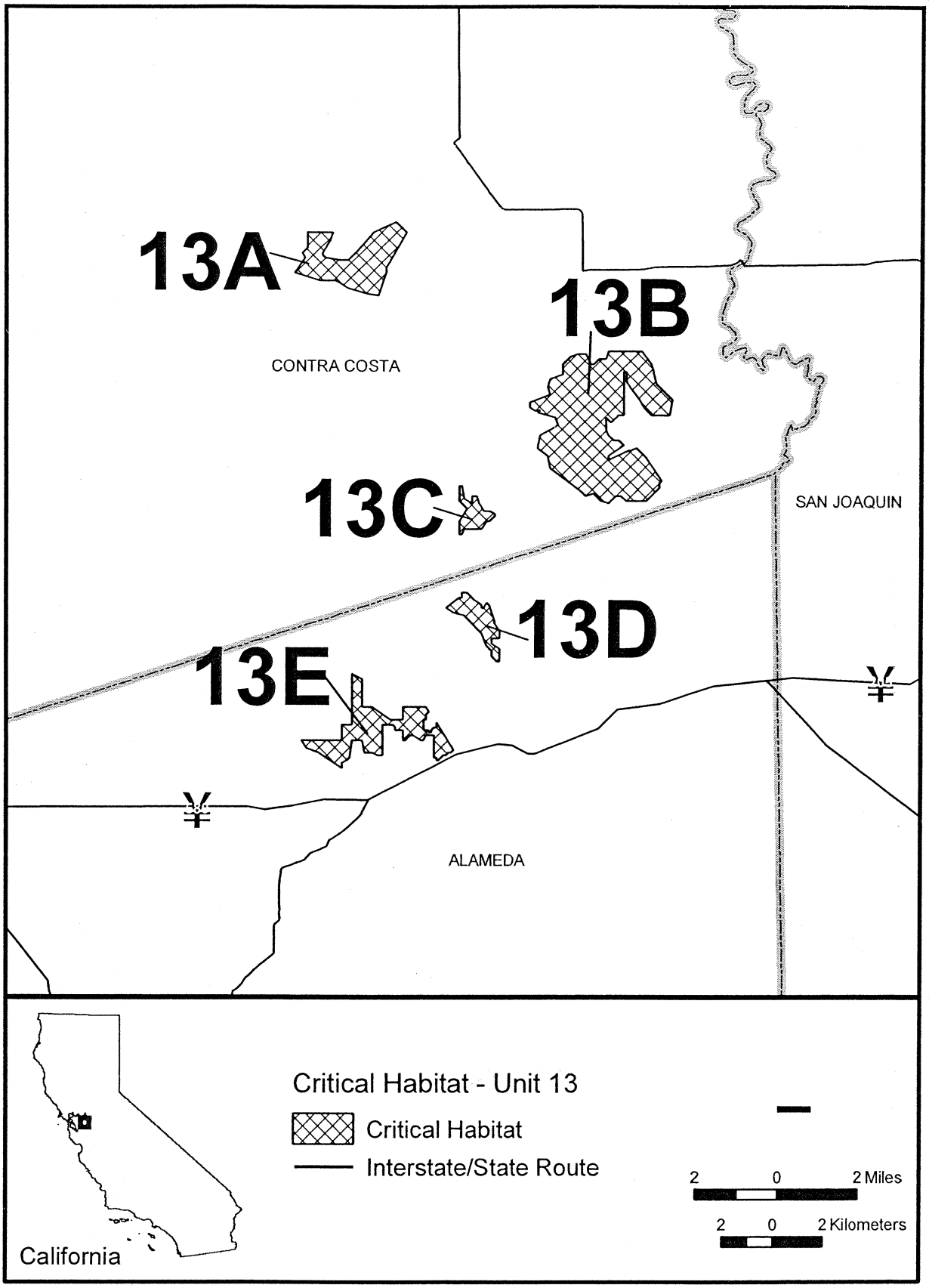
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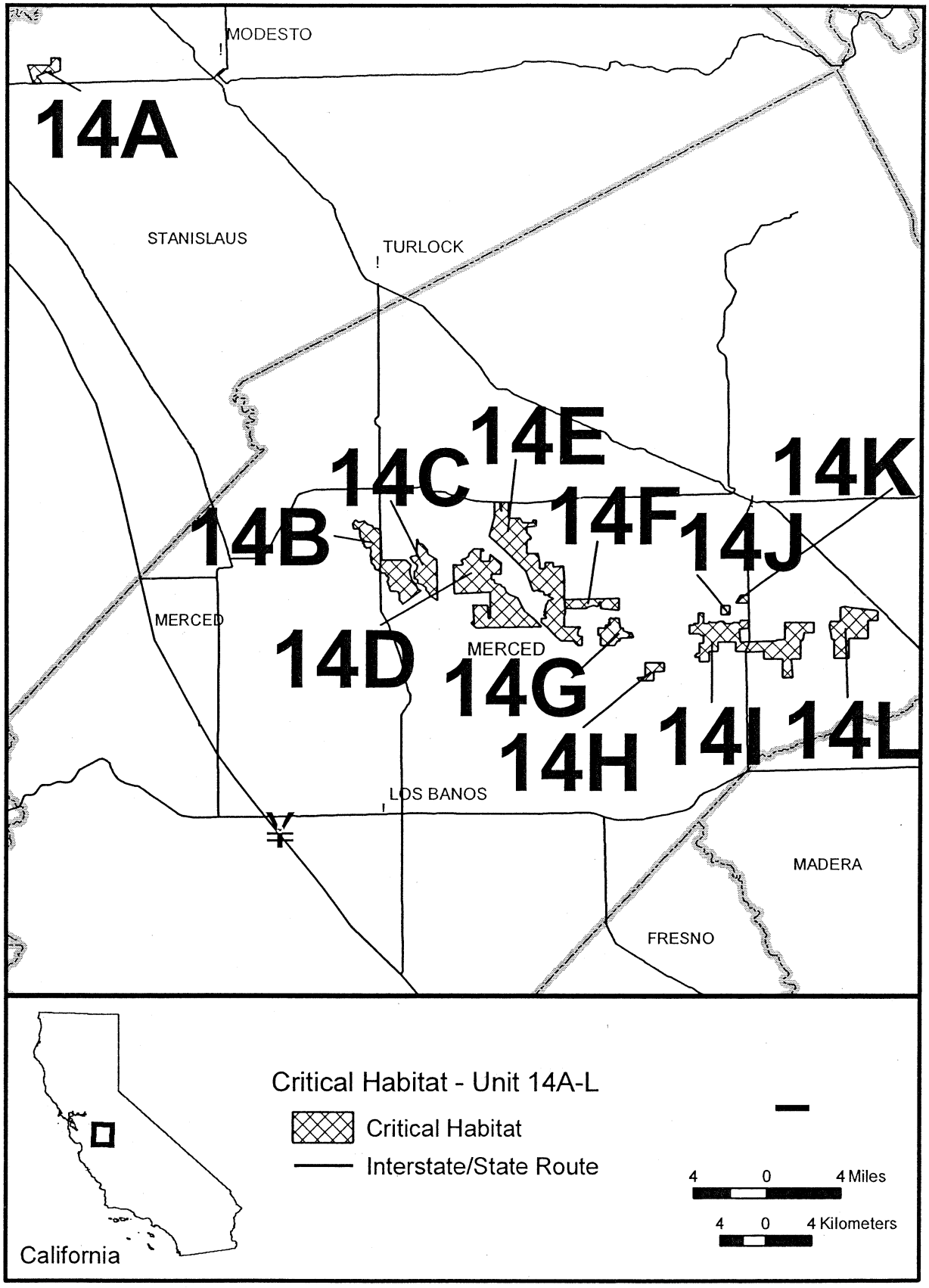
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14I
14L
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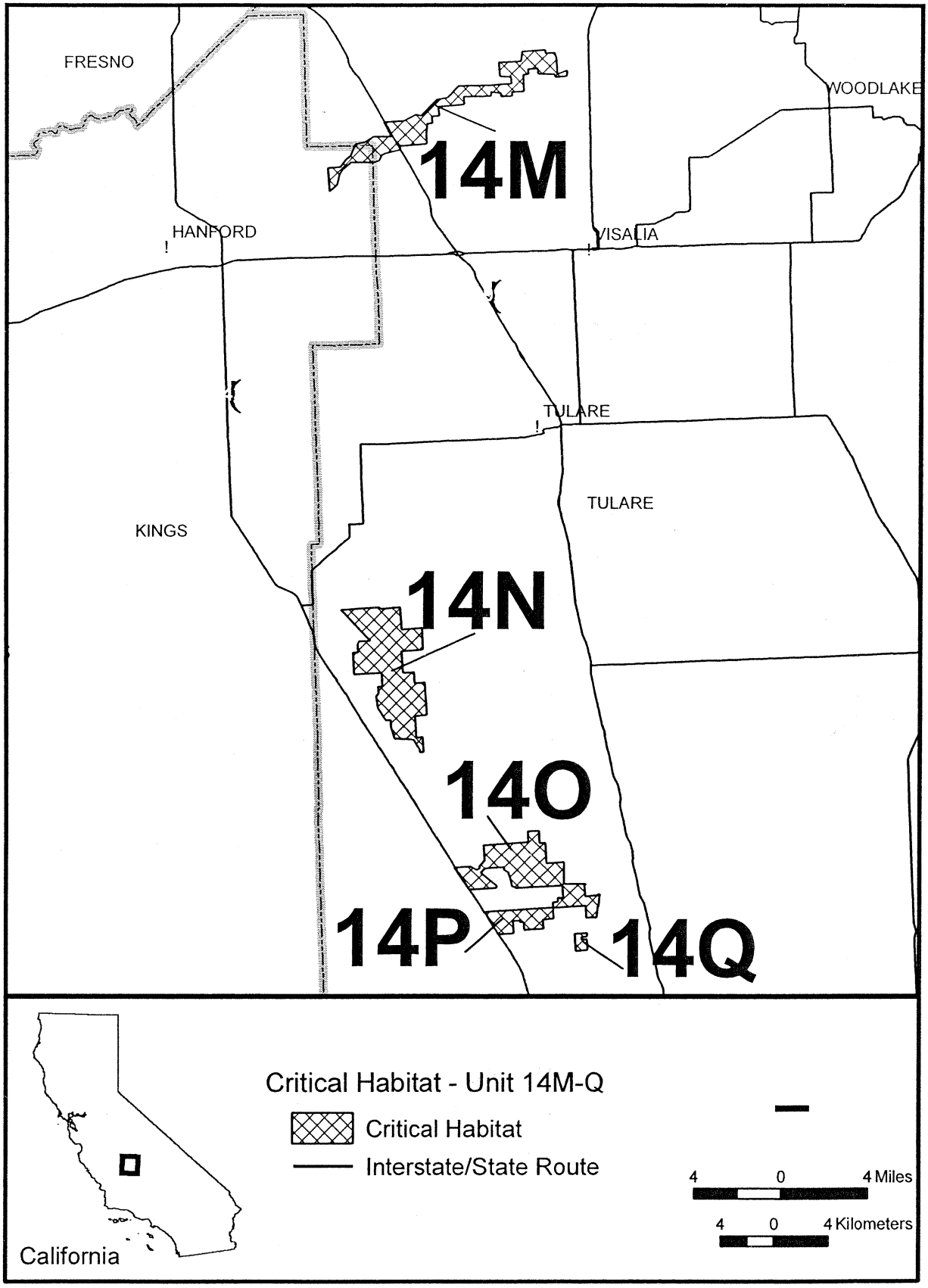
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VISALIA
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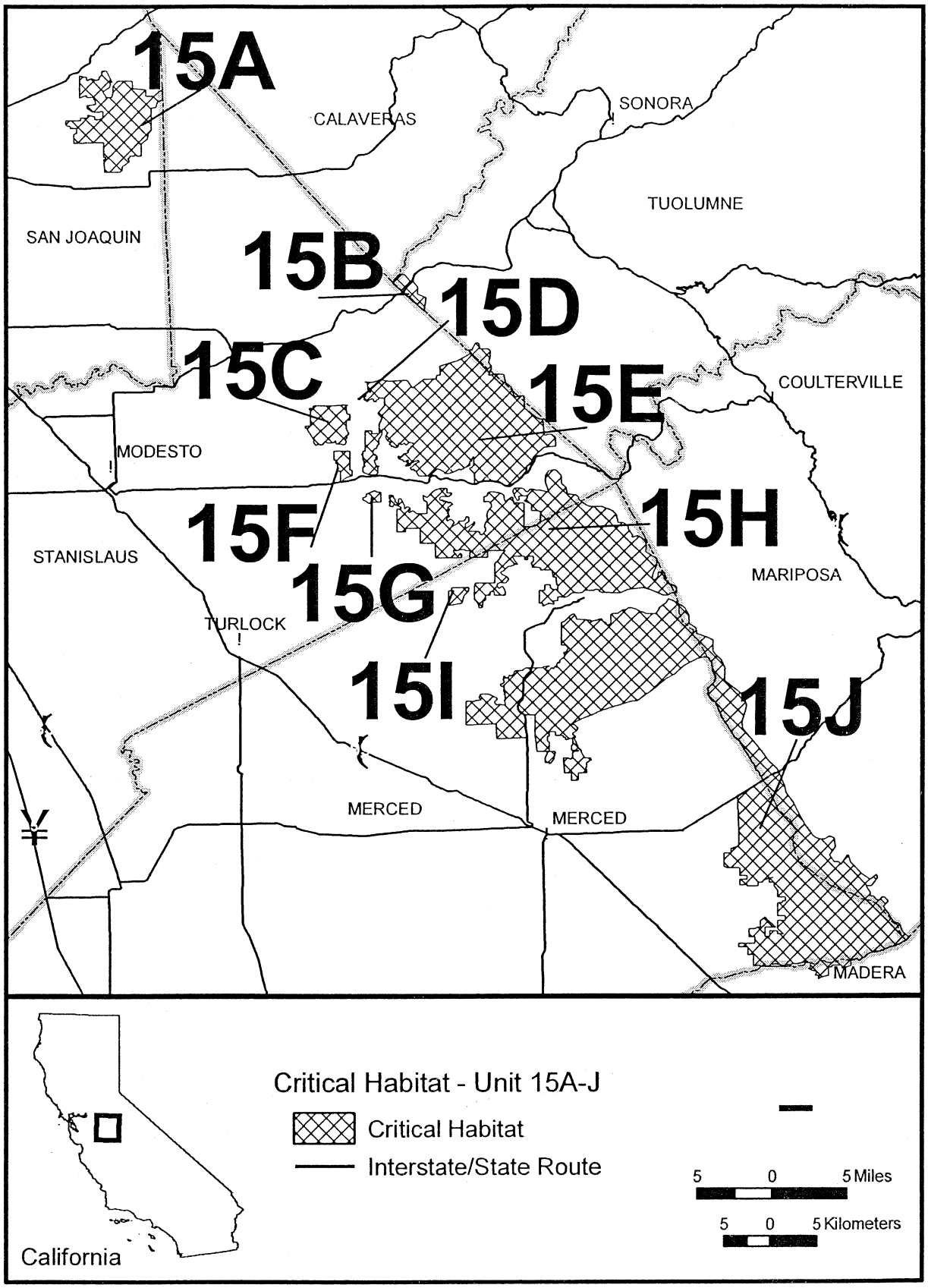
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15H
STANISLAUS
MARIPOSA
15G
TURLOCK
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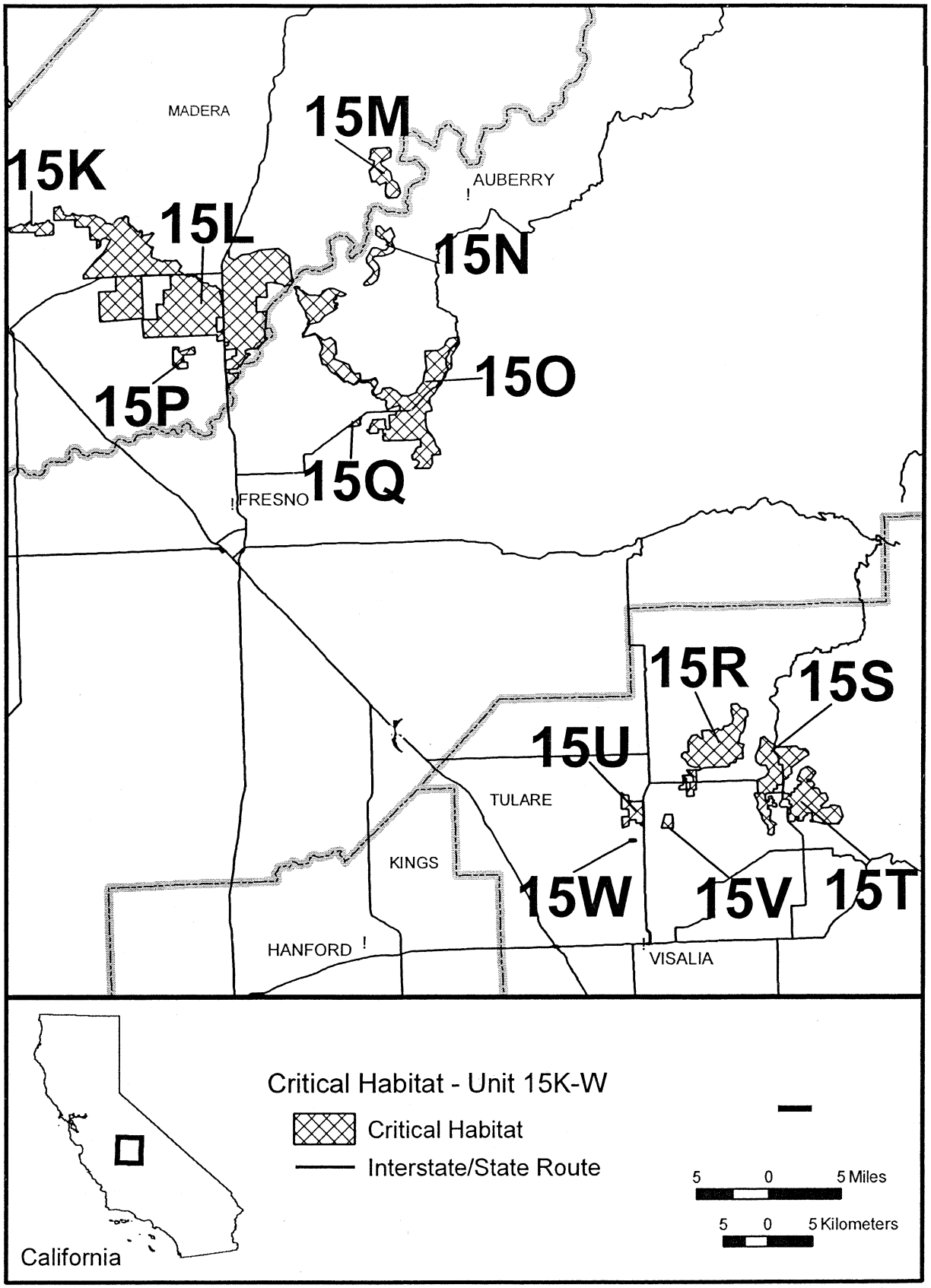
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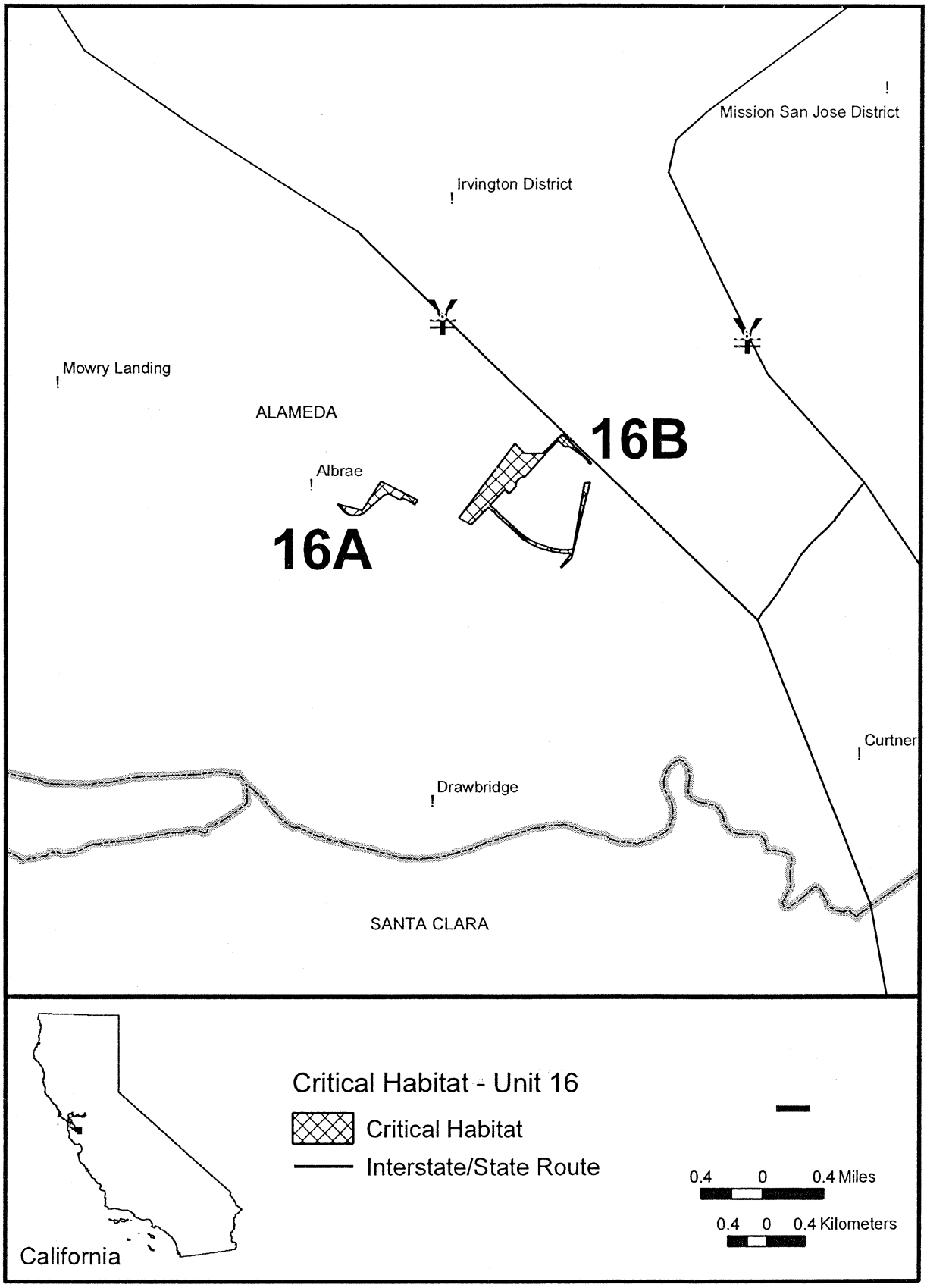
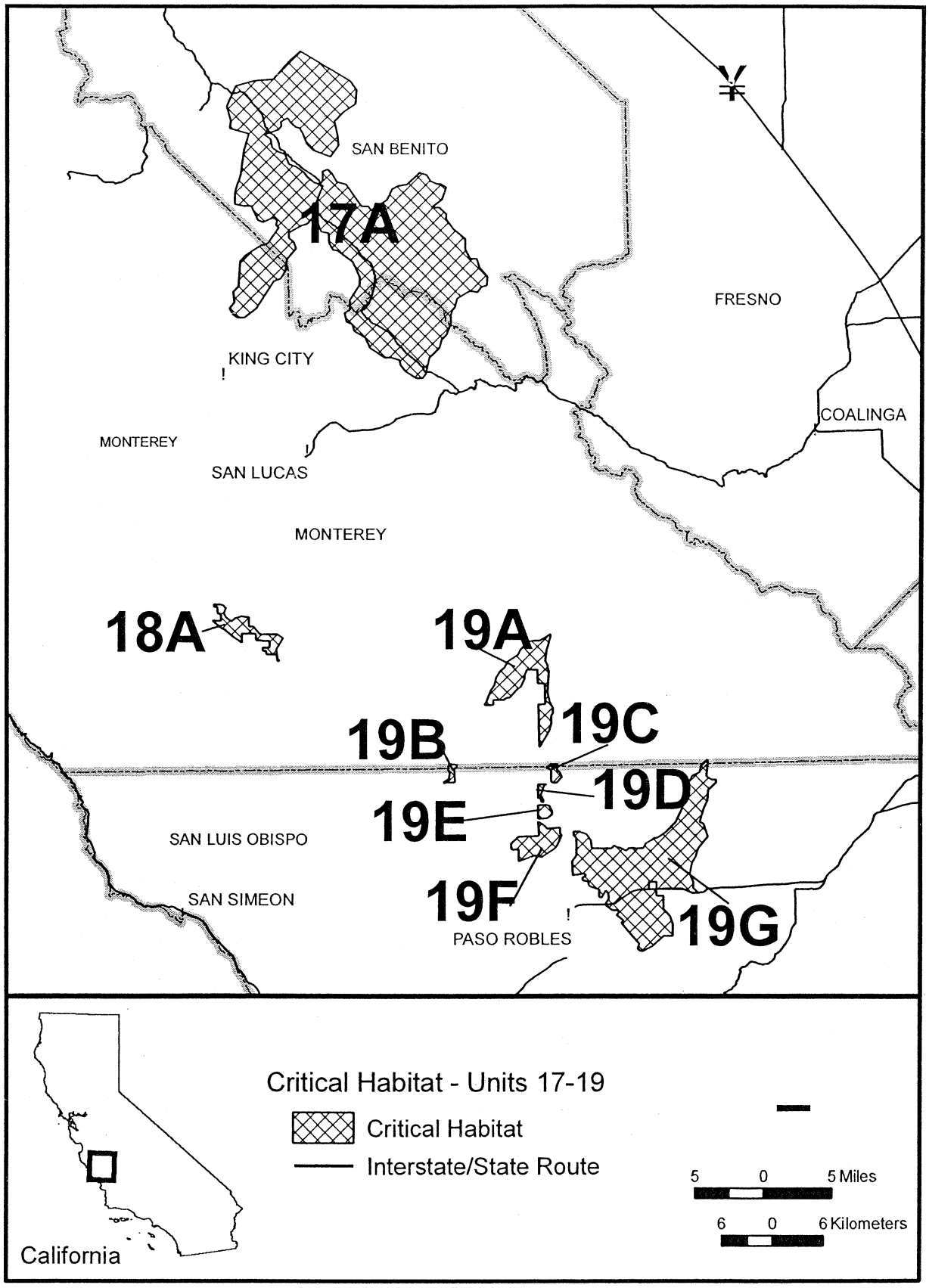
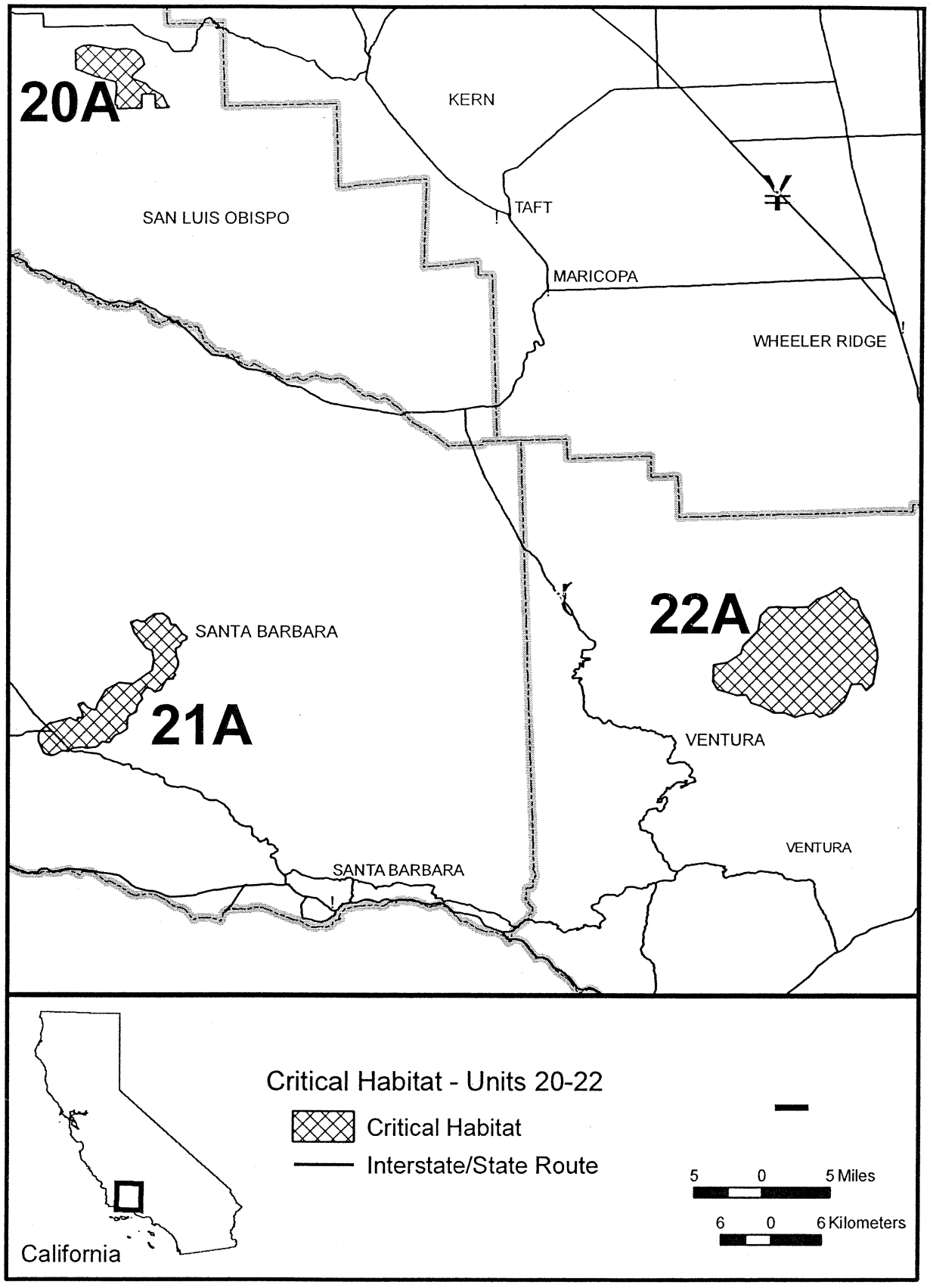
KINGS
15W
15V
15T
HANFORD
VISALIA
Critical Habitat - Unit 15K-W
Critical Habitat
Interstate/State Route
5 0 5 Miles
5 0 5 Kilometers
California


