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50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for Cirsium loncholepis (La Graciosa Thistle); Final Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

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Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for *Cirsium loncholepis* (La Graciosa Thistle)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), are designating final revised critical habitat for *Cirsium loncholepis* (La Graciosa thistle). We are designating approximately 24,103 acres (ac) (9,754 hectares (ha)) of habitat in San Luis Obispo and Santa Barbara Counties, California, as critical habitat for *C. loncholepis*. This final revised designation constitutes a reduction of approximately 16,986 ac (6,873 ha) from the 2004 designation of critical habitat for *C. loncholepis*.

DATES: This rule becomes effective on December 3, 2009.

ADDRESSES: The final rule, final economic analysis, and map of critical habitat will be available on the Internet at *http://www.regulations.gov* and *http://www.fws.gov/ventura/*. Comments and materials received, as well as supporting documentation used in the preparation of this final rule, are available for public inspection, by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, CA 93003 (telephone 805/644-1766; facsimile 805/644-3958).

FOR FURTHER INFORMATION CONTACT: Diane K. Noda, Field Supervisor, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, CA 93003 (telephone 805/644-1766; facsimile 805/644-3958). If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Background

It is our intent to discuss only those topics directly relevant to the revised designation of critical habitat for *Cirsium loncholepis* in this final rule. For more information on the taxonomy, biology, and ecology of *C. loncholepis*, refer to the final listing rule published in the **Federal Register** (FR) on March 20, 2000 (65 FR 14888), the final designation of critical habitat for *C. loncholepis* published on March 17, 2004 (69 FR 12553), the proposed revised designation of critical habitat published in the **Federal Register** on August 6, 2008 (73 FR 45806), and the March 10, 2009, availability of the draft economic analysis (DEA) (74 FR 10211).

Species Description, Life History, Distribution, Ecology, and Habitat

We did not receive any new substantial information pertaining to the description, life history, distribution, ecology, or habitat of *Cirsium loncholepis* following the 2008 proposed revised designation of critical habitat for this species. Therefore, please refer to the final listing rule published in the **Federal Register** on March 20, 2000 (65 FR 14888), and the proposed revised designation of critical habitat published on August 6, 2008 (73 FR 45806), for a discussion of the species' description, life history, distribution, ecology, and habitat.

Previous Federal Actions

On March 17, 2004, we designated critical habitat for *Cirsium loncholepis* on approximately 41,089 acres (ac) (16,628 hectares (ha)) of land in San Luis Obispo and Santa Barbara Counties, California (69 FR 12553). In March 2005, the Homebuilders Association of Northern California, *et al.*, filed suit against the Service (CV-013630LKK-JFM) challenging final critical habitat rules for several species, including *C. loncholepis*. In March 2006, a settlement was reached that requires the Service to re-evaluate five final critical habitat designations, including critical habitat designated for *C. loncholepis*. The settlement, as subsequently modified on May 18, 2007, stipulated that we would submit any proposed revisions to the *C. loncholepis* designation to the **Federal Register** for publication on or before July 27, 2008, and a final determination by July 27, 2009. By stipulation and order entered May 8, 2009, the deadline for submission of revisions to the final critical habitat designation was extended to on or before October 27, 2009. We published the proposed revisions to the critical habitat designation for *C. loncholepis* in the **Federal Register** on August 6, 2008 (73 FR 45806), and accepted public comments on the proposed revisions until October 6, 2008.

On March 10, 2009, we published in the **Federal Register** a notice of availability (NOA) of the DEA (dated January 16, 2009), and opened the second public comment period on the proposed designation of revised critical habitat (74 FR 10211). This final rule completes our obligations under the March 23, 2006, settlement agreement regarding *Cirsium loncholepis*. For a discussion of additional information on previous Federal actions concerning *C. loncholepis*, refer to the final listing rule published on March 20, 2000 (65 FR 14888), and the final designation of critical habitat published on March 17, 2004 (69 FR 12553).

Summary of Comments and Recommendations

We requested written comments from the public on the proposed revised designation of critical habitat for *Cirsium loncholepis* during two comment periods. The first comment period opened August 6, 2008 (73 FR 45806), associated with the publication of the proposed rule, and closed October 6, 2008. The second comment period opened March 10, 2009 (74 FR 10211), associated with the availability of the DEA, and closed April 9, 2009. During these two public comment periods, we contacted appropriate Federal, State, and local agencies; scientific organizations; and other interested parties and invited them to comment on the proposed rule to revise critical habitat for this species and the associated DEA.

During the first public comment period, we received 16 comments directly addressing the proposed revision of critical habitat. We received one request for a public hearing, which was subsequently retracted. During the second public comment period, we received 16 comments directly addressing the proposed revision of critical habitat for this species or the DEA.

Peer Review

In accordance with our policy on peer review for activities under the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), published on July 1, 1994 (59 FR 34270), we solicited expert opinions from eight knowledgeable individuals with scientific expertise that included familiarity with the species, the geographic region in which it occurs, and conservation biology principles pertinent to the species. We received responses from five of the peer reviewers. The peer reviewers generally concurred with our methods and conclusions and indicated that the Service did a thorough job of delineating critical habitat using the best available scientific information.

We reviewed all comments received from the peer reviewers and the public for substantive issues and new information regarding the designation of critical habitat for *Cirsium loncholepis*. All public comments are addressed in the following summary and incorporated into the final rule as appropriate.

Peer Reviewer Comments

Comment 1: One peer reviewer noted that several areas beyond those proposed for designation as critical habitat contain habitat and features important for recovery of *Cirsium loncholepis*. Specifically, Guadalupe Lake was (and sometimes still is) the largest seasonal lake on the floor of the Santa Maria Valley, that it still persists today, and that it is likely that *C. loncholepis* was associated with this feature and its surrounding wetlands, as well as swales on the Orcutt Terrace. The commenter added that restoration of Guadalupe Lake (hydrology and vegetation) should be a primary focus of conservation efforts for *C. loncholepis* in this portion of the Santa Maria Valley and Orcutt Creek and that Unit 2 should be expanded to include Guadalupe Lake. Three additional areas that the peer reviewer recommended for inclusion in the critical habitat designation are: (1) The Mussel Rock dune sheet that contains dune swale wetlands; (2) the coastal mesa of Burton Mesa (south of San Antonio Creek), which has suitable *Cirsium* habitat and would provide connectivity between San Antonio Terrace and the Santa Ynez River; and (3) the interior portions of the Orcutt Terrace Dune Sheet that contain vernal pools and vernal pool complexes and support other listed ''wetland'' species (specifically the federally endangered California tiger salamander (*Ambystoma californiense*)). The interior portions of the Orcutt Terrace Dune Sheet contain areas such as Guadalupe Lake, Green Canyon, ''Bradley Lake,'' and ''West Bradley Lake'' and would provide an excellent patchwork of open space areas for dispersal of *C. loncholepis* seed and connectivity via wind and hydrological processes.

Our Response: We determined that these four areas (Guadalupe Lake, the remaining portions of the Mussel Rock Dune Sheet, Burton Mesa (south of San Antonio Creek), and interior portions of the Orcutt Terrace Dune Sheet) are important for recovery but not essential for the conservation of *Cirsium loncholepis*. We acknowledge that these areas do contain suitable habitat and the primary constituent elements (PCEs) for the species, but not in the quantity, quality, and spatial arrangement to make them essential for the conservation of the species. As opportunities arise, we will work with local landowners to advance the recovery of *C. loncholepis* in these areas by increasing connectivity via suitable habitat patches for *C. loncholepis* and seed dispersal. We are designating as critical habitat areas along Orcutt Creek that contain the highest quality areas of suitable habitat that will serve as ''stepping stone'' habitats for *C. loncholepis* between the Guadalupe Dunes and Santa Maria River areas, and between the formerly occupied San Antonio Creek and Santa Ynez River areas.

Comment 2: All of the peer reviewers commented that the proposed designation of critical habitat uses the best available scientific information to develop the best possible habitat design to prevent extinction of the species and indicated that it was an exhaustive presentation of the facts supporting revisions to critical habitat for *Cirsium loncholepis*. They concurred that the current range of *C. loncholepis* is not sufficient to ensure (or even make likely) the continued existence of the species and that the inclusion of unoccupied habitat in the proposed critical habitat designation was justified scientifically. They concurred that all proposed units are important for recovery: Units 1 and 2 are occupied; Unit 3 was occupied, has important recovery potential, and serves as an extremely important area to connect multiple populations to reduce extinction risk for the species; and Units 4, 5, and 6 complete these linkages and have high recovery potential for the species.

Our Response: The peer reviewers confirmed the importance of the areas that we identified as containing features essential to the conservation of the species and consequently delineated as critical habitat. Additionally, we added details and supplemental information about *Cirsium loncholepis*, and special management needs provided by the peer reviewers, in the Special Management Considerations or Protection, Primary Constituent Elements, and Final Critical Habitat Designation sections of this rule.