Mission San Jose District
Irvington District
Mowry Landing
ALAMEDA
16B
Albrae
16A
Curtner
Drawbridge
SANTA CLARA
California
Critical Habitat - Unit 16
Critical Habitat
Interstate/State Route
0.4 0 0.4 Miles
0.4 0 0.4 Kilometers


SAN BENITO
17A
FRESNO
KING CITY
COALINGA
MONTEREY
SAN LUCAS
MONTEREY
18A
19A
19B
19C
19D
19E
SAN LUIS OBISPO
SAN SIMEON
19F
PASO ROBLES
19G
Critical Habitat - Units 17-19
Critical Habitat
Interstate/State Route
5 0 5 Miles
6 0 6 Kilometers
California



BILLING CODE 4310–55–C

(e) Critical habitat for Conservancy fairy shrimp (*Branchinecta conservatio*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), *Limnanthes floccosa* ssp. *californica* (Butte County meadowfoam), *Lasthenia conjugens* (Contra Costa goldfields), *Chamaesyce hooveri* (Hoover's spurge), *Castilleja campestris* ssp. *succulenta* (fleshy (or succulent) owl's-clover), *Neostapfia colusana* (Colusa grass), *Tuctoria greenei* (Greene's tuctoria), *Orcuttia pilosa* (hairy Orcutt grass), *Orcuttia viscida* (Sacramento Orcutt grass), *Orcuttia inaequalis* (San Joaquin Valley Orcutt grass), *Orcuttia tenuis* (slender Orcutt grass), and *Tuctoria mucronata* (Solano grass), consists of the following areas:

(1) Subunit 1A; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Shady Cove. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 514395, 4710603; 514395, 4710103; 514195, 4710103; 514195, 4709703; 513995, 4709703; 513995, 4709503; 513695, 4709503; 513695, 4709603; 513595, 4709603; 513595, 4709803; 513795, 4709803; 513795, 4710103; 513295, 4710103; 513295, 4710403; 513195, 4710403; 513195, 4710603; returning to 514395, 4710603.

(2) Subunit 1B; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Shady Cove. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 514195, 4707303; 514195, 4707103; 514095, 4707103; 514095, 4707003; 513995, 4707003; 513995, 4706803; 513695, 4706803; 513695, 4707103; 513795, 4707103; 513795, 4707203; 513895, 4707203; 513895, 4707303; 513495, 4707303; 513495, 4707803; 514795, 4707803; 514795, 4707503; 514695, 4707503; 514695, 4707403; 514295, 4707403; 514295, 4707303; returning to 514195, 4707303.

(3) Subunit 1C; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Shady Cove. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 511895, 4707603; 511895, 4707103; 511995, 4707103; 511995, 4706603; 512095, 4706603; 512095, 4706403; 511895, 4706403; 511895, 4706503; 511395, 4706503; 511395, 4706603; 511295, 4706603; 511295, 4706703; 511195, 4706703; 511195, 4706803; 511095, 4706803; 511095, 4707003; 511195, 4707003; 511195, 4707103; 511295, 4707103; 511295, 4707203; 511195, 4707203; 511195, 4707303; 511295, 4707303; 511295, 4707403; 511495, 4707403; 511495, 4707503; 511695, 4707503; 511695, 4707603; returning to 511895, 4707603.

(4) Subunit 1D; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Eagle Point and Shady Cove. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 515995, 4706503; 515995, 4706303; 516095, 4706303; 516095, 4706203; 516195, 4706203; 516195, 4706403; 516095, 4706403; 516095, 4706503; 515995, 4706503; 515995, 4706803; 516295, 4706803; 516295, 4706703; 516395, 4706703; 516395, 4706503; 516495, 4706503; 516495, 4706603; 516595, 4706603; 516595, 4706803; 516795, 4706803; 516795, 4706703; 516995, 4706703; 516995, 4706803; 517095, 4706803; 517095, 4706903; 517195, 4706903; 517195, 4706703; 517495, 4706703; 517495, 4706503; 517395, 4706503; 517395, 4706303; 517295, 4706303; 517295, 4706203; 517195, 4706203; 517195, 4706103; 516795, 4706103; 516795, 4705403; 516595, 4705403; 516595, 4705303; 516695, 4705303; 516695, 4705203; 516795, 4705203; 516795, 4704603; 516695, 4704603; 516695, 4704403; 516395, 4704403; 516395, 4704303; 516495, 4704303; 516495, 4704203; 516595, 4704203; 516595, 4704103; 515895, 4704103; 515895, 4704403; 516095, 4704403; 516095, 4704503; 515595, 4704503; 515595, 4704603; 515495, 4704603; 515495, 4704903; 515595, 4704903; 515595, 4705003; 515795, 4705003; 515795, 4705103; 515895, 4705103; 515895, 4705703; 515795, 4705703; 515795, 4706003; 515695, 4706003; 515695, 4706203; 515595, 4706203; 515595, 4706303; 515195, 4706303; 515195, 4706503; 515095, 4706503; 515095, 4706703; 514795, 4706703; 514795, 4706803; 514695, 4706803; 514695, 4707003; 514795, 4707003; 514795, 4707103; 515095, 4707103; 515095, 4707003; 515195, 4707003; 515195, 4706903; 515295, 4706903; 515295, 4706803; 515395, 4706803; 515395, 4706603; 515495, 4706603; 515495, 4706503; 515595, 4706503; 515595, 4706403; 515695, 4706403; 515695, 4706503; returning to 515995, 4706503.

(5) Subunit 1E; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Boswell Mountain and Shady Cove. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 510895, 4706903; 510895, 4706703; 511095, 4706703; 511095, 4706303; 510795, 4706303; 510795, 4706103; 510595, 4706103; 510595, 4705803; 510495, 4705803; 510495, 4705903; 510395, 4705903; 510395, 4706103; 510195, 4706103; 510195, 4706203; 510095, 4706203; 510095, 4706303; 509895, 4706303; 509895, 4706503; 510095, 4706503; 510095, 4706703; 510195, 4706703; 510195, 4706803; 510295, 4706803; 510295, 4706703; 510595, 4706703; 510595, 4706803; 510695, 4706803; 510695, 4706903; returning to 510895, 4706903.

(6) Subunit 1F; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Eagle Point and Shady Cove. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 511395, 4705803; 511395, 4705703; 511595, 4705703; 511595, 4704903; 511495, 4704903; 511495, 4704603; 511295, 4704603; 511295, 4704803; 511095, 4704803; 511095, 4705003; 510995, 4705003; 510995, 4705103; 510895, 4705103; 510895, 4705703; 511095, 4705703; 511095, 4705803; 511395, 4705803; and excluding land bound by 511295, 4705303; 511295, 4705103; 511395, 4705103; 511395, 4705303; returning to 511295, 4705303.

(7) Subunit 1G; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Eagle Point. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 517695, 4704903; 517695, 4704803; 517895, 4704803; 517895, 4704703; 517995, 4704703; 517995, 4704603; 519195, 4704603; 519195, 4704503; 519395, 4704503; 519395, 4704403; 519495, 4704403; 519495, 4704103; 519195, 4704103; 519195, 4704003; 518695, 4704003; 518695, 4703903; 517995, 4703903; 517995, 4704003; 517795, 4704003; 517795, 4703803; 517295, 4703803; 517295, 4703903; 517195, 4703903; 517195, 4704103; 517095, 4704103; 517095, 4704503; 516995, 4704503; 516995, 4704703; 517095, 4704703; 517095, 4704803; 517195, 4704803; 517195, 4704903; returning to 517695, 4704903.

(8) Subunit 2A; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Eagle Point. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 514295, 4699003; 514295, 4698603; 514395, 4698603; 514395, 4698703; 514495, 4698703; 514495, 4698803; 514995, 4698803; 514995, 4698703; 515195, 4698703; 515195, 4698903; 515295, 4698903; 515295, 4698803; 515595, 4698803; 515595, 4698603; 515695, 4698603; 515695, 4698803; 515795, 4698803; 515795, 4698703; 515895, 4698703; 515895, 4698303; 515595, 4698303; 515595, 4698503; 515495, 4698503; 515495, 4698403; 515395, 4698403; 515395, 4698303; 515195, 4698303; 515195, 4698403; 514995, 4698403; 514995, 4698303; 514495, 4698303; 514495, 4698403; 514395, 4698403; 514395, 4698203; 513495, 4698203; 513495, 4698303; 513395, 4698303;

513395, 4698403; 513495, 4698403; 513495, 4698503; 513595, 4698503; 513595, 4698603; 513795, 4698603; 513795, 4698803; 513895, 4698803; 513895, 4698903; 513995, 4698903; 513995, 4699003; returning to 514295, 4699003.

(9) Subunit 2B; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Brownsboro and Eagle Point. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 517395, 4698203; 517395, 4698103; 517595, 4698103; 517595, 4698003; 517695, 4698003; 517695, 4698103; 517995, 4698103; 517995, 4697603; 518595, 4697603; 518595, 4697503; 518695, 4697503; 518695, 4697403; 518895, 4697403; 518895, 4697503; 519195, 4697503; 519195, 4697403; 519395, 4697403; 519395, 4697303; 519495, 4697303; 519495, 4697203; 519595, 4697203; 519595, 4697103; 519795, 4697103; 519795, 4697003; 519895, 4697003; 519895, 4696903; 520095, 4696903; 520095, 4696603; 519995, 4696603; 519995, 4696503; 520495, 4696503; 520495, 4696403; 520595, 4696403; 520595, 4696103; 520495, 4696103; 520495, 4695903; 520595, 4695903; 520595, 4696003; 520695, 4696003; 520695, 4695903; 520795, 4695903; 520795, 4695703; 520695, 4695703; 520695, 4695603; 520595, 4695603; 520595, 4695303; 520795, 4695303; 520795, 4695203; 520895, 4695203; 520895, 4694203; 520795, 4694203; 520795, 4694303; 520595, 4694303; 520595, 4694403; 520495, 4694403; 520495, 4694503; 520395, 4694503; 520395, 4694603; 519995, 4694603; 519995, 4694703; 519595, 4694703; 519595, 4695003; 519495, 4695003; 519495, 4695403; 519395, 4695403; 519395, 4695603; 519295, 4695603; 519295, 4695703; 519195, 4695703; 519195, 4695803; 519095, 4695803; 519095, 4696003; 519395, 4696003; 519395, 4696103; 519195, 4696103; 519195, 4696203; 518995, 4696203; 518995, 4696303; 518895, 4696303; 518895, 4696203; 518695, 4696203; 518695, 4696503; 518595, 4696503; 518595, 4696603; 518495, 4696603; 518495, 4696703; 518395, 4696703; 518395, 4696803; 518295, 4696803; 518295, 4696903; 518195, 4696903; 518195, 4697003; 517695, 4697003; 517695, 4697103; 517395, 4697103; 517395, 4697203; 517195, 4697203; 517195, 4697403; 517095, 4697403; 517095, 4697603; 516995, 4697603; 516995, 4698203; returning to 517395, 4698203.

(10) Subunit 2C; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Eagle Point. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 516195, 4697603; 516195, 4697203; 515095, 4697203; 515095, 4697603; 515295, 4697603; 515295, 4697503; 515395, 4697503; 515395, 4697603; returning to 516195, 4697603.

(11) Subunit 2D; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Eagle Point. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 517095, 4697003; 517095, 4696903; 517295, 4696903; 517295, 4696803; 517395, 4696803; 517395, 4696703; 517495, 4696703; 517495, 4696403; 517295, 4696403; 517295, 4696503; 516895, 4696503; 516895, 4696403; 516395, 4696403; 516395, 4696303; 516295, 4696303; 516295, 4696003; 515995, 4696003; 515995, 4696703; 516195, 4696703; 516195, 4696803; 516595, 4696803; 516595, 4696903; 516895, 4696903; 516895, 4697003; returning to 517095, 4697003.

(12) Subunit 2E; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Eagle Point. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 515595, 4696403; 515595, 4696203; 515195, 4696203; 515195, 4696103; 515295, 4696103; 515295, 4695603; 515095, 4695603; 515095, 4695703; 514595, 4695703; 514595, 4695603; 514395, 4695603; 514395, 4695703; 514295, 4695703; 514295, 4695803; 514195, 4695803; 514195, 4695703; 514095, 4695703; 514095, 4695603; 513995, 4695603; 513995, 4695703; 513895, 4695703; 513895, 4696403; 513595, 4696403; 513595, 4696603; 515695, 4696603; 515695, 4696403; 515595, 4696403; and excluding land bound by 514595, 4696303; 514595, 4696203; 514395, 4696203; 514395, 4696303; 514295, 4696303; 514295, 4696203; 514195, 4696203; 514195, 4696103; 514795, 4696103; 514795, 4696303; returning to 514595, 4696303.

(13) Subunit 3A; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Eagle Point. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 511695, 4698703; 511695, 4698803; 511495, 4698803; 511495, 4698903; 511195, 4698903; 511195, 4699003; 510795, 4699003; 510795, 4699103; 510695, 4699103; 510695, 4699303; 510995, 4699303; 510995, 4699403; 511295, 4699403; 511295, 4699503; 511395, 4699503; 511395, 4699703; 511495, 4699703; 511495, 4699803; 511595, 4699803; 511595, 4699703; 511695, 4699703; 511695, 4699603; 511795, 4699603; 511795, 4699703; 511995, 4699703; 511995, 4698703; returning to 511695, 4698703.

(14) Subunit 3B; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Eagle Point and Sams Valley. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 511695, 4698703; 511695, 4698403; 511395, 4698403; 511395, 4698503; 511295, 4698503; 511295, 4698403; 511095, 4698403; 511095, 4698303; 510795, 4698303; 510795, 4698403; 510595, 4698403; 510595, 4698303; 509695, 4698303; 509695, 4697903; 509495, 4697903; 509495, 4697803; 509295, 4697803; 509295, 4697603; 509395, 4697603; 509395, 4697403; 509495, 4697403; 509495, 4697003; 509595, 4697003; 509595, 4696803; 510195, 4696803; 510195, 4696903; 511795, 4696903; 511795, 4696803; 511995, 4696803; 511995, 4696203; 510895, 4696203; 510895, 4696103; 510695, 4696103; 510695, 4696203; 510395, 4696203; 510395, 4696303; 509795, 4696303; 509795, 4696403; 509695, 4696403; 509695, 4696303; 508995, 4696303; 508995, 4696403; 508695, 4696403; 508695, 4696503; 508495, 4696503; 508495, 4696603; 508395, 4696603; 508395, 4696703; 508295, 4696703; 508295, 4696803; 508195, 4696803; 508195, 4696903; 508095, 4696903; 508095, 4697103; 508195, 4697103; 508195, 4697403; 508495, 4697403; 508495, 4697503; 508695, 4697503; 508695, 4697603; 508595, 4697603; 508595, 4697803; 508495, 4697803; 508495, 4698203; 508595, 4698203; 508595, 4698303; 508895, 4698303; 508895, 4698403; 508995, 4698403; 508995, 4698103; 509095, 4698103; 509095, 4698203; 509195, 4698203; 509195, 4698403; 509295, 4698403; 509295, 4698503; 509595, 4698503; 509595, 4698703; 509895, 4698703; 509895, 4698803; 510195, 4698803; 510195, 4698903; 511095, 4698903; 511095, 4698803; 511395, 4698803; 511395, 4698703; 511695, 4698703; and excluding land bound by 508895, 4697603; 508895, 4697503; 509195, 4697503; 509195, 4697603; returning to 508895, 4697603; and excluding land bound by 508595, 4697103; 508595, 4696903; 508695, 4696903; 508695, 4697103; returning to 508595, 4697103.

(15) Subunit 3C; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Sams Valley. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 506895, 4697403; 506895, 4697303; 506995, 4697303; 506995, 4697103; 506895, 4697103; 506895, 4697003; 506795, 4697003; 506795, 4696503; 507095, 4696503; 507095, 4696803; 506995, 4696803; 506995, 4697003; 507095, 4697003; 507095, 4697203; 507195, 4697203; 507195, 4697303; 507295, 4697303; 507295, 4697203; 507395, 4697203;

507395, 4697103; 507495, 4697103; 507495, 4696903; 507595, 4696903; 507595, 4696803; 507695, 4696803; 507695, 4696703; 507795, 4696703; 507795, 4696503; 507995, 4696503; 507995, 4695803; 508395, 4695803; 508395, 4694803; 507895, 4694803; 507895, 4695003; 507495, 4695003; 507495, 4695203; 506995, 4695203; 506995, 4695603; 506895, 4695603; 506895, 4695703; 506495, 4695703; 506495, 4695603; 505695, 4695603; 505695, 4695803; 505895, 4695803; 505895, 4696503; 506295, 4696503; 506295, 4696603; 506195, 4696603; 506195, 4697103; 506295, 4697103; 506295, 4697403; returning to 506895, 4697403.

(16) Subunit 4A; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Sams Valley. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 507295, 4703303; 507295, 4703203; 507395, 4703203; 507395, 4703103; 507895, 4703103; 507895, 4703003; 507995, 4703003; 507995, 4702903; 508095, 4702903; 508095, 4702803; 508195, 4702803; 508195, 4702703; 508295, 4702703; 508295, 4702603; 508395, 4702603; 508395, 4702503; 508495, 4702503; 508495, 4702303; 508595, 4702303; 508595, 4702103; 508695, 4702103; 508695, 4701703; 508895, 4701703; 508895, 4701303; 508795, 4701303; 508795, 4701203; 508695, 4701203; 508695, 4701103; 508495, 4701103; 508495, 4701303; 508395, 4701303; 508395, 4701703; 508295, 4701703; 508295, 4701803; 508195, 4701803; 508195, 4701903; 508095, 4701903; 508095, 4702003; 507995, 4702003; 507995, 4702103; 507895, 4702103; 507895, 4702203; 507795, 4702203; 507795, 4702303; 507695, 4702303; 507695, 4702203; 507595, 4702203; 507595, 4702103; 507395, 4702103; 507395, 4702003; 507495, 4702003; 507495, 4701903; 507695, 4701903; 507695, 4701803; 507795, 4701803; 507795, 4701603; 507895, 4701603; 507895, 4701503; 507995, 4701503; 507995, 4701203; 507795, 4701203; 507795, 4701303; 507695, 4701303; 507695, 4701403; 507395, 4701403; 507395, 4701503; 507195, 4701503; 507195, 4701603; 507095, 4701603; 507095, 4701703; 506995, 4701703; 506995, 4701803; 506895, 4701803; 506895, 4702003; 506795, 4702003; 506795, 4702203; 506695, 4702203; 506695, 4702303; 506595, 4702303; 506595, 4702503; 506695, 4702503; 506695, 4702703; 506795, 4702703; 506795, 4702903; 506895, 4702903; 506895, 4703203; 507095, 4703203; 507095, 4703303; returning to 507295, 4703303.

(17) Subunit 4B; Jackson County, Oregon. From USGS 1:24,000 scale quadrangle Sams Valley. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 503895, 4700703; 503895, 4700603; 503995, 4700603; 503995, 4700503; 504095, 4700503; 504095, 4700403; 504395, 4700403; 504395, 4700303; 504495, 4700303; 504495, 4699303; 504295, 4699303; 504295, 4699003; 504195, 4699003; 504195, 4698903; 504095, 4698903; 504095, 4698703; 503895, 4698703; 503895, 4698803; 503795, 4698803; 503795, 4699203; 503895, 4699203; 503895, 4699603; 503795, 4699603; 503795, 4700703; returning to 503895, 4700703.

(18) Subunit 5A; Siskiyou County, California. From USGS 1:24,000 scale quadrangle Timbered Crater. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 627995, 4565802; 628095, 4565602; 628295, 4565602; 628295, 4565402; 628395, 4565002; 628095, 4564802; 627995, 4564502; 628095, 4564202; 627995, 4564002; 627995, 4563802; 627995, 4563602; 628195, 4563502; 628295, 4563402; 628195, 4563102; 628295, 4563002; 628295, 4562802; 628395, 4562702; 628695, 4562602; 628695, 4562402; 628795, 4562302; 628995, 4562102; 628995, 4561802; 628795, 4561702; 628595, 4561602; 628495, 4561602; 628195, 4561502; 628095, 4561402; 627995, 4561302; 627895, 4561202; 627695, 4561202; 627625, 4561132; 626095, 4561402; 626095, 4562002; 626295, 4562702; 625906, 4563713; 626095, 4563902; 626195, 4564102; 626295, 4564202; 626395, 4564402; 626495, 4564502; 626495, 4564702; 626595, 4564902; 626795, 4564902; 626795, 4565202; 626895, 4565402; 627095, 4565502; 627095, 4565802; 627195, 4565902; 627395, 4566002; 627595, 4566002; 627795, 4566002; 627895, 4565902; returning to 627995, 4565802.

(19) Subunit 5B; Modoc and Shasta County, California. From USGS 1:24,000 scale quadrangle Day, Timbered Crater. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 633974, 4560278; 634095, 4560602; 634595, 4561102; 634695, 4560702; 635095, 4560502; 635195, 4560802; 635795, 4560802; 636091, 4560901; 636747, 4560348; 637395, 4559802; 637495, 4559102; 637395, 4558702; 636995, 4558502; 636795, 4558102; 636195, 4557802; 634995, 4557702; 634195, 4558102; 633995, 4558802; 633795, 4559802; returning to 633974, 4560278.

(20) Subunit 5C; Shasta County, California. From USGS 1:24,000 scale quadrangle Dana, Burney Falls. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 616995, 4548802; 616895, 4548802; 615995, 4549302; 615795, 4549602; 615695, 4549702; 615695, 4549802; 615595, 4549902; 615495, 4550002; 615395, 4550202; 615395, 4550402; 615695, 4550502; 615995, 4550502; 616295, 4550302; 616495, 4550102; 616795, 4549902; 616895, 4549602; 617095, 4549202; 617195, 4548902; returning to 616995, 4548802.