Comment 3: Several peer reviewers had comments and provided additional information regarding (1) the importance of long-distance dispersal for this species in relation to habitat fragmentation, (2) the layout of critical habitat boundaries, (3) the PCEs, and (4) the importance of conserving the long-distance dispersal vectors within and between the critical habitat units (and suitable habitat patches) for the conservation of the species. There was a consensus among the peer reviewers that habitat fragmentation increases the threats to a species, and that it increases the risk of extirpation and extinction events. They discussed that the best way to conserve species affected by habitat fragmentation is to increase the total size of available habitat or connect remaining available habitat with habitat linkages. They further discussed that reconnections (of available and suitable habitat) can ameliorate the threats associated with small population sizes by promoting dispersal and geneflow.

Our Response: We appreciate the peer reviewers' comments and information regarding long-distance dispersal and *Cirsium loncholepis*, and we have considered the peer reviewers' comments and recommendations regarding habitat fragmentation, connectivity, and long-distance dispersal in the development of this final revised critical habitat designation. We have incorporated them into the rule under the section entitled Primary Constituent Elements.

Comment 4: One peer reviewer mentioned that the County of Santa Barbara requires a minimum 100-foot riparian buffer along creeks in rural areas, which includes agriculture, and that pulling back agriculture to create this minimum buffer could make conditions favorable for *Cirsium loncholepis* along riparian areas in the critical habitat units designated in Santa Barbara County.

Our Response: We thank the reviewer for this information. We checked with the County of Santa Barbara (Mashore 2009a, unpaginated, 2009b, unpaginated; Mooney 2009, unpaginated) and were informed that the County's Coastal Land Use Plan (Policy 9-37; also cross-referenced in Sec. 35-97.19 of the County's Coastal Ordinance) pertains to review of documents under the California Environmental Quality Act and states:

The minimum buffer strip for streams in rural areas shall be presumptively 100 feet, and for streams in urban areas, 50 feet. These minimum buffers may be adjusted upward or downward on a case-by-case basis. The buffer shall be established based on an investigation of the following factors and after consultation with the California Department of Fish and Game and California Regional Water Quality Control Board in order to protect the biological productivity and water quality of streams: a.) soil type and stability of stream corridors, b.) how surface water filters into the ground, c.) slope of land on either side of the stream, and d.) location of the 100–year

flood plain boundary. Riparian vegetation shall be protected and shall be included in the buffer. Where riparian vegetation has previously been removed, except for channelization, the buffer shall allow for the re-establishment of riparian vegetation to its prior extent to the greatest degree possible.

We concur that pulling back the footprint of areas utilized for agricultural production to create this minimum buffer could make conditions favorable for *Cirsium loncholepis* along riparian areas in Santa Barbara County. We will continue to work closely with the County of Santa Barbara and landowners in these areas to provide for the conservation of *C. loncholepis*.

Comment 5: One peer reviewer mentioned that there may be areas of active row crop agriculture within the boundaries of proposed critical habitat in Unit 3 and that we should check to avoid their inclusion in critical habitat.

Our Response: We acknowledge that there may be areas with active row crops in Unit 3 (and other critical habitat units). When determining the revisions to critical habitat boundaries within this final rule, we made every effort to avoid including developed areas, such as buildings, paved areas, and other structures, as well as tilled fields and row crops that lack the PCEs for *Cirsium loncholepis* in the appropriate quantity and spatial arrangement essential to the conservation of the species. We identified critical habitat for this species based on several criteria. Application of these criteria (please see the Criteria Used To Identify Critical Habitat section of this final rule) resulted in the determination of the physical and biological features that are essential to the conservation of this species, as identified by the PCEs in the appropriate quantity and spatial arrangement essential to the conservation of the species. Thus, not all areas supporting the identified PCEs will meet the definition of critical habitat. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this final critical habitat are excluded by text in this rule and are not designated as critical habitat (please see Criteria Used To Identify Critical Habitat and Final Critical Habitat Designation sections and the unit description and map for Unit 3 in this final rule).

Comment 6: One peer reviewer commented regarding the occupancy status of the Cañada de las Flores Unit. The commenter noted that we considered it to be unoccupied in the proposed revised designation, that the species was last observed in this unit in 1989, that the surveys in 1990 were conducted during a drought year, that the surveys in 2007 were conducted at a bad time of year, and that no sufficient surveys have been conducted here for 17 years. The commenter reasoned that because of the above information and the lack of surveys over a 17–year span, it seemed contradictory to consider this unit unoccupied.

Our Response: Although the last herbarium specimen of this population was collected in 1973 (Consortium of California Herbaria (CCH) 2008, unpaginated), and it was last recorded (by photograph) in 1987 (Thornton 2008, unpaginated), Hendrickson (1990, pp. 1-25) notes that in 1990, Jeanette Sainz reported that at CaCañadantilde;ada de las Flores *Cirsium loncholepis* plants ''...fluctuate every year; however, she has never known them to be absent completely as we found this year.'' Based on this information, we concluded that at the time of listing in 2000, Unit 3, Cañada de las Flores was occupied by *C. loncholepis*. We reached the same conclusion when we designated critical habitat in 2004. We revisited this population with Jeanette Sainz in November 2007. No *C. loncholepis* plants were observed, some habitat conditions at the site have declined due to grazing intensity, but the basic suitable habitat conditions are still present (e.g., freshwater seeps and native vegetation) (Elvin 2007a, unpaginated). Based on one peer reviewer comment and a public comment regarding the occupancy status of Cañada de las Flores, we requested permission to visit the site in 2008 during the blooming season for this species to try to obtain more data regarding the occupancy status of this site; however, we were not able to obtain permission from the current owner. The owner had biologists conduct surveys in March of 2009, with no *C. loncholepis* being observed (Kisner 2009, unpaginated). Therefore, the best scientific and commercial data available indicate that this site was last documented as occupied in 1987 (Thornton 2008, unpaginated) and last reported in 1989 (Hendrickson 1990, pp. 1-25). Therefore, based on the continued lack of observation of *C. loncholepis* since 1989 (Hendrickson 1990, pp. 1-25; 65 FR 14888, March 20, 2000; CNDDB 2007, unpaginated; Elvin 2007b, unpaginated; CCH 2008, unpaginated; Thornton 2008, unpaginated), we consider Cañada de las Flores to be unoccupied for the purposes of this rule.

Comment 7: One peer reviewer strongly suggested that additional management actions be undertaken for the species, specifically that the species be reintroduced into the unoccupied Units 3, 4, 5, and 6.

Our Response: We agree that the recommended additional management actions, specifically reintroducing the species into unoccupied areas with suitable habitat throughout the range of the species, would benefit the species and contribute to its conservation. While we do not develop management strategies as part of the process of designating critical habitat, we do consider site-specific management strategies important to the conservation of the species and work with landowners, researchers, and others to develop and implement them as part of the recovery process.

Comment 8: One peer reviewer commented that historically it is likely that *Cirsium loncholepis* had a much broader distribution in (1) Los Alamos Valley, specifically along the broad floodplain of San Antonio Creek and in the numerous hillside seeps and sag ponds associated with the southeast-northwest trending fault line that created this valley, and (2) the rest of the San Antonio Creek floodplain (e.g., Barka Slough); therefore the reviewer suggested that we emphasize conservation efforts in these areas.

Our Response: We concur that it is possible that *Cirsium loncholepis* was more widely distributed in the San Antonio Creek watershed. This is why we proposed the areas in Units 3 and 4 and why we are designating lands in these units as critical habitat for *C. loncholepis*. Please see the unit descriptions for Units 3 and 4 for a more indepth discussion of these areas.

Public Comments

Comment 9: One commenter stated that we should not designate critical habitat for a weed.

Our Response: *Cirsium loncholepis* is a rare and endangered native plant. It does not qualify under any criteria as a weed. There are some species within this thistle genus that are ''weedy'' in the sense of growing out of their native habitat; for instance, several species of thistle originally native to Europe have spread across North America. Other thistle species are native but ''weedy'' in the sense that they have the ability to spread aggressively. *Cirsium loncholepis* is not ''weedy'' in either sense, as it is native to a small area of central coastal California, and is not aggressive in colonizing new sites. It is federally listed as endangered, and we are

required under the Act to designate critical habitat for it.

Comment 10: One commenter stated that the designation is based on incomplete data and should not go forward.

Our Response: The Service's Policy on Information Standards Under the Endangered Species Act, published on July 1, 1994 (59 FR 34271), establishes procedures and provides guidance to ensure that decisions made by the Service represent the best scientific and commercial data available. We are required, 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. See the section of this rule titled Critical Habitat for additional information on these standards. The revised critical habitat designation presented in this rule is based upon the best scientific and commercial information available as required by the Act.

Comment 11: One commenter stated that the rule does not justify designating active cropland in the Santa Maria Valley or urban lands in the Orcutt area, that it is illogical to designate critical habitat on intensely cultivated row crop farms in the western Santa Maria Valley, and that agricultural fields in the Santa Maria Valley do not meet the definition of critical habitat because they lack the PCEs.

Our Response: We attempted to avoid designating agricultural land as much as possible because the PCEs are not present in the appropriate quantity and spatial arrangement essential to the conservation of the species in much of the actively farmed agricultural land. However, within the areas mapped that include agricultural fields, there are pockets of habitat that contain or support the PCEs and are essential to the conservation of the species (e.g., along the untilled margins of fields; along untilled, low-lying swales within fields; and in fields that are temporarily fallow). For example, there are pockets of suitable habitat along Orcutt Creek that contain ''stepping stone'' habitats in and adjacent to agricultural lands. These ''stepping stone'' habitats play an important role in the conservation of this species by providing corridors and intermediate sites with suitable habitats that act as an essential dispersal corridor (along which the species can disperse from coastal sites to other suitable sites farther inland) (Damschen 2008; Trakhtenbrot 2008). Therefore, these areas are essential to the conservation of the species. Some areas within agricultural lands are not essential because they do not contain the PCEs in the appropriate quantity and spatial arrangement essential to the conservation of the species. We made every effort to exclude as many areas as possible that do not meet the definition of critical habitat, but were not able to exclude all of these areas due to the mapping scale utilized. Areas that are within the boundaries of critical habitat, but do not contain the PCEs in the appropriate quantity and spatial arrangement essential to the conservation of the species, are excluded by text in this revision and are not designated as critical habitat (please see the Criteria Used To Identify Critical Habitat and Final Critical Habitat Designation sections and the unit description and map for Unit 2 in this final rule).

Comment 12: One commenter stated that the Service makes the assumption that Orcutt Creek is not impacted by existing urban and agricultural uses and does not account for the fact that Orcutt Creek and other streams are fully impeded to downstream flows and are affected by other threats (e.g., County zoning may permit development within the floodplain with minimal setbacks from creeks, non-point source pollution runoff from agriculture (herbicides, fertilizers) and urban areas, flood control measures).

Our Response: We do not assume that the entire stretch of Orcutt Creek, the Santa Maria River, and their associated watersheds are not impacted by existing uses. We are aware that the watersheds have been adversely affected by urban and agricultural practices and we thank the commenter for pointing out additional threats of which we were not aware to the species. We have included this new information in the Special Management Considerations or Protection and Final Critical Habitat Designation sections of this rule. We believe that the Orcutt Creek area is essential to the conservation of the species because it contains pockets of suitable habitat that act as ''stepping stone'' habitats and are an essential dispersal corridor. For additional information on this topic, please see Comments 5 and 11 and our responses to them.

Comment 13: Three commenters did not feel that we presented sufficient justification to propose unoccupied habitat, specifically areas in Unit 1 and Unit 3, and that it was the intent of Congress to limit the designation of critical habitat to occupied areas, except in unusual circumstances.

Our Response: The Act specifically provides that the Service may designate as critical habitat areas outside of the geographical area occupied by a species at the time it was listed if we determine that those areas are essential for the conservation of the species (section 3(5)(A)(ii) of the Act). By regulation, we can designate as critical habitat areas ''outside the geographical area presently occupied by a species only when a designation limited to its present range would be inadequate to ensure the conservation of the species'' (50 CFR 424.12(e)).

The commenters included some supplemental information regarding their statements that unoccupied areas are not essential for the recovery of *Cirsium loncholepis*. Multiple peer reviewers commented that unoccupied areas were essential to the conservation of the species and that it was scientifically sound and justified to designate these areas as critical habitat. After analyzing this supplemental information, we determined that the current range of the species is not sufficient to ensure its conservation and that unoccupied areas (both within and outside the current range of the species) are essential for its conservation. For additional information on this issue, please see Comment 2 and our response to it.

Comment 14: One commenter stated that Unit 3 has different environmental conditions than other units in the following ways: it does not contain PCEs; it is not occupied (because 1987 was the last time that plants were seen); we did not describe why or how Unit 3 is necessary to ensure connectivity in a manner that is ''essential'' for the conservation of the species; in Unit 3 ''...only a very few Thistle plants have ever been found and only a very small percentage of Unit 3 contains the [PCEs] for the Thistle...''; and we did not cite any specific data, studies, or other evidence that demonstrate that Unit 3 is essential for establishing connectivity with areas occupied by *Cirsium loncholepis* and for preserving genetic variability within the species. Therefore it is impossible for the public to generate meaningful comments. One commenter objected to the inclusion of Unit 3.

Our Response: We believe that the final revised designation for *Cirsium loncholepis* accurately contains all specific areas meeting the definition of critical habitat for this species. As discussed in the Criteria Used to Identify Critical Habitat section of the proposed revised designation and this final revised designation, we delineated proposed revised critical habitat for *C. loncholepis* using the following criteria:

(1) Areas occupied by individuals at the time of listing and areas currently occupied by this species;

(2) Habitat providing connectivity between the areas containing the extant populations;

(3) Areas outside the geographical area occupied by the species at the time of listing, but within the historical range of the species, that contain large, continuous blocks of suitable habitat, such as the numerous mesic areas and seeps in and surrounding the lower reaches of the Santa Ynez River;

(4) Important corridors of suitable habitat that connect the large, continuous areas based on seed or pollen dispersal abilities in those corridors, such as the areas along Orcutt Creek between the Guadalupe Dunes and Cañada de las Flores; and

(5) The presence and characteristics of other features that are important to maintain the metapopulation dynamics for *C. loncholepis* in the areas listed in (1) through (4) above (e.g., winds and their relationship to the formation of geographic features, movement patterns for various dispersal agents, watersheds, geology).

Application of these criteria captures the physical and biological features that are essential to the conservation of this species, identified as the species' PCEs laid out in the appropriate quantity and spatial arrangement. Thus, not all areas supporting the identified PCEs will meet the definition of critical habitat. The criteria we used resulted in a critical habitat designation that is representative of the diversity in this species' range and includes both occupied and unoccupied habitat. Some previously occupied areas (such as Cañada de las Flores) may have once represented core populations for this species, but due to its precipitous decline (as discussed in the Primary Constituent Elements section of this rule), we have determined that these areas are still essential for the conservation of this species. We also made a determination that modifications to the critical habitat boundaries in Unit 3 were not warranted.

Data used in the preparation of this final revised designation also indicate that the basic habitat conditions are still present in Unit 3 (e.g., freshwater seeps and native vegetation). Unit 3 occurs at a pivotal location for the species as a whole; it is down-wind from *Cirsium loncholepis* populations in the Santa Maria Valley and areas on San Antonio Terrace (Hunt 2008, unpaginated) and upstream from populations in the San Antonio Valley (e.g., the mouth of San Antonio Creek (one of the potential type locality sites for *C. loncholepis*) and San Antonio Terrace Dunes). The Cañada de las Flores location is essential to maintain connectivity between populations in the Santa Maria Valley and populations in the San Antonio Creek and Santa Ynez Valleys and contains habitat for a core population area. The areas in question meet our criteria used to identify critical habitat (for additional information, please see the Criteria Used to Identify Critical Habitat section below).

Comment 15: One commenter stated that 50 percent of the proposed critical habitat in Unit 3 is already covered by currently designated critical habitat for California tiger salamander; therefore, because the area is already protected and requires consultation under the Act, this rule is redundant.

Our Response: The Act directs us to analyze and determine which areas are essential to the conservation of each species. We analyzed the areas that we determined were essential for *Cirsium loncholepis* in this rule. While there may be overlap in critical habitat boundaries for different species, in this case, the PCEs (and essential habitat components) are different for *C. loncholepis* than they are for California tiger salamander. Therefore the critical habitat determination for California tiger salamander does not describe the same habitat and it does not offer the same protections as the designation of critical habitat for *C. loncholepis*.

Comment 16: One commenter stated that the adoption of the proposed critical habitat rule is subject to compliance with National Environmental Policy Act (NEPA). The Service must comply with NEPA in designating critical habitat as per the Tenth Circuit Court decision (*Catron County Bd. Of Comm'r, N.M.*v. *USFWS*, 75 F.3d 1429).

Our Response: It is our position that, outside the jurisdiction of the Tenth Circuit Court of Appeals, we do not need to prepare environmental analyses as defined by NEPA (42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. 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 Ninth Circuit Court of Appeals (*Douglas County* v. *Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied, 516 U.S. 1042 (1996)).

Comment 17: Two commenters stated there are areas within the proposed critical habitat that should not be included in the final designation because they do not contain the PCEs, are not occupied by the species, or otherwise do not meet the definition of critical habitat.

Our Response: Where site-specific information was submitted to us during the comment periods for this revised designation with a rationale as to why an area should not be designated as critical habitat, we evaluated that information in accordance with the definition of critical habitat under to section 3(5)(A) of the Act. This rule notes that there are areas within the boundaries of designated critical habitat that do not contain those biological features essential for the conservation of the species (e.g., roads, buildings, and other areas that do not contain PCEs) and these specific areas are not included in designated critical habitat by text provided in this rule even though they appear to be within the boundaries of designated critical habitat. Please see the individual unit descriptions for discussions of the PCEs and where the unit is occupied by the species.

For additional information regarding Unit 3, please see Comment 14 and our response to it. For additional information regarding Unit 1 and areas in the OHV area of ODSVRA, please see Comment 18 and our response to it and the unit description for Unit 1.