(21) Subunit 5D; Shasta County, California. From USGS 1:24,000 scale quadrangle Burney. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 613095, 4536303; 613095, 4536003; 612895, 4535803; 612795, 4535803; 612695, 4535903; 612695, 4536003; 612595, 4536103; 612595, 4536303; 612395, 4536303; 612395, 4536503; 612395, 4536903; 612595, 4537203; 612595, 4537403; 612695, 4537503; 612795, 4537503; 612995, 4537603; 613095, 4537703; 613095, 4537903; 612995, 4538103; 612995, 4538303; 613095, 4538403; 613195, 4538603; 613495, 4538703; 613695, 4538803; 613795, 4538903; 613895, 4538903; 613995, 4538903; 614095, 4538803; 614195, 4538703; 614295, 4538603; 614495, 4538503; 614495, 4538403; 614395, 4538303; 614195, 4538203; 614095, 4538203; 613895, 4538103; 613695, 4537903; 613495, 4537703; 613495, 4537503; 613495, 4537303; 613295, 4537203; 613295, 4536903; 613195, 4536603; returning to 613095, 4536303.

(22) Subunit 5E; Shasta County, California. From USGS 1:24,000 scale quadrangle Burney. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 609795, 4535803; 610395, 4535303; 610595, 4534803; 610695, 4534403; 610595, 4533503; 610895, 4532503; 611095, 4532303; 611095, 4532203; 611195, 4531903; 611395, 4531703; 611595, 4531403; 611595, 4531203; 611695, 4531003; 611895, 4530903; 612095, 4530803; 612295, 4530603; 612295, 4530303; 612195, 4529903; 611995, 4529703; 611795, 4529703; 611595, 4529703; 611095, 4529703; 610595, 4530003; 610495, 4530103; 610295, 4530203; 610295, 4530403; 610395, 4530703; 610695, 4530903; 610595, 4531203; 610295, 4531403; 610295, 4531603; 610195, 4532003; 610195, 4532403; 610095, 4532603; 610095, 4532803; 609995, 4533003; 609995, 4533303; 609795, 4533703; 609695, 4533903; 609695, 4534103; 609695, 4534403; 609695, 4534603; 609695, 4535003; 609595, 4535103; 609395, 4535203; 609195, 4535303; 608895, 4535403; 608695, 4535403; 608395, 4535503; 608295, 4535603; 608095, 4535603;

608195, 4535803; returning to 609795, 4535803.

(23) Subunit 5F; Shasta County, California. From USGS 1:24,000 scale quadrangle Merken Bench. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 632495, 4522703; 632095, 4521403; 631295, 4521403; 631195, 4521503; 630995, 4521403; 630595, 4521403; 630395, 4521103; 630195, 4521003; 629995, 4521003; 628995, 4522603; 629295, 4523303; 629695, 4523703; 631095, 4523903; 631895, 4523303; returning to 632495, 4522703.

(24) Subunit 5G; Shasta County, California. From USGS 1:24,000 scale quadrangle Murken Bench, Old Station. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 636095, 4512903; 636095, 4512603; 636095, 4512203; 635695, 4511903; 635595, 4511503; 635595, 4511203; 635495, 4511003; 635195, 4510703; 634895, 4510603; 634695, 4511003; 634495, 4511203; 634695, 4512203; 634295, 4512603; 634395, 4512803; 634495, 4512703; 634895, 4512703; 635195, 4513003; 635895, 4513003; returning to 636095, 4512903.

(25) Subunit 5H; Lassen County, California. From USGS 1:24,000 scale quadrangle Poison Lake, Swains Hole. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 651595, 4507403; 651895, 4506303; 652295, 4505503; 651795, 4504703; 651595, 4504903; 650895, 4504203; 650395, 4504503; 649595, 4504703; 648895, 4504403; 648995, 4503603; 648795, 4503403; 648195, 4503803; 647495, 4505203; 647895, 4505703; 647595, 4506403; 647795, 4507003; 648895, 4507403; 649595, 4507203; 650395, 4507403; 651295, 4507503; returning to 651595, 4507403.

(26) Subunit 5I; Lassen and Shasta County, California. From USGS 1:24,000 scale quadrangle Swains Hole. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 641929, 4502903; 642195, 4502903; 642195, 4503003; 642595, 4503103; 642795, 4503103; 643095, 4503203; 643295, 4503303; 643495, 4503403; 644095, 4503303; 644195, 4503303; 644295, 4503203; 644495, 4503103; 645095, 4503203; 645295, 4503003; 645295, 4502703; 645595, 4502003; 645595, 4501503; 645395, 4501103; 645395, 4500403; 645295, 4500003; 644895, 4499903; 644395, 4500103; 643595, 4500203; 642495, 4500603; 641957, 4501022; 641595, 4501303; 641295, 4502503; 641395, 4502703; 641695, 4502703; 641795, 4502903; returning to 641929, 4502903.

(27) Subunit 5J; Lassen County, California. From USGS 1:24,000 scale quadrangle Harvey Mtn., Poison Lake, Pine Creek Valley, Bogard Buttes. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 662895, 4502103; 661695, 4500903; 661395, 4499403; 660895, 4498603; 660795, 4498403; 660795, 4498003; 660895, 4497803; 661095, 4497803; 661195, 4497503; 659995, 4497703; 659395, 4497503; 657595, 4498803; 655595, 4500503; 655095, 4501003; 654995, 4501503; 655195, 4501403; 655695, 4501603; 656695, 4502403; 656795, 4502603; 657795, 4503003; 658795, 4503003; 660095, 4503403; 661395, 4504203; 662295, 4504803; 662995, 4504903; 663695, 4504503; 664295, 4504303; 664495, 4504103; 664495, 4502903; 664195, 4502803; returning to 662895, 4502103.

(28) Subunit 5K; Shasta County, California. From USGS 1:24,000 scale quadrangle Old Station, West Prospect Peak. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 634695, 4495403; 634695, 4495203; 634895, 4495203; 635095, 4495003; 635095, 4494703; 635295, 4494603; 635295, 4494303; 635195, 4494203; 634895, 4493803; 635195, 4493304; 635095, 4493204; 635295, 4492904; 634995, 4492704; 634395, 4492704; 634395, 4493504; 634195, 4493704; 634195, 4493904; 633695, 4494203; 632595, 4494903; 631995, 4495104; 631395, 4495004; 631095, 4494804; 630795, 4494304; 630595, 4493804; 630595, 4493204; 630495, 4493104; 630495, 4492504; 629995, 4492904; 629395, 4493304; 629195, 4493504; 629395, 4494004; 629595, 4494504; 629495, 4494604; 629495, 4495004; 629795, 4495304; 630595, 4495504; 630595, 4496303; 631795, 4496903; 631795, 4497403; 631895, 4497803; 631995, 4498003; 632095, 4498203; 632195, 4498203; 632495, 4498203; 633995, 4497703; 634295, 4496603; 634295, 4496503; 634195, 4496403; 634195, 4496103; 634495, 4495903; 634495, 4495603; returning to 634695, 4495403.

(29) Subunit 5L; Plumas County, California. From USGS 1:24,000 scale quadrangle Almanor. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 654995, 4453204; 655395, 4452704; 655495, 4452404; 655495, 4451904; 655095, 4451904; 654995, 4452304; 654495, 4452504; 654195, 4452804; 653995, 4453004; 653795, 4453004; 653495, 4452804; 652695, 4452804; 652395, 4453304; 651995, 4453504; 651695, 4454204; 651695, 4454504; 652095, 4455204; 652495, 4455304; 652795, 4455504; 653295, 4455104; 653095, 4454904; 653095, 4454604; 653395, 4454204; 653595, 4453904; 653995, 4453704; 654595, 4453504; returning to 654995, 4453204.

(30) Subunit 6A; Shasta County, California. From USGS 1:24,000 scale quadrangle Enterprise. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 559296, 4490004; 559296, 4489804; 559496, 4489604; 559496, 4489104; 559296, 4488804; 558896, 4488704; 558596, 4488704; 558096, 4488804; 558096, 4489604; 558196, 4489604; 558396, 4489704; 558296, 4489904; 558096, 4489904; 558096, 4490304; 558096, 4490819; 558411, 4490625; 558419, 4490621; 558770, 4490407; 558813, 4490381; 558887, 4490336; 559083, 4490215; 559096, 4490208; 559096, 4490204; returning to 559296, 4490004.

(31) Subunit 6B; Shasta County, California. From USGS 1:24,000 scale quadrangle Enterprise, Cottonwood. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 559096, 4486604; 559096, 4483804; 559396, 4483804; 559396, 4483704; 559596, 4483704; 559896, 4483404; 560796, 4483404; 560996, 4483304; 560596, 4483304; 560596, 4482404; 560196, 4482304; 559996, 4482304; 559996, 4481804; 559496, 4481804; 558996, 4482204; 558996, 4482704; 558996, 4483404; 558396, 4483404; 558296, 4483704; 558296, 4484304; 558096, 4484604; 558096, 4484904; 558096, 4485104; 557896, 4485404; 557696, 4485704; 557396, 4485904; 557396, 4487204; 559096, 4487204; returning to 559096, 4486604.

(32) Subunit 6C; Shasta County, California. From USGS 1:24,000 scale quadrangles Balls Ferry, Cottonwood, Enterprise, and Palo Cedro. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 562596, 4487204; 562796, 4486904; 562996, 4487004; 563296, 4487004; 563396, 4486804; 563396, 4486504; 563896, 4486204; 564396, 4484504; 564396, 4484204; 564596, 4483904; 564596, 4483604; 564696, 4483504; 564696, 4483204; 564496, 4482904; 564196, 4482604; 564196, 4482404; 564396, 4482404; 564396, 4482204; 564396, 4482104; 564296, 4482004; 564196, 4481904; 564096, 4481904; 564296, 4481604; 564296, 4480704; 563696, 4480704; 563396, 4480804; 563196, 4480704; 562996, 4480704; 562596, 4481004; 562496, 4481304; 562496, 4481504; 562396, 4482204; 562096, 4482304; 561996, 4482604; 561896, 4483104; 561596, 4483504; 561096, 4483804; 560796, 4485204; 560796, 4486304; 560896, 4486504; 561096, 4486704; 561296, 4486804; 561396, 4487404; 561696, 4487704; 562096, 4487704; returning to 562596, 4487204.

(33) Subunit 6D; Shasta County, California. From USGS 1:24,000 scale quadrangle Palo Cedro, Balls Ferry. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 566996, 4477104; 566796, 4477104; 566196, 4478004; 565996, 4478704; 565596, 4479004; 565596, 4479104; 565696, 4479404; 565396, 4479504; 565396, 4479704; 565496, 4480004; 566196, 4480204; 566196, 4480504; 565796, 4480604; 565796, 4480804; 565796, 4481104; 565796, 4481504; 565596, 4482304; 565196, 4482404; 564996, 4482704; 564996, 4482904; 565096, 4483104; 565496, 4483604; 565796, 4484704; 566496, 4485204; 567496, 4484804; 568196, 4483604; 568196, 4483104; 568496, 4482804; 568496, 4481904; 568296, 4481404; 567596, 4481104; 567596, 4480004; 567796, 4479204; 567796, 4478204; 567596, 4477604; returning to 566996, 4477104.

(34) Subunit 6E; Tehama County, California. From USGS 1:24,000 scale quadrangle Henleyville, Corning, West of Gerber, Gerber, Red Bluff West, Red Bluff East. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 563496, 4444304; 563496, 4444204; 563596, 4444204; 563796, 4444204; 563896, 4443604; 564296, 4443604; 564396, 4443404; 564296, 4443204; 564196, 4443004; 564096, 4443004; 564096, 4442804; 564196, 4442804; 564196, 4442604; 564196, 4442504; 564196, 4442404; 564296, 4442404; 564396, 4442704; 564496, 4442904; 564496, 4443204; 564796, 4443204; 565296, 4443204; 565596, 4443104; 565896, 4442704; 566196, 4442704; 566296, 4442304; 566196, 4442204; 566196, 4441904; 565896, 4441704; 566096, 4441404; 566096, 4441304; 565496, 4441004; 565596, 4440804; 565496, 4440604; 565496, 4440004; 565496, 4438804; 566196, 4438804; 566196, 4439104; 566596, 4439704; 566496, 4440204; 566096, 4440404; 567596, 4441004; 567996, 4441004; 568769, 4440386; 568496, 4440204; 568396, 4439704; 568796, 4438904; 569596, 4439204; 569946, 4438554; 570290, 4437905; 569496, 4438004; 569096, 4438104; 568696, 4438204; 567896, 4438204; 567696, 4438204; 567496, 4438004; 567096, 4437904; 567096, 4437804; 566896, 4437504; 566896, 4437204; 566296, 4437204; 566296, 4438004; 565996, 4438204; 565496, 4437804; 564296, 4437804; 564296, 4437604; 563996, 4437604; 563696, 4437404; 563496, 4437204; 563496, 4436704; 563496, 4436404; 563296, 4436404; 563296, 4436004; 563296, 4435604; 563596, 4435604; 563796, 4435904; 564296, 4436204; 564596, 4436304; 564796, 4436304; 564996, 4436204; 564996, 4436004; 564896, 4435604; 565196, 4435604; 564896, 4435304; 564596, 4435304; 564496, 4435204; 564296, 4435004; 564196, 4434804; 563896, 4434704; 563696, 4434504; 563596, 4434304; 563496, 4434304; 563296, 4434004; 563696, 4434004; 563696, 4432404; 563796, 4432404; 563596, 4431904; 564596, 4431773; 564596, 4431304; 565496, 4431304; 565496, 4431204; 567096, 4431104; 567096, 4430504; 566896, 4430304; 567496, 4430304; 567596, 4429404; 566896, 4429404; 566396, 4429404; 566196, 4429504; 566196, 4428904; 566096, 4429004; 565896, 4429104; 565596, 4429004; 565396, 4429004; 565196, 4428804; 564696, 4428804; 564396, 4428504; 564096, 4428504; 563796, 4428304; 563796, 4428004; 564196, 4428004; 564696, 4428004; 565596, 4428104; 566696, 4427904; 566696, 4427804; 567096, 4427804; 567196, 4427704; 567396, 4427004; 566996, 4427004; 566196, 4426704; 566096, 4426504; 565596, 4426504; 565496, 4426404; 565392, 4426404; 565403, 4427187; 564372, 4427175; 564365, 4427817; 564375, 4427959; 564039, 4427941; 563783, 4427939; 563691, 4427935; 563702, 4427185; 563784, 4427182; 563785, 4426344; 564036, 4426357; 564896, 4426380; 564896, 4426004; 564896, 4425704; 563796, 4425604; 562696, 4424904; 562396, 4424804; 562196, 4424804; 562096, 4424804; 561896, 4424704; 561796, 4424604; 561696, 4424604; 561596, 4424604; 561396, 4424604; 561296, 4424604; 560996, 4424704; 560796, 4424704; 560496, 4424804; 560196, 4424704; 559896, 4424604; 559896, 4424304; 559796, 4424204; 559496, 4424104; 559396, 4424204; 559296, 4424304; 559196, 4424304; 558996, 4424504; 558796, 4424604; 558396, 4424604; 558196, 4424604; 557996, 4424404; 557796, 4424304; 557396, 4424104; 557096, 4424004; 556896, 4423904; 556696, 4423904; 556196, 4423804; 555996, 4423804; 555896, 4423704; 555896, 4423604; 555596, 4423604; 555496, 4423604; 555396, 4423504; 555296, 4423404; 555196, 4423404; 555096, 4423404; 554696, 4424704; 555196, 4425404; 557296, 4426104; 557896, 4426604; 558396, 4426304; 559596, 4428104; 558296, 4428004; 557896, 4428304; 557496, 4429104; 558096, 4429704; 558696, 4429804; 558696, 4430904; 560096, 4431404; 559296, 4431704; 558396, 4431804; 557496, 4432004; 557496, 4432404; 558496, 4432904; 558496, 4433404; 557896, 4433404; 557596, 4433604; 557396, 4434204; 555196, 4434604; 555196, 4435204; 557096, 4436004; 557996, 4438804; 557096, 4438804; 554696, 4437204; 553296, 4436804; 553296, 4437404; 554596, 4437904; 555496, 4439504; 556596, 4439604; 556596, 4441604; 558596, 4442404; 558596, 4442804; 557496, 4442704; 557096, 4442804; 556896, 4443204; 557596, 4444104; 558096, 4443504; 558496, 4443504; 559896, 4443704; 559896, 4443504; 559796, 4443304; 559796, 4443004; 559996, 4443204; 560096, 4443304; 560596, 4443304; 560796, 4443404; 561096, 4443504; 561796, 4443704; 562496, 4443804; 562596, 4443904; 562696, 4443904; 562696, 4444304; 562996, 4444304; returning to 563496, 4444304.

(35) Subunit 6F; Glenn and Tehama Counties, California. From USGS 1:24,000 scale quadrangle Black Butte Dam and Kirkwood. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 563310, 4405483; 563296, 4405505; 562896, 4405605; 561496, 4406005; 560996, 4406005; 560696, 4406105; 560596, 4406205; 560496, 4406405; 560496, 4406704; 560896, 4406705; 560896, 4407104; 561296, 4407104; 561296, 4411104; 565596, 4411104; 565596, 4410304; 568496, 4410304; 568496, 4410404; 568496, 4411204; 570596, 4411204; 570896, 4411504; 571496, 4411304; 571596, 4410804; 572196, 4410704; 572196, 4409904; 571896, 4409404; 570596, 4408804; 570296, 4408804; 570296, 4409104; 569796, 4409104; 569796, 4408804; 569896, 4407505; 569996, 4406805; 569896, 4405905; 569896, 4405447; 569896, 4405305; 569496, 4405305; 569203, 4405451; 568696, 4405705; 568396, 4405705; 567904, 4405459; 567596, 4405305; 567296, 4405305; 565096, 4405305; 564865, 4405478; 564696, 4405605; 564196, 4405605; 563956, 4405485; 563796, 4405405; 563496, 4405205; returning to 563310, 4405483.

(36) Subunit 7A; Shasta County, Tehama County, California. From USGS 1:24,000 scale quadrangle Balls Ferry. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 569496, 4471491; 569496, 4471604; 569696, 4471704; 569696, 4471804; 569996, 4472004; 570296, 4471904; 570544, 4471821; 570555, 4471529; 570555, 4471529; 570555, 4471528; 570504, 4471512; 570478, 4471518; 570452, 4471544; 570431, 4471571; 570400, 4471571; 570393, 4471576; 570375, 4471572; 570336, 4471562; 570306, 4471565; 570292, 4471547; 570279, 4471542; 570268, 4471538; 570256, 4471509; 570252, 4471484; 570252, 4471482; 570246, 4471475; 570235, 4471460; 570235, 4471458;

570235, 4471449; 570214, 4471432; 570188, 4471428; 570185, 4471428; 570167, 4471427; 570150, 4471427; 570102, 4471428; 570071, 4471445; 570048, 4471443; 570009, 4471442; 569989, 4471429; 569962, 4471427; 569948, 4471428; 569917, 4471401; 569906, 4471378; 569885, 4471377; 569857, 4471378; 569853, 4471379; 569831, 4471347; 569818, 4471378; 569772, 4471385; 569754, 4471385; 569740, 4471388; 569721, 4471387; 569701, 4471389; 569653, 4471389; 569630, 4471397; 569613, 4471402; 569590, 4471410; 569561, 4471419; 569534, 4471426; 569511, 4471433; 569496, 4471433; returning to 569496, 4471491.

(37) Subunit 7B; Shasta and Tehama County, California. From USGS 1:24,000 scale quadrangles Tuscan Buttes NE, Balls Ferry, Shingletown, Dales, Bend, Red Bluff East. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 571332, 4471716; 571334, 4471766; 571340, 4471796; 571333, 4471846; 571340, 4471873; 571343, 4471927; 571345, 4471968; 571367, 4471968; 571459, 4471969; 571501, 4471942; 571556, 4471947; 571556, 4471947; 571563, 4471948; 571620, 4471970; 571637, 4471970; 571637, 4471970; 571731, 4471970; 571743, 4471975; 571810, 4472002; 571819, 4472004; 571835, 4472004; 571996, 4472004; 572250, 4472089; 572250, 4472087; 572252, 4472088; 572254, 4472031; 572258, 4472029; 572264, 4472031; 572277, 4472030; 572304, 4472029; 572315, 4472027; 572327, 4472023; 572337, 4472021; 572378, 4472019; 572403, 4472019; 572421, 4472017; 572428, 4472016; 572596, 4471904; 573996, 4471904; 574247, 4472594; 574303, 4472618; 574308, 4472620; 574315, 4472618; 574334, 4472612; 574351, 4472608; 574367, 4472604; 574389, 4472602; 574417, 4472601; 574438, 4472602; 574456, 4472606; 574465, 4472611; 574480, 4472615; 574499, 4472619; 574523, 4472627; 574546, 4472632; 574565, 4472634; 574579, 4472636; 574585, 4472638; 574584, 4472727; 574584, 4472736; 574584, 4472745; 574583, 4472755; 574583, 4472755; 574583, 4472755; 574555, 4472750; 574538, 4472746; 574521, 4472744; 574507, 4472742; 574493, 4472740; 574486, 4472738; 574475, 4472733; 574469, 4472731; 574461, 4472728; 574452, 4472724; 574449, 4472724; 574438, 4472723; 574442, 4472729; 574454, 4472759; 574561, 4472824; 574544, 4472824; 574541, 4472841; 574431, 4472775; 574422, 4472751; 574393, 4472724; 574374, 4472726; 574357, 4472744; 574349, 4472755; 574327, 4472779; 574318, 4472791; 574396, 4473004; 574850, 4473004; 575035, 4473004; 575196, 4473004; 575552, 4473217; 575696, 4473304; 575720, 4473327; 576096, 4473704; 576203, 4473704; 576555, 4473704; 576696, 4473704; 576979, 4473704; 577165, 4473704; 577396, 4473704; 577440, 4473737; 577447, 4473742; 577796, 4474004; 578696, 4474004; 578781, 4474028; 578899, 4474062; 578899, 4474062; 579396, 4474204; 579733, 4474204; 580096, 4474204; 580696, 4474504; 581086, 4474504; 581543, 4474504; 581996, 4474504; 582027, 4474541; 582496, 4475104; 583096, 4475204; 583296, 4475204; 583706, 4474876; 583796, 4474804; 584296, 4475004; 584696, 4475004; 585496, 4474304; 586096, 4473404; 586196, 4473204; 585896, 4472404; 585596, 4471904; 584896, 4471704; 584596, 4471404; 584596, 4471204; 584796, 4470904; 584796, 4470604; 584596, 4470304; 583496, 4469504; 583196, 4469204; 582696, 4468304; 582696, 4467404; 582796, 4466704; 582796, 4466504; 581996, 4465604; 581096, 4465304; 580696, 4465004; 580496, 4463804; 580296, 4463104; 578996, 4462504; 578596, 4462104; 578196, 4461804; 577896, 4460704; 577796, 4459804; 576796, 4459104; 576696, 4458604; 576896, 4458104; 576896, 4456904; 576496, 4456504; 575596, 4456604; 574996, 4456604; 574196, 4455704; 573596, 4455404; 572396, 4455104; 572096, 4455104; 571696, 4455404; 571496, 4455204; 571196, 4454704; 570696, 4454704; 570296, 4454604; 570296, 4454804; 570696, 4455704; 570096, 4455904; 569596, 4456104; 569396, 4456304; 568996, 4456304; 568696, 4456304; 568096, 4456604; 567996, 4456904; 567996, 4457804; 568496, 4458604; 569196, 4459604; 569696, 4460304; 569596, 4460604; 569096, 4460404; 568396, 4460504; 567596, 4460504; 566896, 4459804; 566496, 4459804; 565996, 4460904; 565896, 4461204; 565896, 4461504; 566096, 4461804; 565896, 4462104; 565996, 4462204; 565896, 4462304; 565996, 4462404; 565896, 4462604; 565996, 4462704; 565996, 4462804; 566096, 4462904; 566396, 4462904; 566596, 4463104; 566596, 4463404; 566796, 4463504; 566896, 4463504; 566996, 4463404; 567196, 4463304; 567296, 4463404; 567696, 4463204; 568396, 4463004; 569896, 4463004; 570696, 4463704; 570896, 4464104; 572096, 4465004; 572096, 4466104; 572196, 4466404; 572896, 4467104; 573596, 4468404; 573496, 4468804; 573196, 4469204; 572996, 4469404; 572696, 4469404; 571896, 4468604; 571496, 4467904; 571096, 4467704; 571096, 4468504; 571296, 4468504; 571196, 4469004; 571296, 4469304; 571296, 4470304; 570596, 4470704; 570556, 4470724; 570556, 4470736; 570562, 4470735; 570557, 4471158; 570882, 4471152; 571325, 4471157; 571331, 4471712; 571332, 4471716; and excluding land bounded by 579424, 4466287; 579440, 4463592; 580153, 4465463; 580228, 4465617; 580280, 4465722; 580409, 4465868; 580935, 4466259; returning to 579424, 4466287.

(38) Subunit 7C; Butte County, Tehama County, California. From USGS 1:24,000 scale quadrangles Acorn Hollow, Campbell Mound, Richardson Springs Northwest, and Vina. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 588835, 4429627; 588996, 4429304; 589596, 4429304; 589596, 4428404; 589596, 4427804; 589896, 4426904; 590596, 4426204; 590596, 4425104; 591296, 4424204; 591596, 4423104; 591658, 4422362; 590621, 4423490; 590082, 4424078; 589912, 4424262; 589224, 4425011; 588550, 4426026; 588521, 4426069; 588374, 4426290; 588309, 4426387; 588309, 4426388; 588308, 4426389; 588263, 4426456; 588110, 4426687; 588008, 4426841; 588096, 4427104; 587996, 4427104; 587898, 4427006; 587852, 4427075; 587233, 4427967; 587203, 4428047; 586868, 4428574; 586847, 4428605; 586996, 4428704; 587396, 4428904; 588396, 4429404; 588596, 4429804; 588796, 4429704; 588829, 4429638; returning to 588835, 4429627.

(39) Subunit 7D; Butte County, California. From USGS 1:24,000 scale quadrangle Richardson Springs. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 593796, 4420704; 593259, 4420620; 592425, 4421527; 592354, 4421604; 593096, 4421604; 593196, 4421304; 593596, 4421204; returning to 593796, 4420704.