Comment 18: One commenter stated that the Service previously excluded the heavily-used off-highway vehicle (OHV) riding areas within the Oceano Dunes State Vehicular Recreation Area (ODSVRA) in the 2004 final critical habitat designation because the area is not essential for the conservation of *Cirsium loncholepis*. Two commenters objected to the inclusion in proposed critical habitat Unit 1 of large areas on State Park lands within the ODSVRA in proposed critical habitat Unit 1 that are used for OHV recreation on a regular basis.

Our Response: We acknowledge that these areas were not included in the 2004 final rule, but the best available science at that time indicated that *Cirsium loncholepis* was still extant at a number of locations throughout its range. Current information indicates that the species has experienced severe declines in the number of populations, occurrences, and individuals such that areas beyond the species' currently occupied range are essential for its conservation. In the process of analyzing what constitutes critical habitat for the species during this revision, we determined that certain areas within the OHV area met the definition of critical habitat.

In this final revised designation of critical habitat, we have included polygons of critical habitat that contain vegetation that occur and are fenced off

within the OHV riding area of ODSVRA because they are essential to the conservation of the species. The polygons contain habitat patches, including open sand dune swales and vegetation islands. In identifying the areas designated as final revised critical habitat, we delineated the boundaries based on the best available science, with the understanding that this is a dynamic ecosystem, and it has been documented that these vegetation islands move over time (California Geological Society (CGS) 2007, 113 pp.). The habitat patches move up to 120 meters (m) (394 feet (ft)) over a 20–year time frame (CGS 2007, 113 pp.); therefore, we developed a formula to determine the predicted migration of these patches over the next 20 years. For a description of this formula, please see the Criteria Used to Identify Critical Habitat section of this rule.

Following our evaluation of the information provided, we made a determination that modifications to the critical habitat boundaries were warranted in parts of Unit 1. The areas within the habitat patches (including vegetation islands and open sand dune swales) containing PCEs in the appropriate quantity and spatial arrangement necessary to provide the features essential to the conservation of *Cirsium loncholepis* are essential. Therefore, under this rule, we are designating them as critical habitat. However, the areas within the boundaries of these polygons that are outside of the habitat patches (but within the OHV riding area of ODSVRA) and are used on a regular basis for OHV recreation do not currently contain PCEs in the appropriate quantity and spatial arrangement necessary to provide the features essential to the conservation of *C. loncholepis*. We are designating these areas as critical habitat because the vegetation islands will migrate beyond their current boundaries in the foreseeable future, and thus the areas are essential for the conservation of *C. loncholepis*.

These polygons of critical habitat contain suitable habitat and are adjacent to currently occupied and historically occupied sites. The polygons are northwest of a large continuous block of occupied habitat. The Callender Dunes are dominated by moderate to strong winds from the northwest (categorized as greater than 7.47 miles per hour (mph) (12.02 kilometers per hour (kph)) most of the time and throughout the year (U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS) 2008, unpaginated; National Oceanic and Atmospheric Administration Western Regional Climate Center (NOAA) 2007, unpaginated). However, moderate to strong winds from the southeast also occur in this area during parts of the year (November through February), which overlaps with at least 2 months of the approximately 5–month period that seeds are dispersed from the remains of the flowering stalk (August through December). These winds are an essential dispersal vector that helps move *Cirsium loncholepis* seeds between areas of suitable habitat; as a result, the vegetated islands become essential in maintaining connectivity within and between occurrences and populations. Further, several peer reviewers indicated that for fugitive species (i.e., species that move from place to place through time) like *C. loncholepis* that also rely on long-distance dispersal, adjacent occupied and unoccupied suitable habitat is essential for survival. These vegetation islands meet this need for the species, and provide a shifting mosaic of habitats that depend upon geomorphic processes operating across large landscape areas for their maintenance.

In the proposed revised designation, we proposed 714 ac (290 ha) within the OHV area of ODSVRA. In this final rule, we have reduced the number of acres within the OHV area of ODSVRA to 75 ac (30 ha) that are included in critical habitat Unit 1 because we determined that areas with a long-standing history of heavy OHV use did not contain the PCEs in the appropriate quantity and spatial arrangement (see our response to Comment 20). We made every effort to include the essential vegetated island habitats and the areas that they are expected to migrate to in the foreseeable future based on a recent analysis of historical movements of these habitats in the ODSVRA and the geomorphology of the Callender Dunes (CGS 2007, 113 pp.; Cooper 1967, pp. 75-90; Hunt 1993, pp. 5-72; USDA NRCS 2008, unpaginated).

Comment 19: Two commenters discussed the ODSVRA's preparation of an habitat conservation plan (HCP) and concluded that the completion of the HCP will make the critical habitat rule superfluous and unnecessary, as the Service excludes areas if they do not need special management. Therefore, because the species will be addressed in the soon-to-be-released draft HCP for ODSRVA, no special management will be needed in any of the proposed critical habitat areas within ODSVRA.

Our Response: In considering the benefits of including lands in a designation that are covered by a proposed or current HCP or other management plan, we evaluate a number of factors to help us determine if the plan provides equivalent or greater conservation benefit than would likely result from consultation on a designation. These criteria are discussed in the Application of Section 4(b)(2) of the Act section below.

Because the HCP under development for the ODSVRA is still in draft form, there is uncertainty concerning what actions may be proposed or committed to for conservation of the species, and there is uncertainty concerning whether any actions proposed will be effective. Accordingly, the draft HCP does not currently meet the criteria necessary for us to exclude these areas on the basis of the HCP under section 4(b)(2) of the Act.

Comment 20: The California Department of Parks and Recreation (CDPR) requested that we exclude from critical habitat 820 acres of lands they manage (in and adjacent to the OHV area) at the ODSVRA. They requested that even if the lands in ODSVRA can be considered critical habitat, the Service exclude them under section 4(b)(2) of the Act for the following reasons:

(1) There is a long-standing history of OHV use of Oceano Dunes;

(2) The State law that established ODSVRA mandated the area be used for OHV recreation;

(3) Critical habitat is not needed because CDPR has a rare plant protection program in place to manage populations within ODSVRA and if *Cirsium loncholepis* is found there in the future, those plants would be protected as part of the rare plant protection program; and

(4) Economic impacts need to be considered, and they outweigh the benefits of inclusion of this area.

Our Response: We analyzed the entire area within ODSVRA that was proposed as critical habitat in the proposed revised critical habitat designation. We determined that approximately 639 ac (259 ha) of the 714 ac proposed as critical habitat do not contain the PCEs in the appropriate quantity and spatial arrangement that are essential for the conservation of the species. We are not designating as critical habitat these approximately 639 ac. Regarding the four points outlined in the CDPR comment letter (Zilke 2008):

(1) The Act directs us to analyze areas essential to the conservation of the species, and section 4(b)(2) of the Act states that the Secretary may exclude any area if he determines that the benefits of exclusion outweigh the benefits of specifying an area as critical habitat, unless he determines, based on the best scientific and commercial data available, that failure to designate such

area as critical habitat will result in the extinction of the species concerned. We analyzed the benefits of exclusion and the benefits of inclusion, and determined that some of the areas within ODSVRA were essential to the conservation of the species (see the unit description for Unit 1 and the map for Unit 1). Some of the areas within ODSVRA do not contain PCEs in the appropriate quantity and spatial arrangement that are essential for the conservation of the species. In designating those areas we determined to be essential to the conservation of the species, we made every effort to avoid those areas that do not contain the physical and biological features in the appropriate quantity and spatial arrangement. We determined that areas with a long-standing history of heavy OHV use did not contain the PCEs in the appropriate quantity and spatial arrangement (see our response to Comment 18).

(2) We further determined that these areas, as designated, do not contradict the State law that established ODSVRA mandating the area be used for OHV recreation (see our responses to Comments 17 and 18 and our description of these areas in the unit description).

(3) In considering whether to exclude an area from designation as critical habitat on the basis of a management plan (or rare plant protection program), we evaluate a number of factors to help us determine if the plan provides equivalent or greater conservation benefit than would likely result from consultation on a designation.

These factors include: (A) Whether the plan is complete and provides protection from destruction or adverse modification; (B) whether there is a reasonable expectation that the conservation management strategies and actions will be implemented for the foreseeable future, based on past practices, written guidance, or regulations; and (C) whether the plan provides conservation strategies and measures consistent with currently accepted principles of conservation biology. The CDPR has not provided us with a management plan that meets all of those conditions necessary for us to exclude these areas from the designation.

(4) We analyzed the benefits of exclusion and the benefits of inclusion of the remaining approximately 75 ac (30 ha) in the OHV area of ODSVRA. We determined that the remaining approximately 75 ac (30 ha) are essential to the conservation of the species, and the benefits of exclusion do not outweigh the benefits of inclusion. Accordingly, we are designating these approximately 75 ac (30 ha) as critical habitat.

See our responses to Comments 17 and 18 and the following sections for a more indepth discussion of these issues: Criteria Used To Identify Critical Habitat, the unit description for Unit 1, and Relationship of Critical Habitat to Lands Managed by the California Department of Parks and Recreation (CDPR).