(40) Subunit 7E; Butte County, California. From USGS 1:24,000 scale quadrangle Richardson Springs. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 594596, 4420104; 593977, 4419839; 593466, 4420395; 594096, 4420604; 594496, 4420404; returning to 594596, 4420104.

(41) Subunit 7F; Butte County, California. From USGS 1:24,000 scale quadrangle Paradise West, Richardson Springs, Chico. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 597196, 4416204; 597196, 4415404; 597140, 4415330; 596896, 4415004; 597196, 4414804; 597896, 4415304; 598196, 4415004; 597696, 4414404; 597696, 4414204; 597396, 4413604; 597396, 4413104; 598296, 4413704; 598496, 4413704;

598496, 4413404; 597518, 4411742; 597376, 4412187; 597055, 4413207; 596736, 4414221; 596716, 4414286; 596400, 4415288; 596399, 4415293; 596226, 4415844; 596187, 4415965; 596124, 4416162; 596107, 4416216; 596089, 4416270; 596078, 4416304; 596096, 4416304; 596196, 4416204; 596296, 4416304; 596396, 4416404; 596496, 4416504; 596596, 4416504; 596596, 4416604; 596696, 4416604; returning to 597196, 4416204.

(42) Subunit 7G; Butte County, California. From USGS 1:24,000 scale quadrangle Hamlin Canyon, Chico. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 598996, 4411605; 599496, 4411505; 599896, 4411505; 599896, 4410805; 599396, 4410505; 599196, 4410605; 599096, 4410605; 598896, 4410405; 598596, 4410205; 598396, 4409905; 598196, 4409805; 598166, 4409775; 598147, 4409798; 598133, 4409815; 598110, 4409888; 597901, 4410542; 597820, 4410795; 597557, 4411620; 597530, 4411705; 597696, 4411705; 598396, 4412504; 598596, 4413104; 598996, 4413104; returning to 598996, 4411605.

(43) Subunit 7H; Butte County, California. From USGS 1:24,000 scale quadrangle Cherokee, Hamlin Canyon. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 600396, 4405805; 601296, 4405405; 601896, 4405405; 602096, 4405305; 602296, 4405005; 602596, 4405005; 602796, 4404705; 603396, 4404505; 604596, 4404005; 605296, 4404005; 605696, 4403805; 605696, 4403405; 605196, 4403105; 604796, 4403205; 604596, 4403105; 604571, 4402980; 604496, 4402905; 604396, 4402905; 604296, 4402805; 604196, 4402705; 604096, 4402705; 603896, 4402605; 603896, 4402405; 603696, 4402205; 603496, 4402205; 603296, 4402305; 603196, 4402205; 602996, 4402205; 602996, 4401905; 602796, 4401905; 602396, 4402405; 602396, 4402505; 601896, 4403105; 601810, 4403105; 601648, 4403304; 601597, 4403304; 601561, 4403425; 601415, 4403468; 601322, 4403400; 601185, 4403376; 601074, 4403308; 600997, 4403374; 600955, 4403251; 600800, 4403371; 600638, 4403280; 600603, 4403335; 600568, 4403368; 600548, 4403385; 600464, 4403455; 600439, 4403447; 600328, 4403409; 600079, 4403484; 600069, 4403483; 599897, 4403467; 599821, 4403522; 599747, 4403502; 599588, 4403644; 599424, 4403666; 599397, 4403670; 599365, 4403674; 599180, 4403439; 599120, 4403416; 599082, 4404205; 599076, 4404348; 599067, 4404527; 599050, 4405192; 599049, 4405263; 599047, 4405333; 599043, 4405482; 599029, 4405524; 599015, 4405554; 599009, 4405567; 598980, 4405599; 598938, 4405651; 598881, 4405710; 598869, 4405726; 598818, 4405777; 598807, 4405787; 598790, 4405805; 598731, 4405863; 598694, 4405907; 598679, 4405931; 598663, 4405964; 598645, 4406015; 598640, 4406038; 598636, 4406060; 598628, 4406226; 598618, 4406620; 598611, 4406938; 598607, 4407300; 598609, 4407320; 598621, 4407372; 598623, 4407375; 598623, 4407394; 598676, 4407617; 598896, 4407705; 598996, 4407905; 599296, 4408205; 600296, 4408705; 600396, 4408605; 600396, 4408205; 600096, 4407905; 600496, 4407405; 599596, 4406505; 599596, 4406005; returning to 600396, 4405805.

(44) Subunit 7I; Butte County, California. From USGS 1:24,000 scale quadrangle Hamlin Canyon, Shipee. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 607696, 4401105; 607896, 4400905; 607596, 4400605; 606996, 4400605; 605196, 4399605; 605196, 4399405; 606596, 4399305; 606893, 4399135; 606873, 4399104; 606820, 4399056; 606664, 4399070; 606624, 4399076; 606575, 4399084; 606573, 4399084; 606490, 4399069; 606458, 4399042; 606425, 4399015; 606370, 4398974; 606305, 4398940; 606221, 4398927; 606156, 4398927; 606063, 4398936; 605995, 4398939; 605953, 4398938; 605918, 4398935; 605885, 4398921; 605877, 4398942; 605870, 4398953; 605860, 4398957; 605859, 4398956; 605797, 4398947; 605685, 4398921; 605600, 4398911; 605528, 4398915; 605415, 4398869; 605329, 4398849; 605269, 4398839; 605230, 4398828; 605230, 4398828; 605223, 4398828; 605205, 4398828; 605176, 4398829; 605159, 4398830; 605097, 4398855; 605053, 4398874; 605003, 4398897; 604125, 4399313; 603992, 4399240; 603982, 4399239; 603974, 4399241; 603396, 4399327; 603396, 4399405; 602996, 4399405; 603596, 4399605; 604796, 4400005; 604396, 4401105; 604496, 4401205; 604596, 4401105; 604696, 4401105; 604696, 4401205; 604896, 4401205; 604996, 4401205; 604896, 4401405; 605396, 4401705; 605996, 4401805; 606496, 4401605; 607196, 4401205; returning to 607696, 4401105.

(45) Subunit 7J; Butte County, California. From USGS 1:24,000 scale quadrangle Cherokee, Oroville, Shippee. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 610454, 4388429; 610496, 4388305; 609396, 4387905; 609396, 4387705; 608896, 4387605; 608896, 4389105; 607696, 4389105; 607696, 4389305; 607596, 4389405; 607496, 4389405; 607496, 4389705; 607396, 4389805; 607496, 4389805; 607596, 4389905; 607496, 4390105; 607496, 4390305; 607396, 4390405; 607396, 4390605; 607196, 4390805; 605796, 4392105; 605896, 4392105; 606096, 4392305; 606196, 4392505; 605996, 4392705; 605896, 4392705; 605696, 4392605; 606124, 4392947; 606383, 4392656; 606442, 4392590; 606586, 4392442; 606633, 4392398; 607213, 4391850; 607740, 4391343; 607844, 4391243; 607922, 4391168; 608323, 4390783; 608633, 4390441; 608948, 4390093; 609241, 4389770; 609487, 4389499; 609817, 4389134; 609831, 4389118; 609986, 4388947; 610218, 4388694; 610283, 4388624; 610335, 4388559; 610417, 4388468; returning to 610454, 4388429.

(46) Subunit 7K; Butte County, California. From USGS 1:24,000 scale quadrangles Oroville, and Shippee. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 616960, 4387371; 616948, 4387464; 616937, 4387853; 616938, 4387886; 616946, 4388066; 617025, 4388461; 617078, 4388655; 617271, 4389323; 617291, 4389377; 617397, 4389892; 617404, 4389930; 617457, 4390159; 617476, 4390213; 617505, 4390300; 617537, 4390394; 617565, 4390486; 618696, 4390405; 618896, 4390005; 618896, 4389505; 617896, 4388105; 617296, 4387505; returning to 616960, 4387371.

(47) Subunit 7L; Butte County, California. From USGS 1:24,000 scale quadrangle Hamlin Canyon, Shippee. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 612389, 4386215; 612396, 4386105; 612096, 4385905; 611396, 4384305; 611096, 4384305; 611096, 4383405; 610496, 4383405; 610496, 4383005; 610396, 4383005; 610396, 4382905; 610296, 4382805; 610396, 4382805; 610496, 4382705; 610596, 4382705; 610596, 4382605; 610596, 4382505; 610596, 4382405; 610296, 4382105; 610196, 4382205; 610296, 4382305; 610296, 4382405; 610296, 4382505; 610196, 4382405; 609996, 4382205; 609910, 4382119; 608596, 4383105; 608896, 4383605; 609596, 4384005; 609596, 4384305; 609396, 4384805; 609696, 4385105; 609396, 4385605; 609596, 4385805; 609996, 4385905; 610196, 4385905; 610196, 4386205; 610296, 4386305; 610596, 4386505; 611196, 4386905; 611496, 4387205; 611460, 4387320; 611983, 4386741; 612310, 4386376; returning to 612389, 4386215.

(48) Subunit 7M; Butte County, California. From USGS 1:24,000 scale quadrangle Cherokee, Oroville, Shippee.

Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 618688, 4384311; 618688, 4384311; 618656, 4384349; 618608, 4384406; 618473, 4384567; 618453, 4384600; 618382, 4384720; 618321, 4384953; 618303, 4385024; 618281, 4385143; 618113, 4385826; 618093, 4385912; 618046, 4386016; 618026, 4386061; 617997, 4386086; 617935, 4386166; 617827, 4386246; 617781, 4386268; 617763, 4386270; 617760, 4386283; 617521, 4386430; 617796, 4386705; 618096, 4386505; 618296, 4386505; 618796, 4386705; 619096, 4386805; 619296, 4387005; 619396, 4387005; 619596, 4387205; 619596, 4387405; 619796, 4387405; 619896, 4387505; 619996, 4387805; 620296, 4387805; 620696, 4388205; 620796, 4388205; 620796, 4387005; 621396, 4387005; 621696, 4386305; 621496, 4385405; 620996, 4385305; 620696, 4384705; 620496, 4384605; 619696, 4384905; 618696, 4384305; returning to 618688, 4384311.

(49) Subunit 7N; Butte County, California. From USGS 1:24,000 scale quadrangle Oroville, Shippee. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 618596, 4382306; 618596, 4382305; 619396, 4381105; 619596, 4380805; 619596, 4380305; 620896, 4378705; 620996, 4378205; 620396, 4377505; 618896, 4376805; 617896, 4376205; 617196, 4376005; 616996, 4375805; 617596, 4374605; 617596, 4374305; 617396, 4374005; 615511, 4373926; 615500, 4374159; 615415, 4374258; 614979, 4373925; 614761, 4374187; 614666, 4374554; 614396, 4374532; 614396, 4375505; 614696, 4375505; 614696, 4376405; 614896, 4376405; 614996, 4376505; 615196, 4376605; 615196, 4376805; 615996, 4376805; 616396, 4376805; 616396, 4377905; 614996, 4377905; 614996, 4378105; 614796, 4378105; 614796, 4378305; 614596, 4378305; 614596, 4378605; 614696, 4378705; 614696, 4379505; 614296, 4379505; 614296, 4381105; 612696, 4381105; 612696, 4382705; 613596, 4382805; 613796, 4382905; 613896, 4383005; 614096, 4383305; 614296, 4383805; 614296, 4384005; 614896, 4384005; 615169, 4384005; 615902, 4383609; 616800, 4383109; 617362, 4382796; 617423, 4382762; 617659, 4382634; 617685, 4382617; 618083, 4382368; 618443, 4382135; 618464, 4382111; 618541, 4382082; 618540, 4382106; 618553, 4382177; 618559, 4382213; returning to 618596, 4382306.

(50) Subunit 8A; Mendocino County, California. From USGS 1:24,000 scale quadrangle Point Arena. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 441396, 4314002; 441696, 4313502; 441796, 4313302; 442296, 4313202; 442596, 4313102; 442996, 4312602; 443296, 4312102; 443396, 4311802; 443396, 4311602; 442596, 4311602; 442496, 4311802; 442296, 4311802; 441396, 4310802; 441096, 4310702; 440796, 4310702; 440596, 4310902; 440296, 4310902; 440096, 4311102; 439596, 4310802; 438996, 4310802; 438596, 4311202; 438596, 4311602; 438596, 4312302; 438596, 4312502; 438796, 4312802; 439096, 4312902; 439196, 4313302; 439396, 4313702; 439596, 4313802; 439896, 4313702; 440196, 4313802; 441096, 4313802; 441296, 4314002; returning to 441396, 4314002.

(51) Subunit 9A; Lake County, California. From USGS 1:24,000 scale quadrangle Kelseyville, The Geysers. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 520696, 4304503; 520796, 4304203; 521296, 4303703; 521296, 4303303; 520996, 4303203; 520096, 4302703; 519696, 4302703; 519296, 4303003; 518696, 4303403; 518496, 4303803; 517796, 4304303; 517796, 4305303; 518096, 4305603; 518996, 4305603; 519496, 4305403; 519496, 4305003; 520696, 4304503; and excluding land bound by 519229, 4304318; 519282, 4304316; 519286, 4304383; 519355, 4304340; 519671, 4304397; 519803, 4304319; 519978, 4304007; 520024, 4303964; 520021, 4303917; 519881, 4303816; 519825, 4303689; 519774, 4303779; 519731, 4303720; 519735, 4303496; 519936, 4303493; 519942, 4303707; 520021, 4303683; 520033, 4303584; 520071, 4303585; 520076, 4304308; 520048, 4304313; 520040, 4304404; 519226, 4304415; returning to 519229, 4304318.

(52) Subunit 9B; Lake County, California. From USGS 1:24,000 scale quadrangle Middletown. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 538796, 4301004; 539196, 4300404; 540096, 4299804; 540796, 4299504; 541096, 4299104; 541196, 4298504; 540796, 4298104; 540296, 4298204; 539196, 4298904; 538896, 4299004; 538496, 4299004; 538196, 4299304; 538396, 4300004; 537996, 4300504; 537496, 4300404; 536996, 4299704; 536396, 4299504; 536096, 4299504; 535196, 4300204; 535096, 4300604; 535096, 4301004; 535196, 4301604; 535396, 4302004; 535796, 4302204; 536196, 4302204; 536996, 4302104; returning to 538796, 4301004.

(53) Subunit 9C; Napa County, California. From USGS 1:24,000 scale quadrangle Capell Valley, Yountville. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 566896, 4250704; 567396, 4250304; 568196, 4250304; 568396, 4249904; 568196, 4249804; 568496, 4249204; 568596, 4249104; 568396, 4248904; 567896, 4248804; 567596, 4248704; 567496, 4248404; 567396, 4247904; 567296, 4248104; 567096, 4249604; 566796, 4249804; 566496, 4250104; 566196, 4250204; 566096, 4250304; 565596, 4250304; 565196, 4250304; 565196, 4250604; 565496, 4251004; 566096, 4251604; 566696, 4251404; returning to 566896, 4250704.

(54) Subunit 10A; Colusa County, California. From USGS 1:24,000 scale quadrangle Meridian, Colusa. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 587096, 4337905; 587596, 4337405; 587796, 4337605; 588896, 4336505; 588996, 4336505; 589196, 4336305; 589196, 4336705; 589296, 4336705; 589296, 4335705; 587996, 4335705; 587996, 4335805; 587496, 4336405; 587396, 4336605; 586996, 4337605; 586796, 4337605; 586796, 4337505; 586496, 4337505; 586496, 4336605; 586396, 4336405; 586096, 4336405; 585896, 4336705; 585896, 4337005; 585996, 4337005; 585996, 4338005; 586196, 4338005; 586196, 4338205; 586896, 4338705; 587096, 4338305; 587096, 4338205; 586896, 4338005; returning to 587096, 4337905.

(55) Subunit 10B; Yolo County, California. From USGS 1:24,000 scale quadrangles Davis, and Saxon. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 615496, 4262105; 615496, 4260505; 614596, 4260505; 614596, 4261305; 614296, 4261305; 614296, 4261605; 614096, 4261605; 614096, 4262105; returning to 615496, 4262105.

(56) Subunit 10C; Solano County, California. From USGS 1:24,000 scale quadrangle Dozier. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 600496, 4242805; 600496, 4242005; 601396, 4242005; 601396, 4241220; 601098, 4241220; 600974, 4241220; 600543, 4241219; 600117, 4241218; 599096, 4241216; 599096, 4242105; 599696, 4242105; 599696, 4242805; returning to 600496, 4242805.

(57) Subunit 10D; Solano County, California. From USGS 1:24,000 scale quadrangle Elmira. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 593296, 4242004; 593296, 4240404; 593307, 4240404; 593351, 4239612; 592127, 4239598; 592158, 4239931; 592140, 4239942; 592122, 4239975; 592122, 4239986; 592127, 4240065; 592396, 4240604; 592196, 4240604; 591896, 4240804; 591796, 4240904; 591696, 4241004; 591696, 4241104; 591696, 4241504; 591796, 4241504; 591896, 4241404;

591996, 4241404; 592096, 4241304; 592296, 4241104; 592396, 4240704; returning to 593296, 4242004.

(58) Subunit 10E; Solano County, California. From USGS 1:24,000 scale quadrangles Denverton, and Elmira. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 589496, 4233804; 589096, 4234204; 588596, 4234204; 588596, 4236204; 588645, 4236253; 589040, 4236356; 589620, 4236362; 589766, 4236364; 589794, 4236364; 589696, 4234704; 589796, 4234704; 589796, 4234304; 590196, 4234304; 590196, 4233868; 590196, 4233804; returning to 589496, 4233804.

(59) Subunit 10F; Solano County, California. From USGS 1:24,000 scale quadrangles Denverton, Elmira, and Fairfield South. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 589275, 4230706; 589276, 4230706; 589337, 4230698; 589370, 4230694; 589411, 4230699; 589417, 4230713; 589410, 4230984; 589112, 4231020; 589196, 4231104; 589196, 4231504; 588696, 4231404; 588536, 4231484; 588513, 4232204; 588596, 4232204; 588596, 4232304; 588696, 4232304; 588696, 4232604; 588496, 4232804; 588696, 4233104; 588796, 4233304; 590096, 4233304; 590196, 4233304; 590196, 4233104; 590696, 4233104; 591196, 4232604; 591234, 4232629; 591239, 4232624; 591280, 4232660; 591796, 4233004; 592610, 4233095; 592690, 4233095; 592690, 4233104; 592696, 4233104; 592696, 4233604; 592996, 4233504; 592996, 4233555; 592998, 4233555; 592996, 4233558; 592996, 4233604; 593496, 4233904; 594296, 4233904; 594396, 4234704; 594596, 4234704; 594986, 4235200; 595012, 4233903; 595013, 4233118; 595140, 4233114; 595164, 4233100; 595227, 4233071; 595270, 4233031; 595285, 4233015; 595335, 4232955; 595418, 4232782; 595519, 4232583; 595579, 4232471; 595649, 4232328; 595795, 4232048; 596062, 4231522; 595023, 4231515; 594541, 4231511; 594505, 4231477; 594506, 4231420; 594530, 4231344; 594570, 4231298; 594592, 4231261; 594594, 4231219; 594607, 4231174; 594639, 4231161; 594671, 4231147; 594699, 4231145; 594711, 4231142; 594712, 4231130; 594714, 4231115; 594710, 4231094; 594702, 4231089; 594679, 4231079; 594669, 4231072; 594653, 4231049; 594646, 4231013; 594639, 4230983; 594596, 4231004; 593896, 4231004; 593696, 4230304; 593387, 4230319; 593387, 4230319; 593796, 4229704; 594096, 4229504; 593996, 4229404; 593996, 4229304; 594096, 4229204; 593996, 4229104; 593996, 4228904; 594396, 4228804; 594396, 4228304; 593796, 4228204; 593596, 4227904; 592896, 4227904; 592796, 4227804; 592696, 4227804; 592596, 4227704; 592296, 4227604; 592096, 4227304; 591796, 4227204; 591596, 4227004; 591296, 4226904; 590996, 4226804; 590796, 4226904; 590496, 4226904; 589496, 4227204; 589361, 4227204; 589122, 4227268; 588803, 4227384; 588075, 4227674; 588069, 4227676; 587563, 4227840; 587435, 4227881; 587106, 4228001; 587029, 4228138; 586996, 4228204; 586796, 4228304; 586696, 4228804; 586496, 4228904; 586296, 4228904; 586196, 4229104; 585496, 4229704; 585496, 4229904; 585596, 4230004; 585096, 4230104; 585196, 4230204; 585096, 4230304; 585207, 4230371; 585220, 4230354; 585423, 4230389; 585415, 4230433; 585391, 4230453; 585366, 4230466; 585596, 4230604; 585696, 4230904; 585999, 4230904; 586005, 4230876; 586022, 4230869; 586052, 4230862; 586135, 4230865; 586141, 4230878; 586141, 4230892; 586123, 4230901; 586119, 4230904; 586364, 4230904; 586369, 4230888; 586420, 4230842; 586436, 4230799; 587532, 4230821; 587978, 4230857; 588064, 4230915; 588087, 4230928; 588112, 4230930; 588131, 4230927; 588171, 4230904; 588182, 4230901; 588213, 4230899; 588796, 4230704; 588939, 4230704; 589021, 4230702; 589085, 4230703; 589186, 4230717; returning to 589275, 4230706.

(60) Subunit 10G; Solano County, California. From USGS 1:24,000 scale quadrangle Fairfield South. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 583208, 4232797; 583252, 4232811; 583641, 4232942; 583715, 4232965; 583726, 4232969; 583822, 4233000; 583875, 4233018; 583796, 4232704; 583196, 4231704; 582796, 4231604; 582496, 4231304; 582396, 4230504; 582096, 4230504; 581996, 4230204; 581796, 4230204; 581796, 4230904; 581896, 4230904; 581896, 4231404; 581396, 4231404; 581396, 4231804; 581596, 4232004; 581596, 4231704; 581796, 4231704; 581796, 4232704; 581996, 4232704; 582896, 4232804; 583196, 4232804; returning to 583208, 4232797.

(61) Subunit 10H; Solano County, California. From USGS 1:24,000 scale quadrangle Fairfield South. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 577696, 4229504; 577796, 4229404; 578196, 4229604; 578196, 4229504; 577996, 4228904; 577396, 4229204; 577296, 4229604; 577496, 4229804; 577696, 4229604; returning to 577696, 4229504.

(62) Subunit 11A; Yuba County, California. From USGS 1:24,000 scale quadrangles Browns Valley, and Wheatland. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 635096, 4332005; 635096, 4329705; 634696, 4329705; 633896, 4329705; 633696, 4329905; 633596, 4329905; 633396, 4329905; 633396, 4330105; 632796, 4329905; 632496, 4329705; 632496, 4328805; 631396, 4328805; 631396, 4329005; 631696, 4329005; 631696, 4329605; 631996, 4329605; 631996, 4330405; 632896, 4330405; 633096, 4330705; 633096, 4331105; 633196, 4331305; 633596, 4331505; 633896, 4331305; 633896, 4332005; returning to 635096, 4332005.

(63) Subunit 11B; Placer County, California. From USGS 1:24,000 scale quadrangle Lincoln. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 647996, 4313205; 647996, 4312505; 648096, 4312305; 647996, 4311305; 647796, 4311305; 647696, 4311105; 647396, 4311205; 646996, 4311205; 646996, 4311105; 647296, 4311105; 647596, 4311005; 647896, 4311005; 647996, 4310905; 647896, 4310805; 646996, 4310805; 646896, 4310705; 646896, 4310605; 647496, 4310605; 647596, 4310705; 647696, 4310605; 647896, 4310505; 648096, 4310505; 648096, 4309805; 648096, 4309505; 647296, 4309505; 647296, 4309005; 646796, 4308905; 646796, 4308605; 646696, 4308605; 646196, 4308905; 646196, 4308005; 646222, 4307980; 646108, 4308064; 646063, 4308099; 646012, 4308132; 645918, 4308192; 645433, 4308547; 645310, 4308646; 645196, 4308747; 644293, 4309663; 644291, 4309665; 644289, 4309667; 644244, 4309719; 643560, 4310423; 643796, 4310305; 644096, 4310705; 644396, 4310205; 645496, 4310205; 645896, 4310005; 646196, 4310005; 646396, 4309805; 647596, 4309805; 647596, 4310005; 646896, 4310005; 646596, 4310105; 646596, 4310405; 646696, 4310505; 646196, 4310505; 645996, 4310605; 645996, 4311005; 646196, 4310905; 646596, 4310905; 646596, 4311005; 646396, 4311005; 646396, 4311205; 646496, 4311505; 646896, 4311505; 646896, 4311705; 646896, 4311805; 646996, 4311905; 646896, 4312305; 647096, 4312405; 647196, 4312605; 647396, 4312605; 647496, 4312505; 647496, 4312605; 647396, 4312705; 647196, 4312705; 646896, 4312503; 646896, 4312805; 646996, 4313205; 647196, 4313605; 647396, 4314005; 648396, 4314005; 648396, 4313705; returning to 647996, 4313205.

(64) Subunit 11C; Placer County, California. From USGS 1:24,000 scale quadrangle Lincoln. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 644496, 4306482;

644496, 4305705; 644796, 4305705; 644796, 4305205; 644896, 4305205; 644896, 4305005; 645196, 4305005; 645196, 4304905; 645296, 4304805; 645496, 4304905; 645622, 4304905; 645597, 4304892; 645552, 4304878; 645509, 4304874; 645500, 4304876; 645489, 4304870; 645473, 4304845; 645440, 4304828; 645410, 4304815; 645373, 4304793; 645354, 4304775; 645331, 4304746; 645324, 4304743; 645303, 4304721; 645241, 4304661; 645164, 4304612; 645083, 4304568; 645000, 4304539; 644924, 4304536; 644892, 4304538; 644873, 4304543; 644859, 4304549; 644859, 4304548; 644840, 4304549; 644803, 4304531; 644763, 4304503; 644722, 4304474; 644696, 4304454; 644671, 4304439; 644659, 4304439; 644656, 4304441; 644650, 4304444; 644636, 4304458; 644622, 4304469; 644611, 4304461; 644579, 4304457; 644535, 4304451; 644484, 4304448; 644453, 4304448; 644423, 4304445; 644412, 4304440; 644396, 4304436; 644396, 4304705; 644196, 4304705; 644196, 4304805; 644096, 4304805; 644096, 4306474; returning to 644496, 4306482.

(65) Subunit 11D; Sacramento County, California. From USGS 1:24,000 scale quadrangle Folsom. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 655336, 4279155; 655196, 4279155; 655150, 4279167; 655156, 4279185; 655186, 4279195; 655186, 4279365; 655156, 4279385; 655136, 4279395; 655116, 4279415; 655106, 4279445; 655086, 4279455; 655056, 4279525; 655036, 4279575; 655036, 4279605; 655196, 4279605; 655197, 4279611; 655316, 4279615; 655306, 4279955; 655386, 4279955; 655314, 4279951; 655326, 4279736; 655474, 4279733; 655466, 4279725; 655376, 4279725; 655366, 4279665; 655366, 4279635; 655356, 4279605; 655346, 4279555; 655336, 4279505; 655336, 4279445; returning to 655336, 4279155.

(66) Subunit 11E; Sacramento County, California. From USGS 1:24,000 scale quadrangle Carmichael. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 649731, 4266483; 649796, 4266505; 649890, 4266499; 650296, 4266905; 650496, 4266805; 650696, 4266805; 650896, 4267005; 650996, 4267305; 650896, 4267705; 650596, 4267605; 650396, 4267905; 649996, 4268205; 649496, 4267905; 649196, 4267605; 649196, 4267305; 649496, 4267205; 649296, 4266905; 648496, 4266905; 648396, 4267505; 648096, 4267805; 648696, 4268305; 649496, 4268705; 649496, 4269005; 649696, 4269405; 649896, 4269405; 649896, 4268505; 650496, 4268705; 650896, 4268605; 651096, 4268605; 651096, 4269205; 651896, 4269105; 651596, 4268605; 651696, 4267705; 651696, 4266305; 651596, 4266205; 651596, 4266105; 651196, 4266105; 651196, 4265805; 651666, 4265617; 651685, 4264881; 651696, 4264205; 651496, 4264205; 651496, 4264005; 650596, 4264005; 650596, 4264105; 650496, 4264105; 650496, 4264405; 650096, 4264505; 649996, 4264905; 649496, 4264905; 649196, 4264805; 648996, 4264905; 648796, 4264905; 648796, 4265105; 648796, 4265305; 649996, 4265305; 649996, 4265805; 648396, 4265805; 648396, 4266005; 648596, 4266205; 648796, 4266005; 649096, 4266005; 649396, 4266205; 649496, 4266405; returning to 649731, 4266483.

(67) Subunit 11F; Sacramento County, California. From USGS 1:24,000 scale quadrangle Sloughhouse. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 660757, 4256313; 660777, 4255924; 660696, 4256005; 660396, 4255905; 660096, 4256005; 659896, 4256105; 659946, 4256255; 659996, 4256405; 660296, 4256305; 660396, 4256605; 660612, 4256533; 660729, 4256449; 660742, 4256432; returning to 660757, 4256313.

(68) Subunit 11G; Amador County, Sacramento County, California. From USGS 1:24,000 scale quadrangles Carbondale, Clay, Goose Creek, and Sloughhouse. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 654796, 4248555; 654796, 4248605; 654796, 4248805; 655196, 4248805; 655896, 4248805; 656396, 4249505; 656696, 4249305; 657296, 4250005; 656796, 4250905; 657796, 4250905; 657796, 4251305; 656796, 4251205; 656796, 4251905; 656596, 4252105; 656596, 4252405; 657096, 4253505; 657496, 4254405; 657896, 4254105; 657896, 4254005; 658196, 4253805; 658996, 4253305; 659096, 4253305; 659396, 4253105; 660096, 4254305; 660196, 4254605; 660296, 4254705; 660396, 4255005; 660696, 4255105; 660796, 4255205; 660896, 4255805; 660850, 4255851; 660873, 4255851; 661637, 4255865; 661651, 4255601; 661827, 4252068; 661832, 4251947; 662276, 4251977; 662409, 4251980; 662679, 4251997; 663105, 4252023; 663215, 4252003; 663317, 4252039; 663371, 4252095; 663408, 4252146; 663420, 4252196; 663440, 4252251; 663474, 4252316; 663486, 4252396; 663505, 4252516; 663533, 4252575; 663606, 4252695; 663642, 4252719; 663686, 4252727; 663726, 4252712; 663822, 4252705; 663857, 4252706; 663896, 4252721; 663914, 4252764; 663920, 4252796; 663857, 4252880; 663747, 4253004; 663747, 4253037; 663763, 4253091; 663837, 4253213; 663903, 4253293; 663928, 4253295; 664001, 4253291; 664058, 4253303; 664135, 4253365; 664184, 4253407; 664222, 4253422; 664315, 4253500; 664344, 4253504; 664409, 4253477; 664465, 4253411; 664567, 4253418; 664662, 4253481; 664688, 4253505; 664743, 4253559; 664849, 4253655; 664950, 4253758; 664964, 4253805; 664973, 4253929; 664952, 4253998; 664979, 4254043; 665073, 4254139; 665214, 4254225; 665270, 4254273; 665323, 4254297; 665409, 4254269; 665487, 4254229; 665610, 4254195; 665715, 4254243; 665752, 4254299; 665819, 4254352; 665853, 4254363; 665896, 4254358; 665949, 4254318; 665976, 4254298; 666052, 4254239; 666056, 4254207; 666125, 4254170; 666163, 4254172; 666210, 4254184; 666264, 4254197; 666332, 4254245; 666369, 4254253; 666406, 4254245; 666435, 4254240; 666513, 4254210; 666547, 4254168; 666587, 4254124; 666619, 4254114; 666677, 4254117; 666748, 4254111; 666801, 4254066; 666818, 4254035; 666836, 4253969; 666838, 4253889; 666860, 4253792; 666887, 4253752; 666922, 4253724; 666945, 4253718; 667011, 4253723; 667073, 4253756; 667153, 4253781; 667238, 4253802; 667349, 4253785; 667373, 4253769; 667398, 4253773; 667409, 4253786; 667411, 4253813; 667473, 4253839; 667578, 4253845; 667714, 4253831; 667897, 4253780; 668055, 4253686; 668263, 4253626; 668456, 4253639; 668519, 4253655; 668621, 4253643; 668739, 4253609; 668796, 4253548; 668896, 4253471; 668974, 4253415; 669094, 4253336; 669194, 4253292; 669267, 4253288; 669347, 4253276; 669424, 4253270; 669495, 4253201; 669557, 4253129; 669654, 4253082; 669715, 4253062; 669761, 4253063; 669955, 4253052; 670108, 4252985; 670239, 4252978; 670337, 4252993; 670375, 4252990; 670416, 4252964; 670467, 4252910; 670515, 4252879; 670595, 4252812; 670633, 4252797; 670690, 4252732; 670722, 4252678; 670738, 4252653; 670759, 4252648; 670808, 4252657; 670828, 4252680; 670812, 4252712; 670823, 4252726; 670852, 4252739; 670903, 4252728; 670946, 4252729; 670979, 4252701; 671008, 4252634; 671046, 4252594; 671071, 4252579; 671137, 4252568; 671206, 4252564; 671287, 4252468; 671366, 4252374; 671412, 4252343; 671472, 4252324; 671534, 4252310; 671605, 4252270; 671627, 4252253; 671655, 4252255; 671699, 4252295; 671727, 4252314; 671770, 4252320; 671812, 4252316; 671869, 4252308; 671923, 4252302; 671944, 4252281; 672031, 4252224; 672039, 4252232;

672059, 4252259; 672086, 4252263; 672100, 4252240; 672139, 4252205; 672204, 4252111; 672213, 4252089; 672226, 4252061; 672230, 4252049; 672249, 4252035; 672255, 4252005; 672249, 4251995; 672244, 4251985; 672207, 4251970; 672200, 4251954; 672205, 4251906; 672210, 4251885; 672209, 4251860; 672204, 4251786; 672216, 4251713; 672247, 4251698; 672274, 4251711; 672281, 4251706; 672295, 4251670; 672309, 4251635; 672342, 4251607; 672359, 4251589; 672367, 4251580; 672367, 4251592; 672361, 4251922; 672360, 4252004; 672343, 4252721; 672342, 4252746; 672327, 4253475; 672321, 4253759; 672320, 4253811; 672316, 4253962; 672315, 4254034; 672314, 4254092; 672288, 4255416; 672296, 4255405; 672496, 4255405; 672796, 4256205; 673296, 4256205; 672896, 4254905; 672896, 4254605; 673196, 4254705; 673896, 4254705; 674096, 4254405; 674096, 4254205; 674596, 4253805; 674596, 4253505; 674196, 4253305; 674196, 4252705; 674396, 4252105; 674596, 4251705; 674596, 4251405; 673496, 4251305; 673396, 4251205; 673396, 4251005; 673996, 4250805; 674096, 4250305; 674396, 4249805; 674396, 4249605; 674296, 4249505; 673996, 4249505; 673696, 4249705; 672596, 4249705; 672411, 4249798; 671996, 4250005; 671396, 4250005; 671196, 4250305; 671096, 4250305; 671096, 4249605; 670796, 4249605; 670796, 4249305; 670896, 4249105; 670896, 4248805; 670996, 4248705; 670996, 4248305; 670596, 4248105; 670596, 4247930; 670596, 4247905; 670496, 4247905; 670496, 4247805; 670196, 4247805; 670196, 4247605; 670596, 4247305; 671196, 4247305; 671696, 4247505; 671896, 4247405; 671996, 4247105; 671996, 4246905; 671596, 4246605; 671696, 4246405; 671896, 4245805; 671396, 4245205; 671351, 4245169; 670896, 4244805; 670096, 4244005; 670096, 4243905; 670596, 4243605; 670296, 4243205; 670296, 4243105; 670396, 4243005; 670496, 4242905; 670696, 4242405; 671296, 4242705; 671696, 4242805; 671696, 4242505; 670796, 4241905; 669896, 4241905; 669396, 4241705; 668996, 4241705; 668796, 4241605; 668596, 4241405; 668496, 4241405; 668296, 4241505; 668096, 4241805; 667996, 4241805; 667496, 4241405; 667496, 4241605; 666496, 4241505; 665496, 4241505; 665496, 4242505; 665096, 4242505; 665096, 4242105; 664896, 4242105; 664896, 4242005; 664796, 4242005; 664696, 4241905; 664596, 4241905; 664596, 4241105; 664096, 4241105; 664096, 4240805; 663596, 4240805; 663596, 4240705; 663496, 4240605; 663396, 4240605; 663396, 4240405; 663196, 4240405; 663196, 4240705; 662896, 4240705; 662896, 4240305; 662796, 4240205; 662796, 4239805; 662596, 4239805; 662596, 4239405; 662196, 4239405; 662196, 4239205; 662096, 4239105; 661796, 4239105; 661796, 4239005; 661496, 4238805; 661496, 4239705; 661596, 4239705; 661596, 4241405; 661596, 4241705; 661796, 4241805; 662296, 4241805; 662296, 4241405; 662996, 4241405; 662896, 4242105; 662596, 4242105; 662696, 4242805; 662996, 4242905; 663496, 4242905; 663496, 4243605; 663146, 4243605; 663126, 4243646; 663096, 4243649; 663096, 4243705; 662596, 4243705; 662796, 4244505; 662896, 4244605; 662946, 4244605; 663096, 4244705; 663196, 4245105; 663896, 4245105; 663996, 4245305; 664496, 4245405; 664596, 4245005; 664696, 4245005; 664846, 4245043; 664996, 4245080; 664996, 4245105; 665096, 4245105; 664996, 4245505; 664996, 4246305; 664496, 4246305; 663996, 4246505; 662596, 4246105; 662330, 4246105; 662296, 4246105; 662196, 4246205; 661796, 4246205; 661996, 4246805; 662096, 4247105; 661896, 4247305; 660996, 4247305; 660996, 4246945; 660996, 4246905; 660946, 4246905; 659796, 4246905; 659596, 4247105; 659596, 4248105; 660096, 4248105; 659996, 4249405; 660096, 4249705; 659996, 4250005; 659496, 4249505; 659496, 4249305; 659396, 4249005; 659196, 4248805; 659196, 4248705; 659296, 4248605; 659196, 4248505; 658996, 4248505; 658896, 4248405; 658696, 4248405; 658596, 4248605; 658496, 4248705; 658296, 4248805; 658296, 4248705; 658396, 4248505; 658596, 4248305; 658596, 4248205; 658496, 4248105; 658496, 4247705; 658196, 4247705; 658096, 4248305; 656796, 4248305; 656396, 4248705; 655996, 4248005; 656196, 4247905; 656196, 4247805; 656096, 4247605; 655296, 4247605; 655296, 4247005; 654796, 4247005; returning to 654796, 4248555.

(69) Subunit 11H; Sacramento, San Joaquin County, California. From USGS 1:24,000 scale quadrangle Lockeford, Clay. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 654171, 4234569; 654196, 4234605; 655196, 4234605; 655506, 4234373; 655596, 4234305; 655784, 4234399; 655996, 4234505; 656082, 4234505; 656096, 4234505; 656096, 4234305; 656896, 4234305; 656896, 4234505; 657696, 4234505; 657996, 4234805; 658896, 4235005; 658796, 4234905; 658796, 4234405; 659296, 4234405; 659296, 4234505; 659096, 4234705; 660596, 4235105; 661096, 4235105; 661196, 4234905; 660796, 4234505; 660396, 4234205; 660096, 4234105; 659696, 4233205; 656996, 4233205; 654196, 4233005; 654096, 4233005; 654096, 4232505; 653696, 4232505; 653696, 4233905; returning to 654171, 4234569.

(70) Subunit 12A; Napa County, California. From USGS 1:24,000 scale quadrangle Napa, Cuttings Wharf. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 564896, 4233104; 564896, 4232904; 564696, 4233004; 564196, 4232604; 563896, 4232804; 563896, 4233404; 563896, 4234904; 563896, 4235004; 563996, 4235104; 564296, 4235204; 564496, 4235104; 564596, 4234904; 564796, 4234804; 564796, 4234704; 564896, 4234504; 564796, 4234204; 564896, 4234004; 564796, 4233904; 564796, 4233804; 564896, 4233604; returning to 564896, 4233104.

(71) Subunit 12B; Napa County, California. From USGS 1:24,000 scale quadrangle Cuttings Wharf. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 563296, 4230404; 563896, 4229304; 564196, 4229404; 564396, 4229004; 563296, 4228704; 563096, 4228704; 562896, 4228304; 562718, 4228304; 562357, 4228448; 561986, 4228585; 561853, 4228635; 561894, 4228673; 561961, 4228724; 562294, 4228870; 562253, 4229105; 562516, 4229162; 562580, 4229331; 562627, 4229327; 562716, 4229356; 562748, 4229378; 562751, 4229445; 562700, 4229489; 562634, 4229585; 562577, 4229661; 562624, 4230099; 562554, 4230302; 562577, 4230372; 562573, 4230413; 562573, 4230496; 562561, 4230550; 562572, 4230604; 562596, 4230604; 563296, 4230704; returning to 563296, 4230404.

(72) Subunit 12C; Contra Costa County, California. From USGS 1:24,000 scale quadrangle Benicia, Mare Island. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 566896, 4208304; 566896, 4207804; 566996, 4207804; 566996, 4207704; 566996, 4207604; 567196, 4207604; 567196, 4207704; 567096, 4207704; 567096, 4207804; 567196, 4207904; 567296, 4208004; 567596, 4207604; 567996, 4207204; 568296, 4207004; 568596, 4206904; 568496, 4206904; 568396, 4206804; 568296, 4206804; 568296, 4206904; 568196, 4206904; 568196, 4206804; 567996, 4206904; 567796, 4207004; 567696, 4207004; 567696, 4206904; 567596, 4206904; 567296, 4206904; 566696, 4207504; 566496, 4207304; 565996, 4207204; 565796, 4207504; 566507, 4208304; returning to 566896, 4208304.

(73) Subunit 13A; Contra Costa County, California. From USGS 1:24,000 scale quadrangle Antioch South, Brentwood. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 612596, 4195704; 611796, 4194304; 611796, 4194104; 611496, 4193204; 610996, 4193304; 610296, 4193504; 609996, 4193704; 609796, 4193804; 609196, 4193804; 608196, 4194104; 608596, 4194704; 608496, 4194904; 608696, 4195104; 608696, 4195704; 609696, 4195704; 609596, 4195404; 609296, 4194904; 609296, 4194804; 609396, 4194704; 609996, 4194604; 610296, 4194604; 610596, 4194904; 611296, 4195704; 612196, 4196104; returning to 612596, 4195704.

(74) Subunit 13B; Contra Costa County, California. From USGS 1:24,000 scale quadrangle Byron Hot Springs, Clifton Court Forebay. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 617896, 4187704; 618296, 4187904; 618596, 4188104; 618496, 4188404; 617796, 4188604; 617896, 4188704; 617715, 4188659; 617496, 4188804; 617496, 4189004; 618296, 4189304; 618196, 4189604; 618296, 4189904; 618796, 4190104; 618796, 4190504; 619096, 4190804; 619396, 4190904; 619696, 4190904; 619896, 4190504; 619996, 4190504; 620196, 4190704; 620496, 4190704; 620596, 4191004; 621896, 4191004; 622296, 4190504; 622396, 4190204; 622371, 4190204; 622496, 4189704; 623096, 4189104; 622996, 4188504; 622296, 4188504; 622196, 4188604; 621996, 4188804; 621796, 4189104; 621496, 4189504; 621296, 4189804; 621296, 4190204; 621196, 4190204; 621196, 4188504; 620996, 4188504; 620696, 4188204; 620496, 4188404; 620496, 4187904; 620596, 4187704; 620696, 4187604; 620796, 4187504; 620996, 4187504; 621196, 4187304; 620596, 4186904; 620596, 4186704; 621396, 4187104; 621417, 4187094; 621434, 4187085; 621696, 4187204; 622096, 4186804; 622496, 4186204; 622696, 4185904; 622596, 4185804; 622596, 4185604; 622096, 4185104; 621296, 4185104; 621096, 4185304; 620896, 4185304; 620596, 4185004; 620296, 4185104; 619996, 4185404; 619696, 4185304; 619496, 4185504; 618296, 4186404; 618196, 4186904; 617796, 4187204; returning to 617896, 4187704.

(75) Subunit 13C; Contra Costa County, California. From USGS 1:24,000 scale quadrangle Byron Hot Springs. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 614896, 4185204; 615196, 4185004; 615196, 4185304; 615396, 4185304; 615496, 4185004; 615696, 4184704; 615896, 4184704; 616096, 4184604; 616096, 4184504; 615896, 4184304; 615796, 4184304; 615596, 4184004; 615196, 4184004; 614896, 4184004; 614796, 4183804; 614696, 4183804; 614696, 4184304; 614996, 4184804; 614696, 4185104; 614696, 4185704; 614796, 4185704; returning to 614896, 4185204.

(76) Subunit 13D; Alameda County, California. From USGS 1:24,000 scale quadrangle Byron Hot Springs. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 615596, 4181004; 615596, 4180904; 615696, 4180904; 615796, 4181104; 615896, 4181004; 616096, 4180404; 616096, 4180304; 616296, 4180004; 616296, 4179704; 615996, 4179704; 615996, 4179504; 616296, 4179304; 616296, 4178804; 616196, 4178804; 615996, 4179004; 615996, 4179204; 615796, 4179404; 615596, 4179904; 615196, 4180304; 614896, 4180604; 614496, 4180704; 614196, 4180904; 614696, 4181304; 614796, 4181304; 614796, 4181504; 614996, 4181504; 615296, 4181204; 615496, 4181104; returning to 615596, 4181004.

(77) Subunit 13E; Alameda County, California. From USGS 1:24,000 scale quadrangle Altamont, Livermore. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 612496, 4175704; 612496, 4176104; 612196, 4176104; 612196, 4176204; 612096, 4176304; 611896, 4176304; 611696, 4176304; 611696, 4175104; 611496, 4175104; 611296, 4175204; 610996, 4175204; 610896, 4175704; 610496, 4175704; 610396, 4175004; 610296, 4174904; 610096, 4174804; 610096, 4174604; 609196, 4175204; 608696, 4175404; 608496, 4175704; 610096, 4175704; 610096, 4176304; 610496, 4176304; 610496, 4178304; 610896, 4178104; 610896, 4177304; 610896, 4177004; 611296, 4177004; 611996, 4176504; 612396, 4176504; 612496, 4176504; 612496, 4177004; 613396, 4177004; 613496, 4176804; 613396, 4176704; 613396, 4176604; 613396, 4176504; 613296, 4176504; 613296, 4176104; 613496, 4176104; 613496, 4176004; 613596, 4176004; 613596, 4176104; 613696, 4176204; 613796, 4176204; 613796, 4176404; 614496, 4175304; 614396, 4175204; 614296, 4175204; 614196, 4175104; 614096, 4175104; 613996, 4175004; 613896, 4174904; 613796, 4174904; 613796, 4175004; 613696, 4175004; 613696, 4175904; 613396, 4175904; 613296, 4175704; 613196, 4175704; 612896, 4175904; 612796, 4175904; 612596, 4175704; returning to 612496, 4175704.

(78) Subunit 14A; Stanislaus County, California. From USGS 1:24,000 scale quadrangle Ripon. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 662496, 4168105; 661696, 4167805; 661696, 4168105; 660396, 4167605; 660696, 4167305; 660896, 4167005; 660096, 4167005; 659596, 4168605; 661696, 4168605; 661696, 4169205; 662496, 4169205; returning to 662496, 4168105.

(79) Subunit 14B; Merced County, California. From USGS 1:24,000 scale quadrangles Gustine, San Luis Ranch, and Stevinson. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 688396, 4128805; 688696, 4128605; 689196, 4128705; 689296, 4128605; 689496, 4128405; 689896, 4128305; 689996, 4128105; 690296, 4128105; 690496, 4128005; 690596, 4127805; 690696, 4125305; 692796, 4125305; 693296, 4124805; 693196, 4124605; 693196, 4124205; 693396, 4123505; 693696, 4123205; 693896, 4122805; 694096, 4122705; 694175, 4122626; 694131, 4122595; 692549, 4121476; 692396, 4121705; 692296, 4121805; 692296, 4122305; 692196, 4122505; 691896, 4122605; 691496, 4122605; 691357, 4122884; 691358, 4122902; 691359, 4122918; 691363, 4122960; 691369, 4123003; 691363, 4123043; 691344, 4123077; 691313, 4123096; 691296, 4123099; 691296, 4123305; 691207, 4123484; 691223, 4123482; 691245, 4123487; 691252, 4123499; 691262, 4123523; 691273, 4123544; 691287, 4123575; 691290, 4123598; 691296, 4123605; 691291, 4123615; 691297, 4123654; 691311, 4123697; 691316, 4123747; 691310, 4123785; 691288, 4123825; 691268, 4123854; 691247, 4123877; 691223, 4123893; 691195, 4123900; 691167, 4123900; 691151, 4123895; 690996, 4124205; 690655, 4124205; 690655, 4124207; 690665, 4124222; 690678, 4124232; 690679, 4124252; 690673, 4124271; 690660, 4124287; 690642, 4124298; 690622, 4124307; 690619, 4124307; 690619, 4124324; 690596, 4124329; 690571, 4124335; 690565, 4124343; 690541, 4124375; 690484, 4124395; 690449, 4124397; 690276, 4124454; 690223, 4124494; 690179, 4124500; 690121, 4124588; 690116, 4124659; 690092, 4124705; 690085, 4124810; 690048, 4124861; 690008, 4124900; 689952, 4124924; 689915, 4124989; 689884, 4125015; 689844, 4125034; 689796, 4125105; 689754, 4125400; 689761, 4125400; 689768, 4125408; 689742, 4125562; 689726, 4125598; 689696, 4125805; 689796, 4126005; 689696, 4126405; 689496, 4126405; 689372, 4126343; 689335, 4126386; 689285, 4126469; 689231, 4126483; 689217, 4126487; 689165, 4126532; 689164, 4126657; 689116, 4126766; 689086, 4126798;

689007, 4126783; 688999, 4126800; 689009, 4126811; 689196, 4126905; 689120, 4127000; 689121, 4127012; 689045, 4127097; 689027, 4127129; 689019, 4127127; 688951, 4127212; 688919, 4127259; 688876, 4127308; 688831, 4127386; 688819, 4127426; 688792, 4127455; 688780, 4128049; 688289, 4128040; 688196, 4128505; returning to 688396, 4128805.

(80) Subunit 14C; Merced County, California. From USGS 1:24,000 scale quadrangles San Luis Ranch, and Stevinson. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 693218, 4125475; 693196, 4125505; 693242, 4125551; 693296, 4125605; 693796, 4125705; 693796, 4127105; 693896, 4127105; 693996, 4126805; 694296, 4126705; 694696, 4126205; 694696, 4126005; 694796, 4125805; 695275, 4125531; 695496, 4125405; 695596, 4121805; 694996, 4122205; 694796, 4122505; 694596, 4122705; 694596, 4122905; 694196, 4123205; 693896, 4123305; 693896, 4123605; 693596, 4123705; 693596, 4124305; 693796, 4124505; 693896, 4124805; 693696, 4125005; 693496, 4125105; returning to 693218, 4125475.

(81) Subunit 14D; Merced County, California. From USGS 1:24,000 scale quadrangles Arena, San Luis Ranch, Stevinson, and Turner Ranch. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 702966, 4121510; 703296, 4120905; 703996, 4120305; 704696, 4119605; 704696, 4119605; 704796, 4119505; 698996, 4119405; 698896, 4119505; 698639, 4119762; 698655, 4119775; 698597, 4119816; 698600, 4119874; 698722, 4120002; 698758, 4119882; 698790, 4119918; 698764, 4120921; 698760, 4121315; 698690, 4121313; 698696, 4121405; 699996, 4121405; 700096, 4120205; 700296, 4120205; 700296, 4122505; 697096, 4122405; 696996, 4124905; 697796, 4124905; 697796, 4125105; 697696, 4125205; 697796, 4125405; 698096, 4125505; 698296, 4125605; 698396, 4125905; 698796, 4126305; 699596, 4126305; 699696, 4126105; 699396, 4126105; 699396, 4125205; 700196, 4125205; 700296, 4125805; 700696, 4125505; 701196, 4125105; 701196, 4124105; 700396, 4124105; 700396, 4123605; 700596, 4123605; 700696, 4123305; 701196, 4123205; 701296, 4123005; 701496, 4122905; 701696, 4122505; 701996, 4122305; 702696, 4122005; returning to 702966, 4121510.