Comment 21: One commenter, citing case decisions, stated a general comment that the Service's position that an area does not need special management where another conservation plan is in place is both illogical and legally invalid and the *Cirsium loncholepis* habitat within the boundaries of any conservation plan also meets the definition of critical habitat precisely because it requires the special management purportedly provided by the conservation plans.

Our Response: The comment references a former Service interpretation as to the interrelationship of existing conservation plans with the definition of critical habitat in the Act. The definition states, in part, that ''critical habitat'' means (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) which may require special management considerations or protection (section 3(5)(A)(i) of the Act). Thus in determining critical habitat for an area occupied by the species at the time of listing, the Service looks at whether the physical or biological features of the area are both essential to the conservation of the species and may require special management considerations or protections. The commenter suggests that habitat within the boundaries of any conservation plan meets the definition of critical habitat. For that to be true, such an area must also have the physical and biological features essential to the conservation of the species to be considered critical habitat. The Service did not, in the proposed revised designation, suggest that areas with existing special management would not meet the definition of critical habitat. However, areas subject to a conservation plan and thus subject to special management, may be considered for exclusion from the critical habitat designation if the plan meets certain criteria (see the Application of Section 4(b)(2) of the Act section below for a discussion of these criteria).

Comment 22: Two commenters were concerned that new PCEs were included that do not require a water source, that these PCEs and areas without water or a water source are not essential, and that the description of PCE 4 is ''insufficiently specific'' and includes every drainage within the region.

Our Response: Each PCE and area proposed for designation as critical habitat can be essential for a different reason or a different part of the plant's life cycle. The dispersal of genetic material among and between populations is essential for the conservation and recovery of this species (see our response to Comment 3) and is covered by PCE 4, which includes dispersal by both wind and water. Water is not essential to disperse the plant's seeds by wind, but dispersal by wind is essential for the conservation and recovery of the species. Also, the plant does grow and has been documented in areas that are ''dry,'' such as on the top of ridges in the Guadalupe Oil Fields to the south of the Guadalupe-Nipomo Dunes National Wildlife Refuge. We believe the word drainage is adequately specific, as it eliminates many upland and dry areas. Drainages within the boundaries of the revised critical habitat designation all contain suitable habitat and are important dispersal features, which are what we focused on in developing the revised critical habitat designation for this species. Drainages outside the boundaries of critical habitat, but within the region, may be important, but we are not designating them as critical habitat.

Comment 23: One commenter stated that the only effective measure to ensure the recovery of the species (*Cirsium loncholepis*) in agricultural and urban areas is to preclude agricultural practices and production and urban development and that this constitutes a ''taking'' of private property; another commenter asked us to hold off interference in the private sector, stating that designating critical habitat [for *C. loncholepis*] will interfere with agriculture to feed all of the people.

Our Response: Critical habitat has a direct regulatory impact only on Federal actions or actions requiring Federal authorization, permitting, or funding. Therefore, a critical habitat designation on private land has no regulatory impact on actions carried out by landowners unless they seek Federal funding or a Federal permit to carry out those actions. For example, if landowners must obtain a permit from the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) to carry out an action on their land, the Corps must

consult with the Service under section 7 of the Act to evaluate the effects that the permitted activity may have on critical habitat. Even then, the designation may only have a substantial impact on the activity if it is likely to result in the destruction or adverse modification of the critical habitat. It is the responsibility of the Federal agency, not the private landowner, to initiate the consultation with the Service.

The Act prohibits Federal agencies from carrying out actions that would destroy or adversely modify critical habitat. A Federal action (e.g., row crop farming, urban construction) that is not likely to cause the destruction or adverse modification of *Cirsium loncholepis* habitat may not be materially affected by a critical habitat designation. Federal action agencies must evaluate the potential effects of each action on its own merits. If a Federal action would result in the destruction or adverse modification of *C. loncholepis* habitat, the Service would suggest reasonable and prudent alternatives to avoid the destruction or adverse modification of critical habitat.

The promulgation of a regulation does not take private property unless the regulation denies the property owners all economically beneficial or productive use of their land. Further, in accordance with Executive Order 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we analyzed the potential takings implications of designating critical habitat for *Cirsium loncholepis* in a takings implications assessment (TIA), which is available on request. The conclusion in the TIA was that the possibility for take of private property due to designation of critical habitat for *Cirsium loncholepis* is remote.

Comment 24: One commenter stated that it is the Service's obligation under section 2(c) to ''seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act'' and section 7(a)(1) to conserve threatened and endangered species.

Our Response: Section 4(a)(3) of the Act requires that critical habitat be designated for listed species. This rule meets our obligations under section 4(a)(3), which will help us accomplish our obligations under sections 2(c) and 7(a)(1). The designation of critical habitat for *Cirsium loncholepis* will not conflict with or prevent us from carrying out our obligations under sections 2(c) and 7(a)(1).

Comment 25: One commenter stated that we should designate as critical habitat all habitat and lands proposed for designation pursuant to the Act and that we should issue no exemptions or exclusions.

Our Response: We proposed to designate 38,447 ac (15,559 ha) as critical habitat in the proposed revised designation of critical habitat for *Cirsium loncholepis* (73 FR 45806). Of that total, we determined in this final revised designation that 37,810 ac (15,300 ha) meet the definition of critical habitat and are essential to the conservation of the species. We determined that some areas (approximately 639 ac (259 ha) within Unit 1) with a long-standing history of heavy OHV use did not contain the PCEs in the appropriate quantity and spatial arrangement and therefore were not essential to the conservation of the species and did not fit the definition of critical habitat (see our response to Comments 18 and 20). We are excluding 13,705 ac (5,546 ha) of Department of Defense (DOD) lands within the boundaries of Vandenberg Air Force Base (VAFB) under section 4(b)(2) of the Act based on potential impacts to national security. Because the Service is not an expert in military readiness, we defer to the expertise of the DOD in identifying specific credible military readiness or national security impacts. See the section entitled Relationship of Critical Habitat to Lands Managed by the Department of Defense (DOD) below for a more indepth discussion of this topic.

Comment 26: Two commenters submitted duplicate requests for us to revise the boundaries of Unit 3 according to those recommended in a separate comment letter. The commenters stated that we should exclude upland, developed, and agriculture areas in Unit 3 because these areas provide poor habitat for potential *Cirsium loncholepis* plants and that this exclusion ''...should not cause significant impacts to the thistle's recovery.'' The commenters stated that the proposed revisions to the boundaries of Unit 3 were based only on PCEs 1 and 2 and acknowledged that ''the Cañada de las Flores Unit (Unit 3) may potentially provide a key linkage between known [*C. loncholepis*] populations.''

Our Response: We are directed by the Act to determine what areas are essential for the conservation of a species, not what areas are essential, but ''...should not cause significant impacts to the [species'] recovery''. We state in the text that developed areas and agricultural fields that do not contain PCEs are not critical habitat. Information from J. Sainz (Elvin 2007a) contradicts some information presented in this comment; specifically, while she did state that *Cirsium loncholepis* primarily occurred at three places at Cañada de las Flores, she also stated that it historically occurred sporadically throughout the lowlands there, and not just at the three specific locations where it most commonly was found. Information received from peer reviewers indicate that a much larger area at Cañada de las Flores contains suitable habitat that at present, due to drought and overgrazing, appears less suitable (Hunt 2008). Hunt states that the entire valley floor in Cañada de las Flores floods in heavy rain years. We determined that the 740 ac (299 ha) at Cañada de las Flores meet the definition of critical habitat for *C. loncholepis* (see the unit description for Unit 3 in the Final Critical Habitat section below).

Comment 27: One comment letter stated that DOD lands at VAFB must NOT [emphasis included in comment] be exempt from the requirements of the Act to protect *Cirsium loncholepis* in the 17,705 ac of wetland and dune areas on the ''people's property'' on VAFB. Another commenter stated that they believe that it is not a national security issue for VAFB to be exempted from ''protecting the people's *Cirsium loncholepis* and its habitat.''

Our Response: The DOD is not exempt from the Endangered Species Act, or from the designation of critical habitat. We determined that 14,151 ac (5,727 ha) of DOD lands meet the definition of critical habitat within the boundaries of VAFB. While DOD lands may not be designated as critical habitat if they are subject to an integrated natural resources management plan (INRMP) that is recognized by the Secretary to provide a benefit to the species (per section 4(a)(3)(B) of the Act), such a plan does not exist for DOD lands at VAFB. We are excluding 13,705 ac (5,546 ha) of DOD lands within the boundaries of VAFB under section 4(b)(2) of the Act based on potential impacts to national security. Please see our response to Comment 25 and the section entitled Relationship of Critical Habitat to Lands Managed by the Department of Defense (DOD) below for a more indepth discussion of this topic.