(82) Subunit 14E; Merced County, California. From USGS 1:24,000 scale quadrangles Arena, and Turner Ranch. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 706796, 4121905; 706896, 4120705; 706796, 4120305; 706796, 4119505; 708196, 4119505; 708196, 4119405; 708096, 4119305; 707996, 4119005; 707996, 4118805; 708096, 4118705; 708396, 4118705; 708396, 4117905; 707996, 4117905; 707596, 4118305; 706596, 4118305; 706096, 4118705; 705696, 4119105; 705296, 4119505; 704896, 4119805; 704796, 4119905; 704796, 4120205; 705196, 4120205; 705196, 4120405; 704996, 4120505; 704996, 4120605; 705196, 4120605; 704996, 4120805; 705096, 4120905; 705196, 4121505; 705296, 4121505; 705396, 4121805; 705796, 4121905; 705796, 4122005; 705496, 4122105; 705396, 4122205; 705596, 4122405; 705496, 4122405; 705396, 4122305; 705296, 4122305; 705196, 4122305; 704996, 4122305; 704996, 4122505; 704896, 4122605; 704596, 4122605; 704396, 4122705; 704096, 4122605; 703996, 4122705; 703496, 4124205; 703396, 4124405; 701396, 4126305; 700196, 4127405; 700563, 4128872; 700596, 4129005; 700596, 4130405; 701096, 4130405; 701096, 4129905; 701196, 4129605; 701296, 4129605; 701196, 4129905; 701196, 4130405; 701796, 4130405; 701796, 4129005; 701896, 4129005; 702896, 4129005; 703096, 4128605; 703396, 4128605; 703996, 4128605; 703996, 4128805; 704296, 4128805; 704296, 4128305; 703396, 4128205; 703496, 4128105; 703496, 4127705; 703596, 4127605; 703896, 4127305; 703796, 4127105; 703596, 4127105; 703496, 4126905; 703496, 4125905; 703596, 4125905; 704496, 4125905; 704396, 4125805; 704496, 4125705; 704596, 4125105; 704596, 4124605; 705096, 4124605; 705096, 4125105; 705796, 4125105; 705796, 4124705; 706696, 4124805; 706796, 4123505; returning to 706796, 4121905.

(83) Subunit 14F; Merced County, California. From USGS 1:24,000 scale quadrangles Sandy Mush, and Turner Ranch. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 706796, 4121905; 711596, 4122005; 711596, 4121505; 711596, 4121005; 709996, 4121105; 709996, 4121705; 709896, 4121705; 709896, 4121605; 709796, 4121305; 709596, 4121305; 709396, 4121405; 708896, 4121205; 708796, 4121105; 706896, 4121105; returning to 706796, 4121905.

(84) Subunit 14G; Merced County, California. From USGS 1:24,000 scale quadrangles Sandy Mush and Turner Ranch. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 711296, 4120305; 711496, 4120205; 711596, 4120305; 711696, 4119405; 711996, 4119405; 711996, 4119205; 712196, 4119105; 712396, 4119105; 712396, 4119005; 712696, 4119005; 712896, 4118605; 711696, 4118505; 711696, 4118305; 711496, 4118305; 711396, 4118205; 711196, 4117905; 709996, 4117905; 709996, 4118605; 709996, 4118805; 709796, 4118805; 709796, 4119405; 710396, 4119405; 710396, 4119705; 710796, 4119705; 710796, 4119805; 710696, 4119805; 710696, 4119905; 710796, 4120005; 710696, 4120105; 710796, 4120205; 710796, 4120305; 710996, 4120205; 711196, 4120205; returning to 711296, 4120305.

(85) Subunit 14H; Merced County, California. From USGS 1:24,000 scale quadrangle Sandy Mush. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 714696, 4114805; 713396, 4114805; 713196, 4115105; 713396, 4115105; 713896, 4115205; 713896, 4116405; 715496, 4116405; 715596, 4116305; 715596, 4115623; 714696, 4115605; returning to 714696, 4114805.

(86) Subunit 14I; Merced County, California. From USGS 1:24,000 scale quadrangles El Nido, and Sandy Mush. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 718196, 4119755; 718196, 4119805; 718596, 4119805; 718596, 4120705; 718996, 4120705; 718996, 4119805; 719396, 4119805; 719496, 4120005; 719696, 4119905; 720296, 4119905; 720396, 4120005; 720796, 4120005; 720996, 4119805; 721596, 4119805; 721696, 4119905; 722096, 4119905; 722196, 4119805; 722296, 4120005; 722296, 4120105; 722996, 4120105; 722996, 4119405; 722196, 4119305; 722296, 4118205; 725496, 4118305; 725496, 4118383; 725496, 4118387; 726196, 4118405; 726196, 4119905; 728696, 4119905; 728696, 4119005; 727896, 4119005; 727796, 4118405; 727696, 4118305; 727596, 4118305; 727596, 4118205; 727596, 4116705; 726896, 4116705; 726796, 4116705; 726896, 4115105; 725996, 4115105; 725996, 4116705; 724396, 4116705; 724396, 4117405; 722790, 4117311; 722696, 4117405; 721896, 4117405; 721896, 4118205; 720296, 4118205; 720296, 4117405; 719496, 4117405; 719496, 4116505; 718696, 4116505; 718696, 4116905; 718296, 4116905; 718296, 4117005; 718396, 4117105; 718496, 4117205; 718696, 4117205; 718696, 4117305; 718696, 4118096; 718996, 4118105; 718996, 4118705; 718896, 4118805; 718796, 4118805; 718696, 4118905; 717796, 4118905; 717796, 4119705; 718196, 4119705; returning to 718196, 4119755.

(87) Subunit 14J; Merced County, California. From USGS 1:24,000 scale quadrangle Sandy Mush. Land bounded by the following UTM Zone 10, NAD27

coordinates (E,N): 721396, 4120605; 720596, 4120605; 720596, 4121405; 721396, 4121405; 721396, 4121005; returning to 721396, 4120605.

(88) Subunit 14K; Merced County, California. From USGS 1:24,000 scale quadrangle El Nido. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 722996, 4121605; 721896, 4121605; 722296, 4122305; 722996, 4122305; returning to 722996, 4121605.

(90) Subunit 14L; Merced County, California. From USGS 1:24,000 scale quadrangles El Nido, and Plainsburg. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 731796, 4116805; 730496, 4116805; 730496, 4118405; 730296, 4118405; 730196, 4119105; 730096, 4119505; 730096, 4119705; 730196, 4120005; 730996, 4120005; 730996, 4121205; 731396, 4121305; 731896, 4121205; 732796, 4121105; 734096, 4121005; 734296, 4120905; 734296, 4120105; 733496, 4120105; 733496, 4118505; 731796, 4118505; returning to 731796, 4116805.

(91) Subunit 14M; Kings County and Tulare County, California. From USGS 1:24,000 scale quadrangles Burris Park, Monson, Remnoy, and Traver. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 276838, 4031116; 276881, 4031202; 277581, 4031302; 278281, 4031702; 279581, 4031602; 279081, 4032702; 280581, 4032702; 281481, 4033102; 281881, 4033002; 283081, 4034102; 283881, 4034202; 284780, 4035002; 286880, 4034902; 287080, 4034902; 288580, 4034902; 288580, 4035402; 287780, 4035502; 287780, 4036502; 289380, 4036502; 289480, 4037202; 291180, 4037202; 291180, 4037002; 291880, 4037002; 291980, 4036602; 291980, 4035402; 292733, 4035590; 292727, 4035432; 292680, 4035202; 291980, 4035202; 291780, 4035202; 291780, 4035402; 290580, 4035502; 290580, 4035902; 289880, 4035902; 289880, 4035502; 289480, 4035502; 289480, 4034302; 288580, 4034302; 288580, 4034002; 287780, 4034002; 287780, 4034302; 287080, 4034402; 287080, 4034102; 285080, 4034202; 285080, 4033602; 283181, 4033602; 283181, 4032902; 282681, 4032902; 282681, 4032402; 282281, 4032402; 282181, 4031602; 282181, 4030902; 280181, 4030902; 280181, 4030602; 279081, 4030402; 278781, 4030302; 278581, 4029902; 278181, 4029802; 278088, 4029807; 276481, 4029902; 275781, 4029402; 275581, 4029002; 275381, 4028402; 275081, 4028102; 274781, 4027902; 274781, 4029602; 275681, 4029602; 276181, 4030202; 276481, 4030402; returning to 276838, 4031116.

(92) Subunit 14N; Tulare County, California. From USGS 1:24,000 scale quadrangles Alpaugh, Cocoran, and Taylor Weir. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 276581, 3997103; 276781, 3997003; 278181, 3997002; 278181, 3995402; 279681, 3995403; 279681, 3993803; 278081, 3993803; 278081, 3992203; 278881, 3992203; 278881, 3991403; 279681, 3991403; 279681, 3990603; 279681, 3989803; 279681, 3989003; 278781, 3989003; 278781, 3987403; 279281, 3987403; 279281, 3986303; 278981, 3986303; 278981, 3986503; 278681, 3987003; 278581, 3987203; 278381, 3987303; 277181, 3987403; 276981, 3988303; 276981, 3988803; 276581, 3988803; 276081, 3989703; 275981, 3990603; 276181, 3990803; 276181, 3991303; 276481, 3991303; 276481, 3992103; 276481, 3992303; 274481, 3992303; 274481, 3993903; 274881, 3993903; 274881, 3994503; 274981, 3994703; 275781, 3994703; 273781, 3997102; returning to 276581, 3997103.

(93) Subunit 14O; Tulare County, California. From USGS 1:24,000 scale quadrangles Alpaugh, and Pixley. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 288081, 3974303; 288081, 3974703; 288481, 3974703; 288481, 3975003; 288881, 3975003; 288881, 3975903; 285481, 3975903; 285181, 3976103; 285081, 3976603; 284981, 3977103; 284681, 3977303; 284681, 3977503; 283281, 3977503; 282981, 3977203; 284081, 3976203; 284081, 3976003; 283981, 3976003; 282081, 3976003; 281081, 3977703; 282281, 3977703; 282681, 3977403; 282881, 3977503; 282881, 3977703; 283181, 3977903; 283181, 3978003; 283281, 3978003; 283281, 3979203; 286581, 3979203; 286581, 3980003; 287381, 3980003; 287381, 3979103; 287781, 3979103; 287781, 3977603; 287781, 3977603; 289081, 3977603; 288981, 3976003; 290581, 3975903; 290481, 3975803; 290481, 3975003; 291481, 3975003; 291481, 3975103; 291581, 3975103; 291481, 3974203; 291381, 3974203; 291282, 3973411; 290484, 3973428; 290481, 3974303; 288481, 3974303; returning to 288081, 3974303.

(94) Subunit 14P; Tulare County, California. From USGS 1:24,000 scale quadrangles Alpaugh, and Pixley. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 288081, 3974303; 288081, 3973503; 287281, 3973503; 287281, 3973403; 287281, 3973403; 287281, 3972803; 285881, 3972803; 285881, 3973403; 285581, 3973403; 285581, 3973503; 285081, 3973503; 285081, 3972603; 283981, 3972603; 283081, 3974303; returning to 288081, 3974303.

(95) Subunit 14Q; Tulare County, California. From USGS 1:24,000 scale quadrangle Delano West. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 290033, 3972047; 290022, 3971848; 290454, 3971840; 290438, 3971046; 289595, 3971055; 289581, 3971055; 289581, 3972303; 290467, 3972303; 290460, 3972041; returning to 290033, 3972047.

(96) Subunit 15A; San Joaquin County, California. From USGS 1:24,000 scale quadrangle Peters, Farmington, Linden, Valley Springs SW. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 676096, 4212205; 676696, 4211005; 676396, 4211005; 676496, 4210805; 676397, 4210405; 676297, 4210305; 676197, 4210305; 675897, 4210105; 675697, 4210005; 675797, 4209805; 675997, 4209505; 675997, 4209405; 676597, 4209405; 676797, 4209905; 676796, 4210605; 676896, 4210705; 677296, 4211105; 678796, 4211105; 678896, 4210305; 680296, 4210205; 680296, 4209505; 681196, 4209505; 681896, 4210105; 682099, 4210068; 682109, 4209560; 682119, 4209092; 681596, 4208905; 681396, 4208305; 680896, 4208205; 680896, 4205905; 680596, 4205505; 680496, 4204905; 679796, 4204405; 679796, 4203105; 679296, 4203105; 679296, 4203205; 679096, 4203205; 679096, 4203105; 678597, 4203105; 678497, 4202905; 678397, 4202905; 678397, 4202805; 678497, 4202705; 678497, 4202505; 677797, 4202005; 677697, 4201505; 677597, 4201505; 677522, 4201430; 677463, 4201405; 675897, 4201405; 675797, 4202805; 675997, 4202805; 675997, 4203005; 675797, 4203005; 675797, 4204605; 672597, 4204505; 672597, 4205405; 672897, 4205605; 672897, 4206105; 672197, 4206105; 672197, 4206305; 671897, 4206305; 671697, 4206505; 671697, 4206905; 673297, 4206905; 673297, 4207205; 674097, 4207205; 674097, 4207505; 674797, 4207305; 674797, 4207005; 675197, 4207005; 675697, 4207205; 675697, 4207905; 675397, 4207905; 675397, 4207805; 674597, 4207805; 674497, 4207905; 674297, 4208005; 674027, 4208185; 674004, 4208506; 674897, 4208605; 674797, 4209105; 674697, 4209105; 674697, 4209405; 673997, 4209405; 673997, 4209605; 673597, 4209505; 673297, 4209405; 673297, 4209305; 673197, 4209305; 673196, 4211705; 673596, 4211605; 673996, 4211505; 673997, 4211205; 674197, 4211205; 674197, 4211305; 674397, 4211305; 674396, 4211405; 674997, 4211205; 675296, 4211305; 675296, 4211505; 675396, 4211605; 675396,

4211671; 675446, 4211705; 675596, 4211705; 675596, 4211805; 675596, 4212205; returning to 676096, 4212205.

(97) Subunit 15B; Tuolumne and Stanislaus County, California. From USGS 1:24,000 scale quadrangle Keystone, Knights Ferry. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 706708, 4189617; 706796, 4189905; 707396, 4190505; 707896, 4190505; 708496, 4189805; 708796, 4189805; 709296, 4189105; 709296, 4188405; 710196, 4188005; 710015, 4186646; 710009, 4186600; 709573, 4186981; 709372, 4187156; 708531, 4187889; 708447, 4187963; 708360, 4188038; 708228, 4188154; 708095, 4188270; 707735, 4188584; 707703, 4188612; 707661, 4188649; 706981, 4189243; 706692, 4189494; 706674, 4189509; returning to 706708, 4189617.

(98) Subunit 15C; Stanislaus County, California. From USGS 1:24,000 scale quadrangles Paulsell, and Waterford. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 699396, 4176489; 700596, 4176531; 701301, 4176555; 701378, 4176635; 701442, 4176570; 701852, 4176583; 701696, 4176505; 701696, 4176305; 701696, 4176005; 701796, 4175705; 701896, 4175605; 702096, 4175605; 702096, 4174905; 701696, 4174905; 701696, 4174005; 701996, 4173505; 701896, 4173405; 701796, 4173305; 701796, 4173105; 701796, 4173005; 701696, 4173005; 701596, 4172905; 701596, 4172805; 701696, 4172805; 701696, 4172605; 701596, 4172405; 701396, 4172305; 701196, 4172405; 700796, 4172405; 700696, 4172405; 700596, 4172505; 700596, 4172705; 700496, 4172705; 700496, 4172605; 700196, 4172505; 699696, 4172505; 699596, 4172605; 699396, 4172605; 699196, 4172305; 698896, 4172305; 698796, 4172405; 698496, 4172205; 698196, 4172605; 698296, 4172805; 697496, 4174105; 697396, 4174105; 697396, 4174305; 697896, 4174305; 697896, 4176105; 697796, 4176105; 697796, 4176242; 698187, 4176203; 698182, 4176418; 698181, 4176447; returning to 699396, 4176489.

(99) Subunit 15D; Stanislaus County, California. From USGS 1:24,000 scale quadrangle Paulsell. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 703196, 4177305; 703096, 4177105; 703008, 4177164; 703002, 4177308; 703196, 4177313; returning to 703196, 4177305.

(100) Subunit 15E; Stanislaus County, Tuolumne County, California. From USGS 1:24,000 scale quadrangles Cooperstown, Keystone, La Grange, and Paulsell. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 705196, 4174505; 705496, 4175205; 705096, 4175705; 705396, 4176105; 705796, 4176505; 705796, 4176805; 705796, 4177305; 705196, 4177305; 705096, 4177105; 704896, 4177105; 704896, 4176905; 704696, 4176905; 704596, 4177005; 704596, 4177205; 704396, 4177305; 704296, 4177105; 704096, 4177105; 703896, 4176905; 703596, 4177105; 703596, 4177455; 703757, 4177460; 703741, 4177798; 703896, 4178005; 704096, 4178005; 704196, 4177905; 704296, 4177905; 704296, 4178205; 703996, 4178205; 703996, 4178605; 703896, 4178705; 703996, 4178905; 703996, 4179005; 703685, 4179005; 703683, 4179046; 704531, 4178989; 705326, 4179286; 706238, 4179131; 708158, 4179213; 708755, 4178373; 709373, 4178848; 709975, 4179310; 710001, 4179330; 711355, 4179383; 711346, 4179738; 711724, 4179792; 711695, 4180558; 711674, 4180690; 713135, 4181130; 713537, 4181279; 714099, 4181546; 714637, 4181825; 714723, 4181878; 714730, 4181882; 715078, 4182097; 715141, 4182136; 715046, 4182231; 714819, 4182405; 715196, 4182405; 715596, 4183205; 715896, 4183205; 716096, 4182505; 716996, 4182505; 717196, 4182305; 717196, 4181805; 716996, 4181105; 717296, 4180705; 717296, 4180405; 717203, 4180188; 716996, 4179705; 717579, 4179851; 717796, 4179905; 718596, 4179805; 718796, 4179005; 719396, 4178505; 719551, 4178078; 719796, 4177405; 720222, 4177476; 720396, 4177505; 720796, 4177505; 720841, 4176920; 720896, 4176205; 721496, 4175705; 722296, 4175105; 722796, 4175005; 722896, 4173405; 723096, 4173305; 723296, 4173405; 723796, 4173405; 724096, 4173105; 724196, 4172105; 722896, 4172005; 721796, 4171005; 721668, 4170448; 721596, 4170305; 721496, 4170205; 721296, 4170105; 721096, 4169905; 721096, 4169405; 720996, 4169405; 720096, 4168305; 718996, 4167805; 718796, 4167905; 718196, 4168305; 718096, 4168305; 717996, 4168405; 716296, 4168405; 715996, 4168305; 715696, 4168105; 715596, 4168005; 715496, 4168105; 715496, 4169205; 714996, 4169705; 714996, 4169805; 715196, 4169805; 715296, 4170005; 715396, 4170005; 715396, 4170205; 715396, 4170212; 715396, 4171005; 715296, 4171005; 715296, 4170805; 715196, 4170805; 715196, 4170505; 714996, 4170505; 714996, 4170105; 713996, 4169605; 713896, 4169705; 713096, 4169305; 712596, 4169205; 712296, 4169205; 712096, 4169405; 711596, 4169705; 711396, 4169705; 710596, 4168905; 709396, 4168905; 709196, 4169305; 709196, 4169505; 708996, 4169505; 708896, 4169705; 708796, 4169705; 708696, 4169605; 708596, 4169705; 708496, 4169805; 708796, 4170005; 708896, 4170105; 708996, 4170205; 709196, 4170305; 709296, 4170405; 709496, 4170405; 709496, 4170605; 709396, 4170605; 709296, 4170705; 709196, 4170605; 708896, 4170505; 708896, 4170405; 708596, 4170305; 708496, 4170105; 708196, 4170005; 707996, 4170005; 707996, 4170105; 708196, 4170305; 708296, 4170305; 708296, 4170405; 708096, 4170405; 708296, 4170605; 708296, 4170705; 708196, 4170705; 707996, 4170505; 707796, 4170505; 707796, 4170605; 707696, 4170705; 707496, 4170705; 707196, 4170905; 707196, 4171005; 707296, 4171105; 707396, 4171005; 707596, 4171105; 707896, 4171405; 707996, 4171405; 708196, 4171405; 708296, 4171505; 708196, 4171605; 708196, 4171705; 708396, 4171705; 708396, 4171905; 708496, 4171905; 708596, 4172005; 708596, 4172105; 708796, 4172205; 708896, 4172305; 708896, 4172405; 708796, 4172505; 708596, 4172505; 708496, 4172605; 708396, 4172505; 708296, 4172505; 708196, 4172405; 708096, 4172305; 707996, 4172305; 707896, 4172505; 707696, 4172405; 707496, 4172305; 707496, 4172405; 707296, 4172505; 707196, 4172105; 707096, 4172005; 706796, 4172005; 706796, 4172105; 706596, 4172105; 706496, 4172105; 706496, 4172205; 706296, 4172405; 706396, 4172505; 706496, 4172605; 706396, 4172605; 706296, 4172605; 706196, 4172705; 705996, 4172905; 705896, 4173105; 705896, 4173305; 706096, 4173605; 705996, 4173705; 705896, 4173905; 705796, 4174005; 705596, 4174005; 705496, 4173905; 705496, 4173505; 705296, 4173005; 705196, 4173005; 705196, 4172405; 704996, 4172205; 704896, 4171905; 704696, 4171905; 704596, 4171705; 704496, 4171605; 704696, 4171205; 704796, 4171305; 704996, 4171005; 704796, 4170905; 704996, 4170805; 704896, 4170705; 704696, 4170705; 704696, 4170505; 704896, 4170005; 705196, 4170005; 705096, 4169905; 705096, 4169305; 704896, 4169105; 704196, 4169105; 703596, 4169305; 703496, 4169405; 703496, 4169905; 703696, 4170005; 703696, 4170105; 703596, 4170105; 703596, 4170605; 703496, 4170705; 703496, 4171105; 703296, 4171305; 703496, 4171305; 703496, 4171605; 703696, 4171605; 703696, 4173805; 704396, 4173805; 704396, 4173505; 705263, 4173505; returning to 705196, 4174505.

(101) Subunit 15F; Stanislaus County, California. From USGS 1:24,000 scale

quadrangle Paulsell. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 700596, 4170338; 700596, 4170705; 700396, 4170705; 700396, 4170905; 700396, 4171605; 701296, 4171605; 702096, 4171605; 702096, 4169605; 702296, 4169605; 702296, 4169505; 702296, 4169463; 702296, 4169005; 701796, 4168805; 701396, 4168605; 701296, 4168405; 701096, 4168405; 701096, 4169417; 701096, 4169505; 700796, 4169505; 700796, 4170205; 700796, 4170305; 700646, 4170305; 700596, 4170305; returning to 700596, 4170338.

(102) Subunit 15G; Stanislaus County, California. From USGS 1:24,000 scale quadrangles Montpelier, and Paulsell. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 704896, 4167305; 705096, 4167205; 705396, 4167205; 705396, 4166205; 705096, 4166105; 704496, 4166105; 704296, 4166005; 704096, 4166005; 703896, 4166205; 703496, 4166405; 703496, 4166605; 703596, 4166605; 703696, 4166705; 703796, 4166805; 703796, 4167005; 704696, 4167405; 704796, 4167405; returning to 704896, 4167305.

(103) Subunit 15H; Merced County, Stanislaus County, California. From USGS 1:24,000 scale quadrangles Cooperstown, La Grange, Merced Falls, Montpelier, Paulsell, and Turlock Lake. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 712996, 4163605; 712996, 4163505; 713196, 4163605; 713596, 4163805; 713696, 4163805; 713696, 4163905; 713796, 4164105; 714296, 4164105; 714496, 4164305; 714596, 4164605; 714696, 4164605; 714896, 4164505; 714896, 4164005; 714496, 4163805; 714496, 4163405; 714596, 4163305; 715296, 4163805; 715396, 4164005; 715496, 4164005; 715396, 4163705; 715196, 4163505; 715096, 4163305; 714896, 4163105; 714996, 4163005; 715096, 4163005; 715796, 4163005; 715996, 4162905; 716096, 4162705; 716196, 4162605; 716296, 4162605; 716396, 4162705; 716496, 4162805; 716596, 4162905; 716696, 4163005; 716696, 4163305; 716596, 4163405; 716596, 4163605; 716696, 4163905; 716896, 4164305; 716796, 4164705; 716896, 4165105; 717296, 4165605; 717296, 4165905; 717096, 4166205; 716696, 4166205; 716496, 4166105; 716496, 4166705; 716696, 4166705; 716896, 4166905; 716896, 4167105; 717096, 4167205; 717596, 4167205; 718196, 4167105; 718596, 4166905; 718696, 4166405; 718796, 4166205; 719196, 4166505; 719396, 4166605; 719596, 4166605; 719596, 4166305; 719696, 4166205; 719696, 4165905; 719896, 4165905; 719996, 4166105; 719996, 4166005; 720796, 4166005; 720796, 4163505; 721629, 4163505; 721796, 4163505; 722496, 4163905; 722496, 4163961; 722496, 4165105; 722296, 4165105; 722296, 4165205; 721596, 4165205; 721596, 4165905; 721096, 4166105; 720796, 4166305; 720996, 4166405; 721096, 4166505; 721196, 4166705; 721096, 4166805; 720396, 4166805; 720196, 4166705; 720296, 4166505; 720296, 4166405; 720196, 4166305; 720096, 4166305; 719896, 4166605; 719596, 4167205; 719596, 4167405; 719796, 4167605; 720596, 4167605; 720796, 4167505; 720996, 4167305; 721196, 4167205; 721396, 4167505; 721796, 4167505; 722096, 4167405; 722596, 4167405; 722996, 4167305; 723396, 4167205; 723096, 4168205; 723096, 4169005; 723396, 4169505; 723896, 4169605; 724196, 4169605; 724696, 4169005; 724796, 4168105; 725196, 4167705; 725396, 4167005; 726296, 4166905; 726596, 4166605; 726596, 4166405; 726824, 4166235; 727396, 4165805; 727796, 4165605; 729096, 4165605; 730196, 4165205; 730496, 4164905; 730596, 4164705; 730796, 4163905; 731396, 4163905; 731796, 4163605; 731896, 4163205; 732296, 4162605; 732296, 4162305; 732796, 4162505; 733096, 4162405; 733696, 4161905; 733796, 4161305; 733696, 4160805; 734696, 4160205; 734823, 4160078; 734896, 4160005; 734896, 4159940; 734896, 4159305; 734496, 4158505; 734396, 4157905; 734596, 4157705; 734796, 4157805; 734996, 4158105; 735096, 4158605; 735596, 4158605; 735601, 4158601; 735601, 4158601; 735796, 4158405; 735771, 4158278; 735696, 4157905; 736267, 4157334; 736296, 4157305; 736896, 4157105; 736996, 4156905; 736996, 4156305; 736808, 4156305; 736396, 4156305; 736096, 4156105; 735596, 4156105; 734196, 4156705; 733496, 4156905; 731796, 4156705; 730996, 4156305; 728996, 4156405; 728796, 4156505; 728796, 4156605; 728696, 4156705; 728396, 4156705; 728196, 4156605; 727996, 4156605; 727196, 4156605; 726996, 4156405; 726796, 4156305; 726396, 4156305; 726196, 4156405; 725896, 4156305; 725696, 4156205; 725596, 4156105; 725496, 4156005; 725196, 4155905; 725096, 4155805; 724996, 4155805; 724896, 4155905; 724396, 4155905; 724396, 4155505; 723896, 4155505; 723996, 4155105; 723396, 4155205; 722796, 4154905; 722796, 4155205; 722396, 4155205; 722396, 4156605; 722996, 4156605; 722996, 4157205; 723596, 4157205; 723596, 4156805; 723796, 4156705; 724396, 4156705; 724396, 4157205; 724296, 4157205; 724196, 4158005; 723896, 4158005; 723796, 4158805; 722596, 4158805; 722596, 4159005; 722496, 4159005; 722396, 4159105; 722296, 4159105; 721696, 4159105; 721696, 4159305; 721596, 4159405; 721596, 4159605; 721696, 4159605; 721696, 4159705; 721796, 4159705; 721796, 4160305; 721196, 4160305; 721196, 4159905; 720896, 4159905; 720896, 4160305; 719596, 4160305; 719596, 4160105; 720096, 4159405; 719696, 4159405; 719696, 4159305; 719596, 4159305; 719496, 4159305; 719396, 4159205; 719196, 4159205; 719096, 4159205; 718996, 4159105; 718796, 4158905; 718696, 4158805; 718696, 4158705; 718496, 4158705; 718296, 4158605; 718296, 4158505; 718396, 4158405; 718496, 4158305; 718596, 4158305; 718696, 4158205; 718796, 4158205; 718996, 4158105; 719096, 4157905; 719096, 4157705; 718796, 4157405; 718096, 4157505; 717896, 4157205; 717996, 4157005; 718096, 4156805; 718496, 4157105; 718796, 4156505; 718796, 4156105; 717596, 4156105; 717596, 4156505; 717196, 4156505; 717196, 4156105; 716696, 4156105; 716696, 4155605; 716396, 4155505; 716296, 4154805; 715996, 4154705; 715996, 4154905; 715896, 4155005; 715896, 4155105; 715796, 4155205; 715696, 4155505; 715596, 4155605; 715496, 4155605; 715396, 4156405; 715496, 4156405; 715496, 4157005; 715496, 4157205; 715596, 4157205; 715596, 4157405; 717696, 4157405; 717696, 4159505; 718196, 4160005; 718296, 4160305; 718496, 4160605; 718796, 4160905; 716896, 4160905; 716896, 4160205; 715349, 4160205; 714996, 4160205; 714996, 4160705; 715096, 4160705; 715096, 4160805; 715296, 4160805; 715296, 4160905; 714496, 4160905; 714496, 4161005; 713796, 4161005; 713796, 4160905; 713396, 4160905; 713296, 4161005; 713196, 4160905; 713196, 4160805; 713496, 4160505; 713496, 4160405; 713696, 4160305; 713896, 4160605; 713996, 4160605; 714096, 4160505; 714096, 4160205; 711230, 4160106; 711196, 4161705; 709596, 4161705; 709596, 4163305; 707996, 4163305; 707996, 4162905; 707096, 4162905; 707096, 4165405; 707496, 4165405; 707496, 4165605; 706796, 4165905; 706596, 4165605; 706296, 4165805; 706396, 4166105; 706296, 4166205; 706296, 4166305; 706396, 4166305; 706396, 4166505; 706296, 4166505; 706296, 4166905; 706596, 4166905; 706796, 4166505; 706896, 4166505; 706896, 4166105; 707096, 4166105; 707096, 4165905; 707296, 4165905; 707296, 4166505; 707496, 4166505; 707896, 4165805;

707896, 4165405; 708096, 4165605; 708296, 4165605; 708496, 4165505; 708496, 4165305; 708296, 4165205; 708296, 4165105; 708396, 4165005; 708496, 4165005; 708596, 4165105; 708696, 4165205; 708896, 4165205; 709196, 4164905; 710296, 4164905; 710296, 4166205; 710196, 4166205; 710196, 4166305; 710096, 4166305; 709996, 4166305; 709996, 4166505; 709896, 4166505; 709896, 4166905; 710296, 4166605; 711096, 4167405; 711696, 4167605; 712496, 4167605; 712496, 4167105; 712996, 4167105; 712996, 4167005; 712696, 4166705; 711896, 4166805; 711696, 4166605; 711696, 4166405; 711896, 4166305; 711896, 4166405; 711996, 4166405; 712096, 4166105; 712196, 4166305; 712296, 4166305; 712396, 4166205; 712596, 4166205; 712596, 4166005; 712796, 4166005; 712796, 4166105; 712896, 4166105; 713096, 4165905; 713019, 4165867; 712896, 4165805; 712796, 4165605; 712596, 4165605; 712596, 4165405; 712796, 4165405; 712696, 4165205; 712496, 4165305; 712396, 4165205; 712596, 4165105; 712596, 4165005; 712496, 4164905; 712696, 4164905; 712696, 4164805; 712696, 4164705; 712796, 4164605; 712696, 4164505; 712596, 4164605; 712496, 4164605; 712496, 4164105; 712896, 4164305; 713196, 4164105; 713296, 4163905; returning to 712996, 4163605.

(104) Subunit 15I; Merced County, California. From USGS 1:24,000 scale quadrangle Turlock Lake. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 713896, 4155205; 712696, 4155005; 712696, 4156605; 712996, 4156605; 712996, 4156905; 714896, 4157005; 714896, 4156605; 714396, 4156105; 714296, 4156005; 714096, 4155305; 714096, 4155205; returning to 713896, 4155205.

(105) Subunit 15J; Madera County, Mariposa County, Merced County, California. From USGS 1:24,000 scale quadrangles Haystack Mountain, Illinois Hill, Indian Gulch, Le Grand, Merced, Merced Falls, Owens Reservoir, Plainsburg, Planada, Raynor Creek, Snelling, Winton, and Yosemite Lake. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 736505, 4134005; 733996, 4134005; 733996, 4134605; 733896, 4134705; 733896, 4134805; 733096, 4134805; 733096, 4135605; 732596, 4135605; 730396, 4135505; 730296, 4135405; 730196, 4135405; 729996, 4135505; 729996, 4136305; 729996, 4136505; 730096, 4136505; 730196, 4136405; 730296, 4136405; 730396, 4136405; 730496, 4136505; 730596, 4136605; 730696, 4136705; 730696, 4136805; 730696, 4137005; 730696, 4137105; 730596, 4137205; 730496, 4137305; 730396, 4137305; 729996, 4137505; 729896, 4137505; 729796, 4137405; 729496, 4137405; 729396, 4137605; 729396, 4138205; 729296, 4138305; 729096, 4138205; 728896, 4138505; 728496, 4138605; 728296, 4138605; 727996, 4138405; 727796, 4138305; 727696, 4138205; 727496, 4138105; 727496, 4137605; 727396, 4137605; 727396, 4137405; 727496, 4137405; 727496, 4137305; 727396, 4137305; 727396, 4137205; 727496, 4137205; 727496, 4137005; 726596, 4137005; 726596, 4136305; 726496, 4136205; 725896, 4136205; 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(106) Subunit 15K; Madera County, California. From USGS 1:24,000 scale quadrangle Kismet. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 764595, 4105205; 761810, 4105205; 761795, 4105705; 762195, 4105705; 762995, 4106105; 763395, 4106005; 764195, 4106505; 764195, 4106005; 764595, 4106005; 764595, 4106205; 764895, 4106105; 765295, 4106205; 765795, 4106305; 765995, 4106505; 766195, 4106505; 766195, 4106305; 766395, 4106205; 766695, 4106105; 766695, 4104905; 764595, 4104805; returning to 764595, 4105205. Subunit 16A; Alameda County, California. From USGS 1:24,000 scale quadrangle Milpitas. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 590197, 4150203; 590578, 4150013; 590549, 4149963; 590480, 4150004; 590417, 4150034; 590409, 4150019; 590406, 4150019; 590403, 4150019; 590400, 4150018; 590397, 4150017; 590394, 4150017; 590391, 4150016; 590388, 4150015; 590299, 4150066; 590297, 4150067; 590296, 4150068; 590294, 4150069; 590292, 4150069; 590290, 4150070; 590288, 4150071; 590286, 4150071; 590284, 4150072; 590281, 4150072; 590279, 4150073; 590277, 4150073; 590275, 4150073; 590273, 4150074; 590271, 4150074; 590269, 4150074; 590267, 4150074; 590265, 4150073; 590262, 4150073; 590260, 4150073; 590258, 4150073; 590256, 4150072; 590254, 4150072; 590252, 4150071; 590250, 4150071; 590248, 4150070; 590246, 4150069; 590244, 4150068; 590242, 4150067; 590240, 4150066; 590238, 4150065; 590237, 4150064; 590235, 4150063; 590233, 4150062; 590231, 4150061; 590230, 4150059; 590027, 4149887; 590023, 4149883; 590018, 4149880; 590013, 4149876; 590008, 4149873; 590003, 4149870; 589998, 4149867; 589993, 4149864; 589988, 4149862; 589982, 4149860; 589977, 4149857; 589971, 4149856; 589966, 4149854; 589960, 4149852; 589954, 4149851; 589949, 4149850; 589943, 4149849; 589937, 4149848; 589931, 4149847; 589925, 4149847; 589920, 4149847; 589914, 4149847; 589908, 4149847; 589902, 4149848; 589896, 4149848; 589890, 4149849; 589885, 4149850; 589879, 4149852; 589873, 4149853; 589868, 4149855; 589862, 4149857; 589857, 4149859; 589851, 4149861; 589846, 4149863; 589841, 4149866; 589836, 4149869; 589831, 4149872; 589826, 4149875; 589821, 4149878; 589816,

4149882; 589812, 4149886; 589807, 4149889; 589803, 4149893; 589799, 4149897; 589795, 4149902; 589791, 4149906; 589738, 4149968; 589997, 4149903; returning to 590197, 4150203.

(107) Subunit 15L; Fresno County, and Madera County, California. From USGS 1:24,000 scale quadrangles Daulton, Friant, Gregg, Lanes Bridge, Little Table Mountain, and Millerton Lake West. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 233282, 4106500; 233311, 4106904; 233377, 4107821; 233380, 4107865; 233491, 4107900; 233596, 4107902; 233644, 4107900; 233680, 4107899; 233697, 4107898; 233759, 4107917; 233786, 4107935; 233808, 4107948; 233855, 4107979; 233917, 4108019; 234009, 4108041; 234065, 4108039; 234115, 4108015; 234132, 4107992; 234164, 4107785; 234176, 4107596; 234202, 4107547; 234340, 4107386; 234351, 4107345; 234350, 4107272; 234350, 4107220; 234366, 4107153; 234379, 4107097; 234738, 4106944; 235151, 4106911; 235179, 4106923; 235232, 4106995; 235284, 4107100; 235307, 4107122; 235346, 4107136; 235464, 4107102; 235607, 4107034; 235721, 4106941; 235896, 4106926; 235929, 4106912; 235981, 4106872; 235996, 4106864; 236033, 4106845; 236109, 4106843; 236426, 4106897; 236896, 4106742; 237015, 4106706; 237841, 4106782; 237878, 4106776; 237918, 4106750; 237936, 4106738; 237948, 4106725; 238168, 4106555; 238180, 4106552; 238462, 4106471; 238828, 4106150; 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258283, 4097527; 258184, 4097642; 258181, 4097636; 258181, 4097700; 258081, 4097800; 256781, 4098100; 256281, 4098100; 256281, 4096500; 255082, 4096600; 254981, 4094900; 256162, 4094900; 256123, 4094849; 256058, 4094384; 256055, 4094364; 256046, 4094295; 256037, 4094227; 255930, 4093459; 255877, 4093070; 255875, 4093057; 255891, 4093056; 255865, 4092898; 255775, 4092898; 255737, 4091904; 255827, 4091855; 255896, 4091964; 255981, 4091993; 255981, 4091984; 255981, 4091882; 255749, 4091668; 255725, 4091647; 255481, 4091500; 255256, 4091246; 255189, 4091172; 255172, 4091162; 255110, 4091082; 254948, 4090900; 254886, 4090900; 253782, 4090900; 253744, 4090862; 253681, 4090800; 253606, 4090800; 253582, 4090800; 253482, 4090800; 253481, 4090400; 253506, 4090400; 253840, 4090400; 253882, 4090400; 253881, 4090300; 254082, 4090300; 253881, 4090200; 253782, 4090200; 253681, 4090100; 253581, 4089900; 253482, 4089900; 253381, 4089800; 253282, 4089700; 253182, 4089500; 253082, 4089300; 252782, 4089100; 252482, 4088800; 251582, 4088800; 251582, 4088300; 252582, 4088300; 252509, 4087866; 252483, 4087712; 252482, 4087700; 252471, 4087700; 252382, 4087700; 252280, 4087650; 252182, 4087600; 251982, 4087400; 251882, 4087300; 251782, 4087300; 251682, 4087200; 251582, 4087100; 251482, 4087000; 251482, 4086900; 251282, 4086900; 251182, 4089100; 251282, 4089800; 251582, 4089800; 251582, 4089900; 251982, 4089900; 251982, 4090200; 252482, 4090200; 252482, 4091000; 251282, 4091000; 251282, 4091400; 251682, 4091400; 251682, 4091800; 251282, 4091800; 251282, 4092000; 251082, 4092000; 250682, 4092000; 250482, 4092000; 250482, 4092600; 250482, 4092600; 250482, 4092700; 246382, 4092800; 245582, 4092800; 242382, 4092900; 242382, 4094800; 242582, 4094900; 244082, 4094800; 244082, 4096500; 244882, 4096400; 244982, 4098000; 245782, 4098000; 245782, 4099600; 242582, 4099800; 242482, 4095000; 242382, 4095000; 239582, 4095000; 237682, 4095000; 237682, 4096000; 237782, 4098300; 239682, 4098200; 239782, 4099800; 236182, 4099900; 236182, 4100200; 237582, 4101700; 238482, 4102500; 238882, 4103100; 239382, 4103900; 238982, 4104100; 238882, 4104200; 238857, 4104194; 238482, 4104100; 238296, 4103914; 238282, 4103900; 238282, 4103400; 238082, 4103200; 237982, 4103100; 237882, 4103100; 237882, 4103946; 237882, 4104000; 237882, 4104100; 238182, 4104100; 237182, 4104100; 237182, 4105500; 235582, 4105600; 235582, 4106400; 233317, 4106498; 233317, 4106498; 233312, 4106499; 233312, 4106499; returning to 233282, 4106500 excluding land bounded by 250582, 4094600; 250557, 4094200; 250519, 4093451; 250497, 4093000; 250497, 4093000; 250882, 4093000; 250922, 4093000; 251282, 4093300; 251374, 4094600; 250582, 4094600; returning to 250582, 4094600.

(108) Subunit 15M; Madera County, California. From USGS 1:24,000 scale quadrangles Millerton Lake East, and North Fork. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 270881, 4108600; 271381, 4108200; 271581, 4107600; 271681, 4107100; 271281, 4106600; 270281, 4106600; 269981, 4106800; 269981, 4107400; 270181, 4108400; 269381, 4108100; 269081, 4108500; 268581, 4108500; 268381, 4109800; 268881, 4110200; 268981, 4110800; 268381, 4111100; 268581, 4111300; 268681, 4112100; 268881, 4112200; 270681, 4112200; 270881, 4111900; 270781, 4111100; 269681, 4110600; 269781, 4110300; 270081, 4110000; 270681, 4109500; returning to 270881, 4108600.

(109) Subunit 15N; Fresno County, California. From USGS 1:24,000 scale quadrangles Academy, and Millerton Lake East. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 266981, 4097100; 267081, 4097400; 267881, 4098100; 268181, 4098500; 268181, 4098700; 268081, 4098900; 267481, 4099600; 267481, 4100100; 267781, 4100600; 268181, 4101200; 268681, 4101200; 269181, 4100900; 269681, 4100900; 269881, 4101100; 269981, 4101300; 269681, 4102000; 269281, 4102200; 268681, 4102600; 268781, 4103600; 269181, 4103600; 269681, 4102900; 270281, 4103300; 270381, 4103300; 270781, 4102300; 270581, 4102200; 270381, 4102000; 270381, 4101700; 270581, 4101300; 270681, 4100900; 270581, 4100800; 270281, 4100500; 269481, 4100300; 268381, 4100300; 268181, 4100100; 268181, 4099900; 268481, 4099600; 268681, 4099300; 268781, 4099000; 268781, 4098700; 268681, 4098100; 268581, 4097900; 268481, 4097600; 268181, 4097400; 267881, 4097200; 267381, 4097100; returning to 266981, 4097100.

(110) Subunit 15O; Fresno County, California. From USGS 1:24,000 scale quadrangles Academy, Friant, and Round Mountain. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 259348, 4097383; 259581, 4097500; 259681, 4097500; 259881, 4097400; 259881, 4097200; 260081, 4097000; 260281, 4097000; 260381, 4096800; 260681, 4096600; 260881, 4096400; 261581, 4096400; 261881, 4096300; 262281, 4096400; 262481, 4096800; 263181, 4097000; 263381, 4097000; 263681, 4097000; 264981, 4096300; 264781, 4096100; 264281, 4096100; 263881, 4096300; 263881, 4095800; 263681, 4095700; 263581, 4095600; 263581, 4095500; 263581, 4095400; 263981, 4095400; 263981, 4095100; 263681, 4095100; 263681, 4094900; 263881, 4094900; 263881, 4094800; 263381, 4094500; 262381, 4094000; 261881, 4093400; 260781, 4093200; 259981, 4092100; 259981, 4091900; 260281, 4091900; 261281, 4092200; 262281, 4091300; 262981, 4091600; 263481, 4091100; 263481, 4089700; 263281, 4089600; 263181, 4089200; 264781, 4088500; 265081, 4087700; 265381, 4087400; 265981, 4087400; 265981, 4086600; 267081, 4086600; 267681, 4086800; 267881, 4086300; 267281, 4085300; 267481, 4084900; 268181, 4085100; 268381, 4085600; 269181, 4085600; 269881, 4085200; 270381, 4084700; 271181, 4084601; 271981, 4084900; 272281, 4085401; 272881, 4086000; 273081, 4087100; 273381, 4087500; 273281, 4088300; 273281, 4089400; 274781, 4089400; 275481, 4089800; 275681, 4090300; 275981, 4090600; 276581, 4090700; 277181, 4090700; 277181, 4090000; 276181, 4088700; 276181, 4087700; 276081, 4087300; 275481, 4087000; 275181, 4086400; 274981, 4085800; 274481, 4085301; 274081, 4084700; 273481, 4084200; 273481, 4083601; 273681, 4083200; 273681, 4082801; 272981, 4082700; 272881, 4082000; 272881, 4081201; 273081, 4080600; 273281, 4080300; 273581, 4079900; 273781, 4079501; 273881, 4078901; 274281, 4078401; 274381, 4077901; 273381, 4077900; 273381, 4076901; 273081, 4076401; 271381, 4076501; 271481, 4076701; 271781, 4076901; 271881, 4077101; 271881, 4077301; 271581, 4077501; 271181, 4077501; 271181, 4078001; 271381, 4078200; 271681, 4078701; 271881, 4078901; 272181, 4078901; 272181, 4079701; 271181, 4079700; 268081, 4079801; 268081, 4080400; 268381, 4080401; 268381, 4080600; 268081, 4080600; 268081, 4081100; 267581, 4081100; 267581, 4080701; 266581, 4080700; 266581, 4080900; 266381, 4080900; 266381, 4081101; 266681, 4081100; 266681, 4081501; 267081, 4082101; 267081, 4082200; 268381, 4082201; 268381, 4081500; 268481, 4081401; 268481, 4081000; 268881, 4081001; 268881, 4082600; 269681, 4082600; 269681, 4083000;

270081, 4083000; 270181, 4083600; 268881, 4083300; 268881, 4083170; 268783, 4083242; 268754, 4083261; 268740, 4083277; 268724, 4083296; 268717, 4083328; 268704, 4083389; 268602, 4083754; 268597, 4083780; 268598, 4083808; 268608, 4083832; 268618, 4083854; 268634, 4083876; 268675, 4083938; 268694, 4083971; 268705, 4084033; 268716, 4084073; 268717, 4084108; 268717, 4084130; 268712, 4084156; 268709, 4084176; 268695, 4084200; 268682, 4084220; 268652, 4084236; 268397, 4084375; 268369, 4084390; 268339, 4084395; 268320, 4084391; 268301, 4084381; 268276, 4084377; 268246, 4084363; 268226, 4084354; 268197, 4084355; 268163, 4084356; 268134, 4084371; 268120, 4084387; 268105, 4084400; 268087, 4084426; 268025, 4084514; 268007, 4084539; 267994, 4084559; 267974, 4084575; 267954, 4084585; 267929, 4084591; 267916, 4084597; 267891, 4084592; 267861, 4084587; 267798, 4084565; 267769, 4084556; 267739, 4084552; 267710, 4084548; 267686, 4084548; 267656, 4084554; 267636, 4084569; 267619, 4084585; 267603, 4084605; 267590, 4084621; 267529, 4084743; 267501, 4084802; 267488, 4084826; 267474, 4084848; 267455, 4084863; 267431, 4084877; 267373, 4084903; 267310, 4084930; 267291, 4084945; 267277, 4084964; 267144, 4085292; 267141, 4085317; 267136, 4085337; 267142, 4085360; 267148, 4085380; 267162, 4085393; 267196, 4085414; 267346, 4085522; 267376, 4085567; 267396, 4085585; 267407, 4085600; 267411, 4085614; 267412, 4085638; 267420, 4085736; 267421, 4085780; 267417, 4085803; 267408, 4085819; 267389, 4085849; 267366, 4085881; 267332, 4085885; 267308, 4085914; 267271, 4085944; 267238, 4085981; 267227, 4085999; 267209, 4086020; 267122, 4086227; 267104, 4086256; 267084, 4086269; 267056, 4086283; 266906, 4086331; 266891, 4086342; 266882, 4086352; 266867, 4086372; 266849, 4086402; 266825, 4086426; 266801, 4086437; 266771, 4086445; 266747, 4086438; 266722, 4086426; 266687, 4086406; 266594, 4086390; 266560, 4086382; 266526, 4086381; 266501, 4086377; 266477, 4086377; 266376, 4086400; 266351, 4086401; 266327, 4086402; 266297, 4086403; 266247, 4086390; 266213, 4086381; 266184, 4086375; 266164, 4086377; 266140, 4086383; 266106, 4086398; 265972, 4086470; 265938, 4086490; 265928, 4086507; 265910, 4086537; 265892, 4086570; 265868, 4086595; 265829, 4086610; 265804, 4086620; 265785, 4086618; 265770, 4086609; 265755, 4086589; 265744, 4086563; 265738, 4086531; 265743, 4086505; 265733, 4086482; 265717, 4086458; 265692, 4086440; 265652, 4086425; 265604, 4086407; 265574, 4086399; 265549, 4086385; 265534, 4086369; 265519, 4086344; 265507, 4086302; 265493, 4086278; 265468, 4086253; 265433, 4086239; 265300, 4086200; 265255, 4086191; 265217, 4086197; 265173, 4086214; 265130, 4086230; 265096, 4086250; 265030, 4086310; 264977, 4086370; 264864, 4086462; 264686, 4086500; 264646, 4086646; 264145, 4086593; 263385, 4087492; 263250, 4087462; 262733, 4087787; 262377, 4088430; 262168, 4088625; 261938, 4088667; 261884, 4088677; 261847, 4088935; 261881, 4088900; 261845, 4088949; 261712, 4089859; 261816, 4090114; 261861, 4090181; 261946, 4090230; 262019, 4090628; 261877, 4091074; 261790, 4091345; 261561, 4091701; 261492, 4091853; 261478, 4091881; 261382, 4092067; 261066, 4092009; 260594, 4091923; 260082, 4091835; 259931, 4091809; 259927, 4091872; 259919, 4092031; 259969, 4092207; 260060, 4092294; 260115, 4092347; 260281, 4092532; 260323, 4092741; 260563, 4093046; 260514, 4093202; 260706, 4093697; 260542, 4093983; 260409, 4094216; 260399, 4094501; 260394, 4094638; 259681, 4095909; 259681, 4096500; 259568, 4096500; 259490, 4096685; 259560, 4096972; 259429, 4097248; 259437, 4097286; 259377, 4097317; returning to 259348, 4097383.

(111) Subunit 15P; Fresno County, California. From USGS 1:24,000 scale quadrangle Clovis. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 247982, 4091500; 247982, 4090700; 246682, 4090700; 246682, 4090300; 246482, 4090300; 246482, 4089900; 247082, 4089900; 247082, 4089200; 245882, 4089200; 245882, 4089600; 245482, 4089600; 245582, 4091600; 246182, 4091600; 246182, 4091000; 246582, 4091100; 246882, 4091200; 247282, 4091300; 247582, 4091400; 247882, 4091500; returning to 247982, 4091500.

(112) Subunit 15Q; Fresno County, California. From USGS 1:24,000 scale quadrangle Clovis. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 265581, 4081601; 264281, 4081601; 265554, 4082449; 265656, 4082509; 265781, 4082592; 265781, 4082301; 265681, 4082300; 265681, 4081700; 265581, 4081700; returning to 265581, 4081601.