Federal Agency Comments

Comment 28: The DOD requested that we exclude its lands at VAFB from our final revised critical habitat designation based on an exemption under section 4(a)(3)(B) of the Act for military installations with an INRMP. Section 4 of the Act was amended through the National Defense Authorization Act for 2004 (Public Law 108-136). Section

4(a)(3)(B) of the Act states the Secretary shall not designate as critical habitat any lands controlled by DOD that are subject to an INRMP, if the Secretary determines that such a plan provides a benefit to the species for which critical habitat is proposed.

Our Response: The Sikes Act Improvement Act of 1997 (Sikes Act) requires each military installation that includes land and water suitable for the conservation and management of natural resources to complete, by November 17, 2001, an INRMP. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found there. Each INRMP includes an assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species; a statement of goals and priorities; a detailed description of management actions to be implemented to provide for these ecological needs; and a monitoring and adaptive management plan. We consult with the military on the development and implementation of INRMPs for installations with listed species. Because the INRMP being prepared by DOD for VAFB is in draft form and will not be completed by the time this final revised critical habitat designation publishes in the **Federal Register**, we cannot determine if the INRMP provides a benefit to *Cirsium loncholepis.* Therefore, we cannot exempt DOD lands at VAFB on the basis of section 4(a)(3)(B) of the Act.

Comment 29: The DOD further requested that we exclude its lands at VAFB based on section 4(b)(2) of the Act. They specifically discussed that national security would be impacted because a critical habitat designation would limit the amount of natural infrastructure (e.g., land, water, and air resources) that are needed to support military operations and training. DOD also stated that they believe the benefits of exclusion outweigh the benefits of inclusion and that exclusion of these lands would not result in extinction of *Cirsium loncholepis*. They included in the comment their own analysis of how they reached that conclusion, as follows: for potential benefits of designating critical habitat, they do not foresee any benefits, but instead stated that it would be more beneficial to designate critical habitat on lands where no proven, long-term conservation and management regime exists and where other Federal protections do not apply. They stated that designation of critical habitat will provide no additional benefit to *C. loncholepis* because:

(1) They are developing a draft conservation agreement for *Cirsium loncholepis* (also referred to by the DOD as the Draft Endangered Species Management Plan for La Graciosa Thistle (ESMP)) in cooperation with the Service that will ensure conservation measures are implemented;

(2) Other existing regulations, such as the National Environmental Policy Act (NEPA) and the Environmental Impact Analysis Process (part of U.S. Air Force Policy codified in 32 CFR 989), assure that appropriate conservation measures are undertaken for listed species and their habitat; and

(3) Limited resources could be better spent on implementation of management activities rather than additional unnecessary consultations.

Our Response: Section 4(b)(2) of the Act directs the Secretary to consider the impacts of designating such areas as critical habitat and provides the Secretary with discretion to exclude particular areas if the benefits of exclusion outweigh the benefits of inclusion unless the exclusion will result in the extinction of the species. We believe that our criteria for proposing critical habitat captured all areas that meet the definition of critical habitat under section 3(5)(A) of the Act. Therefore, we will focus our response to this comment on our exclusion of lands under section 4(b)(2) of the Act that we determined met the definition of critical habitat under section 3(5)(A) of the Act.

After determining the areas that meet the definition of critical habitat under section 3(5)(A) of the Act, we took into consideration the economic impact, any potential impacts on national security, and other relevant impacts of specifying any particular area as critical habitat for *Cirsium loncholepis*. In this final revised designation, we recognize that designating critical habitat on lands within VAFB may have an impact on national security. These impacts are described in detail in the section entitled Relationship of Critical Habitat to Lands Managed by the Department of Defense (DOD) below. Based on these relevant impacts, we evaluated the benefits of designating areas as critical habitat against the benefits of excluding these areas from the critical habitat designation. Upon weighing the specific benefits of inclusion against specific benefits of exclusion, we determined that the benefits of excluding all lands owned by DOD at VAFB (13,705 ac (5,546 ha) of the 14,151 ac (5,727 ha) within the boundaries of VAFB) outweigh the benefits of including these areas in the final critical habitat designation. Further, we determined that the exclusion of these areas will not result in the extinction of *C. loncholepis*. See the Application of Section 4(b)(2) of the Act and Exclusions under Section 4(b)(2) of the Act sections of this final rule for a detailed discussion of the benefits of excluding lands important to national security versus the benefits of including these areas in a critical habitat designation.

We respond to the particular points that DOD raised as follows. With respect to their comment that designation of critical habitat is more beneficial on lands where no proven, long-term conservation and management regime exists and where other Federal protections do not apply, our response is that we are not charged with designating critical habitat where it would be ''most beneficial'' to the species, but rather on lands that meet the definition of critical habitat. Moreover, the comment implies that protections will be conferred by critical habitat designation in the absence of other federal protections. However, critical habitat in and of itself does not confer protection on lands that are designated, nor does it affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Designation of critical habitat only affects activities conducted, funded, or permitted by Federal agencies; non-Federal activities are not affected by the designation if they lack a Federal nexus. These impacts are described in detail in the section entitled Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) near the end of this rule.

With respect to DOD's comment that there is a lack of benefit from designating critical habitat because they are developing an ESMP in cooperation with the Service that will ensure conservation measures are implemented, please see our response to Comment 30 below.

With respect to DOD's comment that other existing regulations, such as NEPA and the Environmental Impact Analysis Process, assure that appropriate conservation measures are undertaken for listed species and their habitat, our response is that we agree that other regulations and policies have the potential to contribute to the conservation of the species. However, in the absence of designated critical habitat in these particular areas, the existing regulations may not take into consideration the importance of these areas to the conservation of *Cirsium loncholepis.*

Comment 30: In a related comment, the DOD requested that we exclude its lands at VAFB under section 3(5)(A) of

the Act based on an ESMP that they have developed for *Cirsium loncholepis.*

Our Response: Section 3(5)(A) of the Act defines critical habitat as the specific areas within the geographic area occupied by the species, at the time it is listed, 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. As noted in our response to Comment 21, the Service no longer considers that areas covered by an approved management plan for the species of concern do not meet the definition of critical habitat, and thus we do not exempt lands from the designation on this basis. However, if an area has an adequate conservation management plan that covers the species and provides for management sufficient to conserve the species, we may consider the area for exclusion from the critical habitat designation under section 4(b)(2) of the Act.

We are currently working with VAFB on the development of a management plan for *Cirsium loncholepis* that will meet the conditions described above. The ESMP for *C. loncholepis* at VAFB proposes that the base comply with Federal and State mandates for threatened and endangered species; conduct surveys and inventories for the presence of federally listed species; and protect and enhance existing populations and habitats of threatened and endangered species (assess status, develop long-term plans, and conduct actions for recovery). This plan is still in its formative stages with little detail. In its current state, it does not explicitly provide a conservation benefit to the species, reasonable assurances that the management plan will be implemented or reasonable assurances that the conservation effort will be effective. The plan thus does not meet our criteria for exclusion from the designation under section 4(b)(2) of the Act. Therefore, we are not excluding VAFB lands from the final critical habitat designation as requested under section 3(5)(A) of the Act or under section 4(b)(2) of the Act based on an ESMP for *C. loncholepis*. However, please see the section entitled Relationship of Critical Habitat to Lands Managed by the Department of Defense (DOD) below for a detailed discussion of our exclusion of VAFB lands for reasons of national security under section 4(b)(2) of the Act.

Comment 31: The DOD made several comments regarding the likelihood of whether *Cirsium loncholepis* currently occurs or historically occurred on VAFB. They provided a recent document from Mulroy (in Linn 2008, unpaginated) indicating that collections made from San Antonio Terrace and cited in a survey report (Henningson *et al.* 1980, pp. 19-119) were misidentified.

Our Response: We appreciate receiving the additional report clarifying that the specimens of *Cirsium* from Mulroy were misidentified. However, other reports (Keil and Holland 1998, pp. 83-84; Oyler, Holland, and Keil 1995, 92 pp.) state that *Cirsium loncholepis* may have occurred near the mouth of San Antonio Creek beside San Antonio Terrace. While we may never know with absolute certainty whether *C. loncholepis* historically occurred on San Antonio Terrace, we identified these lands as meeting the definition of critical habitat because they contain the PCEs in the quantity and spatial arrangement essential for the conservation of the species.

Comment 32: The DOD opined that the type locality for *C. loncholepis*, indicated as ''La Graciosa'' on the herbarium sheet, was more likely near Orcutt than the mouth of the San Antonio River.

Our Response: At the time we prepared the previous critical habitat proposal in 2004, the best scientific information available at the time indicated that the type locality of ''La Graciosa'' was near Orcutt. However, in preparing for this revised final critical habitat designation, we were able to obtain a copy of Alice Eastwood's field notes (Eastwood 1906, unpaginated), and we also received additional information from Dieter Wilken at the Santa Barbara Botanic Garden (Wilken 2009a, unpaginated). Based on Alice Eastwood's description of the area and route taken (''July 2, '06, Road to Casmalia and sand dunes''), the associated species that she collected that day, and the additional information from Wilken, we believe that the type location for *Cirsium loncholepis* could be anywhere within a 10-mi (16-km) area centered around Casmalia that includes San Antonio Creek, the sand dunes of San Antonio Terrace to the southwest of Casmalia, the historical Lake Guadalupe, Orcutt Creek, and even the mouth of the Santa Maria River. The specimen was collected near Casmalia and sand dunes. We acknowledge that information regarding this collection and the specific location of ''La Graciosa'' are not sufficient to be conclusive, and that some of this information indicates that the type location could be near Orcutt or the other areas mentioned.