(113) Subunit 15R; Tulare County, California. From USGS 1:24,000 scale quadrangles Ivanhoe, and Stokes Mountain. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 300980, 4041602; 300280, 4041602; 299980, 4041702; 299680, 4041902; 299280, 4042502; 298980, 4042802; 298980, 4043102; 299280, 4043302; 299780, 4043302; 299780, 4044502; 300180, 4045102; 300780, 4045202; 301280, 4044702; 301480, 4044702; 301480, 4045002; 301380, 4045002; 301380, 4045602; 302280, 4045602; 302280, 4045402; 302580, 4045402; 303080, 4045702; 303180, 4045702; 303380, 4045502; 303680, 4045502; 303880, 4045902; 304380, 4045902; 304580, 4046102; 304780, 4046102; 304980, 4046602; 304780, 4047502; 304880, 4047702; 304780, 4048102; 304880, 4048302; 305480, 4048302; 305880, 4047802; 306080, 4047702; 306380, 4047702; 306580, 4047402; 306580, 4046802; 306380, 4046702; 306180, 4045702; 305980, 4045102; 305680, 4044902; 305480, 4044102; 305480, 4043902; 305980, 4043702; 305780, 4043202; 305780, 4042202; 305080, 4042202; 304980, 4041802; 304280, 4041802; 304180, 4041402; 301480, 4041502; 300980, 4041302; returning to 300980, 4041602 excluding land bounded by 299280, 4039193; 298499, 4039227; 298480, 4039302; 298580, 4039602; 298980, 4039702; 298980, 4040802; 299780, 4040802; 299380, 4041302; 300980, 4041302; 300980, 4041202; 300480, 4041202; 300480, 4039902; 300380, 4039902; 300380, 4039202; 300380, 4039102; 300080, 4039102; 300080, 4038402; 299280, 4038402; 299280, 4038639; 299293, 4039193; 299694, 4039182; 299695, 4039202; 299731, 4039993; 300093, 4039986; 300104, 4040440; 299864, 4040716; 299157, 4040740; 299141, 4040404; 299317, 4040392; 299299, 4040017; 299320, 4040016; 299294, 4039202; 299293, 4039193; returning to 299280, 4039193.

(114) Subunit 15S; Tulare County, California. From USGS 1:24,000 scale quadrangles Auckland, Ivanhoe, Stokes Mountain, and Woodlake. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 309080, 4043702; 309680, 4043202; 311780, 4043202; 312180, 4042802; 312780, 4042802; 313080, 4042502; 313080, 4042102; 312580, 4041802; 311080, 4040802; 311080, 4040202; 310680, 4040002; 310680, 4039702; 310480, 4039702; 310480, 4039602; 310080, 4039602; 310080, 4039302; 309980, 4039202; 309980, 4039002; 309780, 4039002; 309380, 4039002; 309380, 4038602; 308980, 4038602; 308980, 4038202; 308180, 4038202; 308080, 4038002; 307980, 4038002; 307980, 4037402; 308180, 4037402; 308180, 4037202; 308380, 4037202; 308380,

4037802; 308780, 4037802; 308780, 4037702; 308880, 4037602; 308780, 4037402; 308980, 4037402; 308980, 4037202; 308780, 4037202; 308780, 4037002; 309180, 4037002; 309180, 4036602; 308780, 4036602; 308780, 4036802; 308180, 4036802; 308180, 4036702; 308280, 4036702; 308280, 4036602; 308180, 4036602; 308180, 4036402; 308380, 4036402; 308380, 4036302; 308558, 4036302; 308480, 4035602; 308380, 4035602; 308380, 4035202; 308980, 4034802; 309080, 4034602; 308780, 4034602; 308780, 4033902; 308680, 4033902; 308680, 4033802; 308780, 4033702; 308580, 4033502; 308280, 4033602; 308080, 4033702; 308180, 4034102; 308080, 4034302; 308080, 4034702; 307780, 4034902; 307580, 4035202; 307480, 4035402; 307480, 4035602; 307280, 4036102; 306980, 4036702; 307180, 4037102; 306780, 4038102; 306780, 4038202; 306880, 4038302; 307080, 4038302; 307280, 4038402; 307180, 4038502; 307180, 4039702; 308180, 4040002; 308580, 4040502; 308280, 4041302; 307680, 4041302; 307180, 4041802; 307180, 4042402; 307780, 4043502; 307880, 4044302; 308280, 4044502; returning to 309080, 4043702.

(115) Subunit 15T; Tulare County, California. From USGS 1:24,000 scale quadrangle Woodlake. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 312780, 4039402; 312780, 4039202; 313380, 4039202; 313580, 4038802; 313180, 4038402; 313780, 4038402; 313980, 4038302; 314180, 4037802; 314680, 4037802; 314880, 4037302; 314880, 4037002; 314080, 4036402; 314180, 4036202; 314980, 4036202; 315180, 4036402; 315580, 4036402; 316180, 4036202; 316480, 4035202; 316480, 4035002; 315980, 4034302; 314180, 4034402; 313480, 4034702; 312880, 4034802; 312880, 4034902; 313080, 4034902; 313080, 4035702; 312580, 4035702; 312580, 4035502; 312380, 4035502; 312180, 4035302; 312080, 4035302; 312080, 4034902; 311380, 4034902; 311380, 4035102; 311580, 4035102; 311580, 4035302; 311180, 4035402; 311180, 4035102; 311080, 4035002; 311080, 4034902; 310580, 4034902; 310480, 4034802; 310380, 4034902; 310380, 4035702; 310680, 4035702; 310680, 4036502; 310880, 4036502; 310880, 4036802; 310580, 4036802; 310580, 4036902; 310680, 4037202; 310480, 4037402; 309880, 4037402; 309980, 4038202; 310180, 4038202; 310180, 4038002; 310580, 4038002; 310580, 4037702; 310880, 4037702; 310880, 4038102; 311280, 4038102; 311280, 4038502; 311580, 4038502; 311580, 4038602; 311680, 4038602; 311680, 4038802; 311780, 4038902; 312080, 4038902; 312080, 4039302; 311880, 4039302; 311680, 4039402; 311780, 4039802; 311780, 4039802; 312180, 4040502; 312780, 4040802; 313080, 4040802; 313680, 4040302; 313780, 4040102; 313180, 4039402; returning to 312780, 4039402.

(116) Subunit 15U; Tulare County, California. From USGS 1:24,000 scale quadrangle Monson. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 292780, 4036223; 292756, 4036224; 292733, 4035590; 291980, 4035402; 291980, 4036602; 292780, 4036602; 292780, 4037402; 291980, 4037502; 292080, 4039302; 292380, 4039002; 292880, 4039002; 292880, 4038302; 293280, 4038302; 293280, 4038202; 294477, 4038202; 294430, 4036802; 294380, 4035402; 294313, 4035402; 294270, 4035469; 294036, 4035567; 294043, 4035741; 294329, 4035733; 294329, 4035783; 293527, 4035814; 293548, 4036184; returning to 292780, 4036223.

(117) Subunit 15V; Tulare County, California. From USGS 1:24,000 scale quadrangle Monson. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 297580, 4036102; 297580, 4035302; 297580, 4035002; 296880, 4035102; 296280, 4035102; 296780, 4036602; 297580, 4036502; returning to 297580, 4036102.

(118) Subunit 15W; Tulare County, California. From USGS 1:24,000 scale quadrangle Monson. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 293431, 4033802; 292680, 4033802; 292680, 4033808; 292683, 4033807; 292686, 4034084; 293057, 4034063; 293438, 4034046; returning to 293431, 4033802.

(119) Subunit 16B; Alameda County, California. From USGS 1:24,000 scale quadrangle Niles, Milpitas. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 592097, 4150703; 592397, 4150403; 592397, 4150385; 592371, 4150407; 592373, 4150418; 592310, 4150478; 592292, 4150493; 592178, 4150572; 592123, 4150572; 592053, 4150638; 591927, 4150506; 591921, 4150499; 591701, 4150252; 591698, 4150252; 591695, 4150252; 591692, 4150252; 591689, 4150252; 591686, 4150252; 591683, 4150252; 591680, 4150251; 591677, 4150250; 591675, 4150250; 591672, 4150249; 591669, 4150248; 591666, 4150247; 591664, 4150246; 591661, 4150245; 591658, 4150244; 591656, 4150242; 591653, 4150241; 591651, 4150239; 591648, 4150238; 591646, 4150236; 591644, 4150234; 591641, 4150232; 591639, 4150230; 591637, 4150228; 591635, 4150226; 591633, 4150224; 591631, 4150222; 591629, 4150220; 591628, 4150217; 591626, 4150215; 591624, 4150213; 591623, 4150210; 591622, 4150208; 591620, 4150205; 591619, 4150202; 591618, 4150200; 591617, 4150197; 591616, 4150194; 591615, 4150191; 591614, 4150189; 591614, 4150186; 591613, 4150183; 591613, 4150180; 591613, 4150177; 591612, 4150174; 591612, 4150171; 591612, 4150168; 591612, 4150165; 591612, 4150163; 591613, 4150160; 591613, 4150157; 591539, 4150076; 591493, 4150122; 591340, 4149959; 591352, 4149949; 591366, 4149936; 591397, 4149907; 591428, 4149878; 591570, 4149746; 591647, 4149676; 591686, 4149643; 591717, 4149620; 591762, 4149591; 591785, 4149578; 591817, 4149565; 591874, 4149541; 591922, 4149523; 591968, 4149511; 592009, 4149501; 592054, 4149494; 592098, 4149489; 592161, 4149487; 592216, 4149493; 592333, 4150186; 592342, 4150188; 592341, 4150191; 592348, 4150192; 592349, 4150189; 592395, 4150195; 592297, 4149803; 592197, 4149403; 592097, 4149303; 592081, 4149303; 592200, 4149453; 592185, 4149451; 592155, 4149449; 592127, 4149450; 592091, 4149453; 592050, 4149459; 591983, 4149469; 591941, 4149480; 591880, 4149500; 591814, 4149526; 591748, 4149561; 591691, 4149598; 591654, 4149627; 591627, 4149653; 591550, 4149723; 591407, 4149856; 591376, 4149885; 591345, 4149914; 591332, 4149926; 591319, 4149937; 591317, 4149934; 591142, 4149751; 591013, 4149825; 591597, 4150603; 591697, 4150503; 591897, 4150503; returning to 592097, 4150703.

(120) Subunit 17A; San Benito, Monterey Counties, California. From USGS 1:24,000 scale quadrangle Llanada, San Benito, Hernandez Reservoir, Rock Springs Peak, Topo Valley, Hepsedam Peak, Lonoak, Pinalito Canyon, Monarch Peak, Nattrass Valley. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 673301, 4024031; 673596, 4024104; 674896, 4026004; 674596, 4026304; 674696, 4026804; 674196, 4027104; 673096, 4026604; 672496, 4026804; 671696, 4028504; 670796, 4028504; 669796, 4028704; 669796, 4029904; 669896, 4030504; 670396, 4031904; 670796, 4034904; 671396, 4036904; 669196, 4037504; 669296, 4038404; 668796, 4040104; 669896, 4042504; 671996, 4043104; 674196, 4043304; 676096, 4045404; 677396, 4046504; 683096, 4043104; 683896, 4042004; 683796, 4040404; 682396, 4039504; 681396, 4038404; 681696, 4036804; 681796, 4035604; 680896, 4034304; 678896, 4035004;

678096, 4035804; 677696, 4036904; 677296, 4037604; 676896, 4037704; 676196, 4038304; 675896, 4038804; 675096, 4038304; 675196, 4037804; 674796, 4037404; 673196, 4036804; 673896, 4036304; 674096, 4035304; 674796, 4034804; 675596, 4034504; 676096, 4033404; 676896, 4033104; 677696, 4032504; 678196, 4031904; 679096, 4031204; 679696, 4031004; 679996, 4031504; 679996, 4032504; 680596, 4032804; 681096, 4032304; 681596, 4031304; 682696, 4031004; 684496, 4028505; 685296, 4028505; 685596, 4028005; 687496, 4029305; 688096, 4030505; 688896, 4030905; 689796, 4031005; 691295, 4032405; 692095, 4032105; 692595, 4031405; 693295, 4031105; 693795, 4031105; 694395, 4030705; 693895, 4029305; 692695, 4028305; 693595, 4028305; 694395, 4027605; 694395, 4027005; 695195, 4025905; 696695, 4024705; 696695, 4023505; 697295, 4022405; 697995, 4022405; 698395, 4021305; 699295, 4020305; 699195, 4019205; 698595, 4019105; 698095, 4018505; 697195, 4018605; 695796, 4017705; 695496, 4016705; 695196, 4016305; 694996, 4015705; 694996, 4014805; 694952, 4014692; 694496, 4013505; 693896, 4012905; 693696, 4011905; 692496, 4010705; 692096, 4008905; 691696, 4008405; 690896, 4008405; 689596, 4009205; 689096, 4009905; 688996, 4010505; 687896, 4010805; 687196, 4010805; 685496, 4011905; 684996, 4013105; 683696, 4013905; 683496, 4014705; 682796, 4015005; 682596, 4016005; 683196, 4016405; 683196, 4016849; 683196, 4017505; 684296, 4019305; 684296, 4020305; 683496, 4022005; 681796, 4023305; 681196, 4023405; 680796, 4024205; 680696, 4025305; 679896, 4025504; 679396, 4026704; 678796, 4027104; 678196, 4026404; 677496, 4026204; 676096, 4025404; 676096, 4024804; 676696, 4024304; 676896, 4023504; 675896, 4022304; 675798, 4021666; 675696, 4021004; 675096, 4020004; 674296, 4019704; 672296, 4016504; 670896, 4015504; 670096, 4015504; 669596, 4015804; 669196, 4016504; 669696, 4017204; 669596, 4018404; 670196, 4019104; 670396, 4022004; 671096, 4022804; 672796, 4023904; returning to 673301, 4024031.

(121) Subunit 18A; Monterey County, California. From USGS 1:24,000 scale quadrangle Williams Hill, Jolon, Valleton, Bradley, San Miguel, Wunpost. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 668597, 3981705; 668797, 3981405; 668597, 3980905; 668797, 3980405; 669497, 3979905; 669897, 3980305; 670697, 3980505; 671497, 3980405; 671497, 3979305; 671997, 3979305; 672797, 3978405; 674797, 3978405; 675497, 3978005; 674697, 3976705; 674897, 3975505; 674997, 3975372; 674997, 3975305; 674797, 3975305; 674737, 3975786; 674736, 3976029; 674706, 3976031; 674697, 3976105; 673540, 3976105; 673514, 3976459; 673497, 3976459; 673497, 3976505; 673129, 3976505; 673126, 3976836; 673926, 3976848; 673934, 3977666; 673097, 3977663; 673097, 3977705; 672358, 3977674; 672298, 3978463; 670682, 3978454; 670706, 3977606; 670697, 3977605; 670697, 3977433; 670307, 3977714; 669890, 3978014; 669500, 3978298; 669301, 3978444; 669106, 3978599; 668788, 3978852; 668773, 3978864; 668728, 3978899; 668672, 3978944; 668639, 3978959; 668524, 3979010; 668452, 3979050; 668397, 3979105; 667234, 3979977; 668252, 3979993; 668234, 3980797; 667835, 3980800; 667819, 3981613; 667417, 3981606; 667411, 3981905; 668097, 3981905; returning to 668597, 3981705.

(122) Subunit 19A; Monterey County, California. From USGS 1:24,000 scale quadrangle Bradley, San Miguel, Wunpost, Valleton. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 706395, 3974906; 706595, 3974206; 706496, 3971706; 706696, 3970606; 707096, 3969906; 707096, 3969206; 706896, 3969006; 706896, 3968006; 706696, 3967305; 705596, 3965306; 705496, 3965306; 705385, 3970275; 706163, 3970285; 706139, 3972736; 705331, 3972723; 705296, 3974306; 705250, 3974306; 705250, 3974310; 705026, 3974306; 704096, 3974306; 703796, 3973606; 703796, 3973206; 703325, 3972358; 703266, 3972286; 702996, 3972106; 702696, 3971806; 702596, 3971706; 702027, 3971042; 702019, 3971042; 701981, 3971006; 701696, 3971006; 701396, 3970806; 700896, 3970806; 700096, 3970806; 700096, 3970206; 699096, 3970216; 699096, 3970306; 699296, 3970506; 699896, 3972006; 700296, 3972606; 700496, 3973406; 700896, 3974106; 701396, 3974506; 701796, 3975306; 702996, 3976106; 703296, 3976706; 704295, 3977606; 704895, 3977706; 705495, 3977706; 706195, 3978106; 706795, 3978506; 706795, 3978106; 706295, 3976506; 706195, 3975306; returning to 706395, 3974906.

(123) Subunit 19B; Monterey, San Luis Obispo Counties, California. From USGS 1:24,000 scale quadrangle Bradley. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 694826, 3962816; 694896, 3963306; 695496, 3963306; 695796, 3963206; 695851, 3963206; 695857, 3962893; 695688, 3962837; 695596, 3962806; 695596, 3962772; 695566, 3962771; 695596, 3961437; 695596, 3961206; 694396, 3961206; 694396, 3961006; 694296, 3961206; 694896, 3961606; 694996, 3962206; 694796, 3962606; returning to 694826, 3962816.

(124) Subunit 19C; Monterey, San Luis Obispo Counties, California. From USGS 1:24,000 scale quadrangle San Miguel. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 706573, 3963024; 706896, 3963306; 707696, 3963306; 707659, 3963047; 707596, 3962606; 707996, 3962306; 708196, 3961806; 707596, 3961106; 706996, 3961106; 706996, 3961206; 706889, 3961286; 706888, 3961340; 706905, 3962663; 706746, 3962700; 706639, 3962753; 706585, 3962809; 706506, 3962813; 706384, 3962858; returning to 706573, 3963024.

(125) Subunit 19D; San Luis Obispo County, California. From USGS 1:24,000 scale quadrangle San Miguel. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 705696, 3959606; 705996, 3959206; 706045, 3958909; 705731, 3958904; 705722, 3959308; 705396, 3959304; 705396, 3960906; 705559, 3960924; 706296, 3960931; 706296, 3960906; 706096, 3960806; returning to 705696, 3959606.

(126) Subunit 19E; San Luis Obispo County, California. From USGS 1:24,000 scale quadrangle Paso Robles, and San Miguel. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 705796, 3956906; 705407, 3956906; 705396, 3957463; 705396, 3958495; 706383, 3958510; 706696, 3958406; 706996, 3957806; 706996, 3957406; 706496, 3957006; returning to 705796, 3956906.

(127) Subunit 19F; San Luis Obispo County, California. From USGS 1:24,000 scale quadrangle Paso Robles, Adelaida. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 705896, 3956306; 706396, 3955806; 707996, 3955906; 707996, 3955206; 708196, 3954906; 707696, 3953806; 707396, 3953406; 705796, 3952406; 705096, 3952606; 703296, 3952006; 703096, 3952006; 703096, 3953306; 702296, 3953306; 702209, 3954002; 703137, 3954834; 705448, 3954885; 705447, 3954906; 705496, 3954906; 705424, 3956054; 705415, 3956506; 705496, 3956506; returning to 705896, 3956306.

(128) Subunit 19G; Monterey and San Luis Obispo Counties, California. From USGS 1:24,000 scale quadrangle Creston, Paso Robles, Estrella, Ranchito Canyon, Cholame Hills. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 724752, 3963363; 725195, 3963806; 725195, 3963369;

725195, 3963106; 725095, 3961906; 725695, 3961506; 726195, 3961506; 726195, 3961106; 725295, 3960206; 725195, 3959006; 724795, 3958106; 724395, 3956506; 724795, 3956306; 725295, 3954806; 724195, 3953406; 723895, 3952506; 723495, 3951806; 723195, 3950406; 723595, 3949506; 723595, 3948806; 724195, 3948306; 723595, 3948206; 722395, 3948706; 719295, 3948706; 719295, 3949506; 718395, 3949506; 718396, 3948706; 718995, 3948706; 719095, 3948506; 719295, 3948506; 719295, 3947906; 720095, 3947906; 720095, 3946306; 720295, 3946206; 720895, 3945506; 721095, 3945006; 721195, 3944706; 721196, 3943206; 720196, 3943206; 718796, 3942006; 717796, 3941506; 717496, 3941506; 717096, 3941706; 717296, 3942306; 715196, 3944706; 715396, 3945006; 714596, 3945706; 714896, 3946006; 714696, 3946206; 714096, 3946206; 713296, 3946806; 713296, 3947006; 713696, 3947606; 713596, 3948206; 713296, 3948506; 712896, 3947706; 712696, 3947706; 712596, 3947806; 712596, 3948606; 711696, 3948906; 711396, 3949106; 711296, 3949606; 710696, 3949706; 710596, 3949806; 710596, 3950006; 710996, 3950206; 710996, 3950406; 710696, 3950506; 709496, 3950306; 709396, 3951906; 709896, 3952606; 709896, 3954606; 709596, 3955006; 709596, 3955406; 710296, 3955406; 710496, 3955306; 711096, 3955106; 711596, 3954406; 711696, 3953406; 713996, 3953406; 714296, 3953806; 714596, 3953606; 715096, 3953506; 715396, 3953306; 715596, 3953206; 715796, 3953206; 716096, 3953506; 716595, 3953506; 716895, 3953406; 717695, 3953506; 717995, 3954006; 718595, 3954406; 718995, 3954606; 719395, 3954706; 720495, 3955406; 721495, 3956506; 722295, 3958206; 722595, 3960206; 723395, 3961906; 724295, 3962306; 724495, 3963106; returning to 724752, 3963363.

(129) Subunit 20A; San Luis Obispo, California. From USGS 1:24,000 scale quadrangle Simmler. Land bounded by the following UTM Zone 11, NAD 27 coordinates (E,N): 229082, 3913702; 231982, 3913003; 233382, 3913003; 234382, 3912703; 235182, 3911903; 235382, 3911003; 233982, 3909903; 233782, 3909503; 235382, 3908803; 235782, 3908303; 237282, 3907303; 237782, 3906103; 238014, 3905871; 238008, 3905871; 237194, 3905886; 237184, 3905886; 236403, 3905898; 236380, 3905898; 236429, 3907546; 235115, 3907587; 234832, 3907596; 234824, 3907373; 234770, 3905961; 233642, 3906004; 231878, 3906076; 231889, 3906496; 231732, 3906501; 231682, 3906803; 231982, 3908603; 231882, 3909202; 229482, 3910003; 227282, 3911002; 227382, 3913202; 228182, 3913602; returning to 229082, 3913702.

(130) Subunit 21A; Santa Barbara County, California. From USGS 1:24,000 scale quadrangle Santa Ynez, Lake Cachuma, Los Olivos, Figueroa Mtn. Land bounded by the following UTM Zone 10, NAD27 coordinates (E,N): 775096, 3831708; 774296, 3831608; 773696, 3831708; 772596, 3831608; 772196, 3831208; 771496, 3831308; 770496, 3830808; 769896, 3830708; 769396, 3830908; 769196, 3831108; 768596, 3832408; 768596, 3833108; 768796, 3833508; 769996, 3834508; 770296, 3834508; 771996, 3835008; 772396, 3835108; 772896, 3834808; 773196, 3834808; 773196, 3835108; 773796, 3835108; 773796, 3835508; 773696, 3835908; 773296, 3836708; 773896, 3836908; 774396, 3836308; 774996, 3836108; thence east to UTM zone 11, land bounded by the following UTM 11 NAD 83 coordinates (E, N): 225183, 3836002; 225383, 3836203; 225683, 3836802; 226683, 3838302; 228283, 3839102; 229883, 3838802; 232283, 3840302; 232483, 3841502; 232383, 3842502; 231683, 3842902; 230383, 3844702; 230083, 3846003; 230883, 3846202; 231283, 3846002; 231783, 3846002; 232083, 3846302; 232883, 3846802; 233883, 3846802; 234583, 3846202; 234783, 3845402; 235283, 3845402; 235983, 3844303; 236483, 3844002; 236483, 3843602; 235983, 3843402; 235783, 3843102; 235583, 3842802; 235283, 3842702; 235183, 3842602; 235183, 3841802; 235383, 3841102; 235283, 3840503; 234783, 3839802; 234983, 3839502; 234683, 3839302; 234683, 3839102; 234383, 3839102; 233883, 3839102; 233183, 3838002; 232983, 3837802; 232383, 3837702; 232183, 3838002; 231883, 3838202; 231483, 3838302; 230783, 3837502; 230883, 3837002; 230383, 3836402; 230183, 3835902; 230083, 3835502; 229183, 3835102; 228983, 3834702; 228883, 3833602; 228083, 3833102; 227483, 3833002; 227083, 3832602; 226783, 3832202; 226183, 3832202; 225883, 3832302; 225283, 3831802; 225083, 3831702; 224883, 3831702; thence west to UTM zone 10 to the point of beginning at UTM 10 NAD 27 coordinates 775096, 3831708.

(131) Subunit 22A; Ventura County, California. From USGS 1:24,000 scale quadrangles Alamo Mountain, Lion Canyon, Lockwood Valley, San Guillermo, and Topatopa Mountains. Land bounded by the following UTM Zone 11, NAD27 coordinates (E,N): 315281, 3843603; 315781, 3842204; 316581, 3840904; 317282, 3837903; 317281, 3836804; 317205, 3836464; 316582, 3833703; 315782, 3833103; 315282, 3833903; 314082, 3833903; 313182, 3832003; 311582, 3830603; 310182, 3830303; 309482, 3830803; 308482, 3830703; 307282, 3830403; 306082, 3831003; 304782, 3831103; 303482, 3831903; 302182, 3832403; 301682, 3833403; 300482, 3833403; 299282, 3833803; 298282, 3834203; 297782, 3835103; 297982, 3837103; 299582, 3837303; 301282, 3838203; 301582, 3839103; 303482, 3840803; 303882, 3842503; 304982, 3843403; 305882, 3843403; 307782, 3843204; 309582, 3843204; 310582, 3844003; 311982, 3844404; 313481, 3845203; 314581, 3843903; returning to 315281, 384360.

Dated: August 1, 2005.

Craig Manson,

Assistant Secretary for Fish and Wildlife and Parks.

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