Comment 33: The DOD commented that the high floodwaters along the Santa Ynez River in 1969 likely impacted and possibly extirpated the population of *Cirsium loncholepis* that occurred there. During this flood event, the river reached a stage of 7.4 m (24.2 ft) above normal flow height and reached a maximum discharge of 80,000 cubic ft/second (sec) (2,264 cubic m/sec).

Our Response: Although we did not specifically mention the Santa Ynez River flood of 1969 in the proposed revised critical habitat designation, we did discuss floodplain dynamics, how we would expect a species such as *Cirsium loncholepis* to ''wander'' within an area of suitable habitat (e.g., a floodplain) over time, and how this was an important aspect in maintaining the dynamic ecosystem that this species requires. We have added reference to the 1969 flood to the Primary Constituent Elements section and in the Santa Ynez River Unit description in the Critical Habitat section of this rule.

Comment 34: The DOD commented that VAFB operations do not constitute a long-term threat of destruction or adverse modification to suitable habitat.

Our Response: When Federal agencies consult with the Service under section 7 of the Act, the Service makes the determination of whether activities will destroy or adversely modify critical habitat during the consultation process, after we have received all of the pertinent information regarding the subject activities. We analyze each project description and all of the associated conditions regarding a proposed activity before we can determine whether it might destroy or adversely modify critical habitat; to do so in advance of completing the necessary analysis of a specific action would be predecisional. Consequently, we cannot at this time determine the validity of the DOD's comment. However, we are excluding DOD lands at VAFB under section 4(b)(2) of the Act based on potential impacts to national security. Therefore, the question of whether DOD operations at VAFB might adversely modify critical habitat is moot.

Comment 35: The DOD commented that VAFB consists of extensive tracts of undeveloped and encroachment-free property, and that these extensive tracts of undeveloped and encroachment-free property are essential for launch safety buffers and completion of the DOD mission at VAFB. They added that critical habitat could potentially negatively impact their mission capability and possibly introduce unnecessary constraints that degrade mission readiness by limiting DOD's flexibility to implement land use changes in support of the mission-related projects and programs at VAFB.

These negative impacts could include: (a) Closure of areas needed for development, (b) a reduction in the availability of operational land requirements for present and future needs, and (c) project delays resulting from unnecessary and possibly redundant administrative requirements.

Our Response: We are excluding 13,705 ac (5,546 ha) of DOD lands within the boundaries of VAFB under section 4(b)(2) of the Act based on potential impacts to national security. Because the Service is not an expert in military readiness, we have deferred to DOD's expertise in identifying specific credible military readiness and national security impacts. Please see the section entitled Relationship of Critical Habitat to Lands Managed by the Department of Defense (DOD) below for a more indepth discussion of this topic.

Comments Related to the Draft Economic Analysis

Comment 36: Proposed critical habitat does not consider the economic impacts of this rule on operations and recreational opportunities in ODSVRA.

Our Response: The Service develops an analysis of economic impacts of the proposed critical habitat designation based on information presented in the proposed rule. Consequently, the draft economic analysis is made available after publication of the proposed critical habitat rule. For *Cirsium loncholepis*, we issued the Draft Economic Analysis (DEA) and made it available to the public for review and comment on March 10, 2009 (74 FR 10211). We analyzed the economic impacts to operations and recreational opportunities in ODSVRA in the Draft and subsequent Final Economic Analysis (FEA) and considered these impacts in the development of this final revised critical habitat designation.

Comment 37: Critical habitat could result in significant delays to crucial visitor and management efforts for ODSVRA because ''...securing Federal section 7 consultations could jeopardize projects, jeopardize project funding, and result in significant loss of recreational opportunities in Oceano Dunes SVRA.''

Our Response: The Service is aware of and has considered the operations and visitor and management efforts for ODSVRA. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. A critical habitat designation does not force a landowner to manage their land to the benefit of a species. Furthermore, proposed projects or actions occurring in critical habitat that do not involve a Federal nexus are not subject to the section 7 prohibition against destruction or adverse modification of critical habitat and, therefore, no consultation is required for those projects to occur. Where the consultation requirements of section 7(a)(2) do apply, an analysis would only result in a finding of destruction or adverse modification if the project was expected to impact the capability of the critical habitat unit as a whole to perform its conservation function for the species. Projects may adversely impact the physical and biological features essential to the conservation of a species within a critical habitat unit without impairing the unit's conservation role and function for the species. We have not consulted on any projects within designated critical habitat for *Cirsium loncholepis* where we determined that project implementation would destroy or otherwise adversely modify critical habitat such that the designated unit could no longer properly function and support the essential features for which it was designated. If a Federal nexus does exist and the Service makes a finding of destruction or adverse modification of critical habitat, the landowner's obligation is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat. Therefore, we do not believe that designation of critical habitat within ODSVRA would result in a ''significant loss of recreational opportunities'' in ODSVRA.

Comment 38: The proposed revised critical habitat rule for *Cirsium loncholepis* is not accompanied by an economic analysis. The Service should withdraw this proposed rule and publish a new one after completing and submitting the economic analysis for public comment.

Our Response: The proposed rule did not contain an economic analysis. As is our usual practice because of the urgency of court orders, the proposed designation noted that we would announce the availability of the draft economic analysis at a later date and would at that time seek public review and comment on the draft economic analysis. We announced the availability of the draft economic analysis and reopened the comment period on the proposed revised critical habitat designation on March 10, 2009 (74 FR 10211). The comment period closed on April 9, 2009.

Comment 39: The Service must perform a parcel by parcel [economic] analysis of all areas it proposes to include within critical habitat.

Our Response: The economic analysis presents costs at the unit level, and where possible, by parcel. Calculating economic impacts at the parcel level is often not possible due to lack of readily available information on economic activities likely to be undertaken at those locations in the foreseeable future. If it is clear that a particular parcel may incur costs associated with the critical habitat designation, such as costs to a landowner within Unit 3, these have been included in the analysis.

Comment 40: One commenter stated that the proposed rule fails to analyze economic impacts according to the Regulatory Flexibility Act.

Our Response: We made available a DEA on March 10, 2009 (74 FR 10211), that addressed the economic impacts to several sectors, including agriculture and ranching, and businesses that support off-highway vehicle recreation. The DEA concluded that less than one agricultural entity per year is anticipated to be affected by the critical habitat designation. The DEA indicated that 85 percent of the businesses potentially providing services to OHV users are small, but that the total loss in spending affected by the designation is expected to be less than 0.5 percent. This determination was finalized in the final economic analysis (FEA) dated July 27, 2009. Therefore, we did analyze economic impacts in accordance with the Regulatory Flexibility Act.

Comment 41: One commenter stated that the economic analysis must analyze and calculate all of the benefits of designating critical habitat; specifically, there are many additional benefits of critical habitat designation beyond just the conservation of habitat for the listed species. Critical habitat contributes to the survival and recovery of listed species, and the Service must analyze and calculate this contribution and that these values should be included in the economic analysis.

Our Response: In the context of a critical habitat designation, the primary purpose of the rulemaking (i.e., the direct benefit) is to designate areas that contain the features that are essential to the conservation of listed species.

The designation of critical habitat may result in two distinct categories of benefits to society: (1) Use; and (2) non-use benefits. Use benefits are simply the social benefits that accrue from the physical use of a resource. Visiting critical habitat to see threatened or endangered species in their natural habitat would be a primary example. Non-use benefits, in contrast, represent welfare gains from ''just knowing'' that a particular listed species' natural habitat is being specially managed for

the survival and recovery of that species. Both use and non-use benefits may occur unaccompanied by any market transactions.

A primary reason for conducting this analysis is to provide information regarding the economic impacts associated with a proposed critical habitat designation. Section 4(b)(2) of the Act requires the Secretary to designate critical habitat based on the best scientific and commercial data available after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. Economic impacts can be both positive and negative and, by definition, are observable through market transactions.

Where data are available, the analysis attempts to recognize and measure the net economic impact (i.e., the increased regulatory burden less any discernable offsetting market gains) of species conservation efforts imposed on regulated entities and the regional economy.

Under Executive Order 12866, the Office of Management and Budget (OMB) directs Federal agencies to provide an assessment of both the social costs and benefits of proposed regulatory actions. OMB's Circular A-4 distinguishes two types of economic benefits: direct benefits and ancillary benefits. Ancillary benefits are defined as favorable impacts of a rulemaking that are typically unrelated, or secondary, to the statutory purpose of the rulemaking. In the context of critical habitat, the primary purpose of the rulemaking (i.e., the direct benefit) is the potential to enhance conservation of the species. The published economics literature has documented that social welfare benefits can result from the conservation and recovery of endangered and threatened species. In its guidance for implementing Executive Order 12866, OMB acknowledges that it may not be feasible to monetize, or even quantify, the benefits of environmental regulations due to either an absence of defensible, relevant studies or a lack of resources on the implementing agency's part to conduct new research. Rather than rely on economic measures, the Service believes that the direct benefits of the proposed rule are best expressed in biological terms that can be weighed against the expected cost impacts of the rulemaking.

We have accordingly considered, in evaluating the benefits of excluding versus including specific areas, the biological benefits that may occur to a species from designation (see below, Exclusions Under Section 4(b)(2) of the Act), but these biological benefits are not addressed in the economic analysis (in terms of economic impacts). A chapter on benefits (Chapter 10) has been added to the FEA to highlight potential, qualitative benefits of the critical habitat designation for *Cirsium loncholepis*.

Comment 42: Several commenters state that reducing OHV use in ODSVRA may result in benefits to non-OHV beach recreators and ecotourists, resulting in regional economic benefits. Several additional commenters express similar concerns about benefits to non-OHV recreators and the local economy. One commenter suggested that the OHV community causes a loss in revenue to the Pismo area and this loss was not captured in the DEA.

Our Response: This critical habitat designation will not in and of itself result in closure of any OHV areas. The CDPR may decide to close portions of the riding area to OHV use of their own accord. Paragraph 161 of the DEA included a qualitative discussion of welfare gains associated with such potential closure of portions of the riding area to OHV use by the CDPR. Paragraph 161 states that ''non-OHV recreators (e.g., beach-going recreators, hikers, wildlife enthusiasts) may experience benefits when this area is closed to OHV use.'' In addition, a chapter on benefits (Chapter 10) has been added to the FEA to highlight potential categories of benefits resulting from the designation. This chapter includes discussion of potential benefits to non-OHV recreators at ODSVRA and ecotourists, and associated regional economic benefits.

Comment 43: Several commenters state that costs associated with OHV use in the Oceano Dunes area were not considered in the DEA, and that the following should have been considered in the DEA: air pollution caused by ODSVRA is estimated to cost millions of dollars in health care, missed work and school, and premature death; the Central Valley paid $2 billion in health care due to particulate matter caused by OHV's breaking the dune crust and releasing larger amounts of particulate matter into the air. Further, additional police and safety personnel, infrastructure, and road repairs are needed because of the OHV community and traffic. In addition, noise and danger associated with OHV use may discourage people from visiting Oceano Dunes resulting in a loss to the regional economy.

Our Response: Costs associated with OHV use would be reduced if OHV visitation declines due to the critical habitat designation. Thus, a reduction in these costs represents a benefit associated with the designation. Chapter 10 in the FEA includes a discussion of these potential benefits.

Comment 44: Two commenters state that OHV users do not patronize Oceano Dunes area shops and other local businesses and therefore do not benefit the regional economy. They state that traffic counts from OHV users are deceptive and that the high rate of failed businesses in the area provides evidence of this lack of patronage.

Our Response: The DEA estimates of changes in regional spending rely on the Cal Poly study, which surveyed OHV users about their spending habits while visiting ODSVRA. The survey questionnaire asked respondents explicitly to provide the amount of money spent in the Five Cities Area (including Pismo Beach, Arroyo Grande, Oceano, Grover Beach, and Shell Beach).

Comment 45: One commenter stated the DEA incorrectly assumes that an environmental impact report (EIR) will [already] be required for any vineyard project proposed within Unit 3 due to the presence of the California tiger salamander, because it may one day be delisted, rendering the need for an EIR based on the California tiger salamander moot. Also, it is not certain that an EIR would be required to convert existing farmed areas to other agricultural uses. Therefore, the DEA should have assessed financial impacts of any regulatory documents required because of *Cirsium loncholepis* critical habitat alone.

Our Response: We believe that the DEA made an accurate assessment of this situation because we consider all areas within 1.2 km of known, California tiger salamander breeding ponds as occupied. All of Unit 3 falls within the 1.2 km radius of known breeding ponds for California tiger salamander. The analysis in the DEA assumed the legal status of this species would remain unchanged in the future and therefore assumed that costs associated with preparing an EIR would be incurred in the baseline. A caveat was added in the FEA stating that if the California tiger salamander is delisted in the future, costs associated with preparing an EIR may be considered incremental instead of baseline.

Comment 46: Three commenters stated that the DEA is flawed because it should have used and considered ''an independent economic study such as the one by Dean Runyan on tourism'' instead of ''Economic Impact of Oceano Dunes SVRA Visitors'' study by the California Polytechnic State University (CalPoly), which was funded by the OHV community, as the basis for the

$40 million upper-bound incremental impact estimate in the analysis and that the latter study ''...incorrectly relied heavily on gasoline sales.''

Our Response: The DEA high-end estimate of incremental costs of $39.6 million did not rely on the CalPoly study. The estimate included the cost of recreation-related conservation activities as well as costs associated with section 7 consultations in Guadalupe-Nipomo National Wildlife Refuge and section 7 consultations for development projects. The majority of the recreation-related economic impacts are associated with the lost welfare experienced by OHV users who may forego trips as a result of potential restrictions to portions of the riding area. This loss was estimated by multiplying the number of lost trips, based on the visitor attendance data provided by the California Department of Parks and Recreation, the size of potential closures, and the consumer surplus value of a trip. The consumer surplus value used is based on the average value from a study by Englin *et al.* (2003) and Jakus (2003) (see paragraphs 126 through 137 in the DEA for an explanation of the methods used).

The CalPoly study is used to provide the Service with information regarding the potential distributional effect of the rule. It is intended to provide information about the potential reduction in economic activity in San Luis Obispo County associated with a potential reduction in OHV trips.

The FEA notes that it is possible the potential magnitude of lost economic activity in the region may be overstated. As described in paragraphs 144, 174 through 176, and Exhibit 5-7 of the FEA, it is unclear whether the authors of the CalPoly study multiplied visitation data, which is presumed to be daily attendance, by per trip or per day expenditure values. We attempted to contact the study authors for clarification; however, the authors were unavailable. We continue to report the data presented by the authors because it represents the only recent survey of spending patterns that specifically targets OHV users at the OSDVRA.

Dean Runyan Associates conducts an annual study on ''California Travel Impacts by County.'' This study was considered, but does not focus specifically on, ODSVRA users. Furthermore, the study does not provide the detail necessary to enable a comparison of the results of Dean Runyan's work to the result of the study by CalPoly.

Comment 47: One commenter stated that the DEA did not adequately quantify costs associated with delays due to local permitting requirements in direct response to the critical habitat designation.

Our Response: The FEA quantifies these costs where the necessary data were available (see, for example, sections 6.3.2 and 7.4 of the FEA).

Comment 48: One commenter stated that the DEA did not address future and potential oil and gas activities or agriculture and ranching activities in Unit 3 or attempt to quantify the impacts of the designation on these activities.

Our Response: A discussion of future and potential oil and gas activities in Unit 3 has been added to the Oil and Gas Operations Chapter of the FEA. The primary landowner in that unit provided a schedule suggesting that his property can support up to 39 active wells and including the potential value of this resource. This information is reported in paragraph 236 of the FEA. However, at this time, he has not reactivated the retired wells, nor could he specify a date by which he would initiate oil and gas production activity.

The cost of project delay for one of the vineyard conversion projects in Unit 3 has been added to the final economic analysis (see paragraphs 219 through 221 and Exhibit 7-4). Detailed information was not provided for the other vineyard conversion project and thus the delay costs could not be quantified. Ranching in Unit 3 is not anticipated to be affected by the designation. (See response to Comment 45 for additional discussion of the potential for incremental costs associated with the vineyard conversion project in this unit where information was provided by the landowner.)

Comment 49: One commenter states that previous economic analyses have overestimated the costs of the designation of critical habitat by ascribing coextensive costs to their designation. The commenter goes on to state that the Service must separate out all costs in the economic analysis that are attributable to listing alone, required by biological opinions, habitat conservation plans, State laws, or other regulatory measures, and that the costs associated with critical habitat must be considered alone.

Our Response: This economic analysis considers the costs associated with critical habitat separate from those likely to occur under the baseline conditions, to the extent possible. Specifically, the economic analysis employs ''without critical habitat'' and ''with critical habitat'' scenarios. The ''without critical habitat'' scenario represents the baseline for the analysis, considering protections already accorded *Cirsium loncholepis* (e.g., under the Federal listing and other Federal, State, and local regulations). The ''with critical habitat'' scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts are those not expected to occur absent the designation of critical habitat for *C. loncholepis*. These impacts are summarized in the Executive Summary under ''Summary of Incremental Impacts'' and in Exhibit ES-4.

Comment 50: One commenter states that the DEA fails to consider the critical habitat's potential role in leading to the closure of the entire ODSVRA to OHV riding and vehicular beach camping. The commenter states that if the county of San Luis Obispo retains ownership of La Grande Tract because the California Department of Parks and Recreation decides not to purchase the land in response to restrictions on OHV use resulting from the critical habitat designation, the county will likely follow its general plan provisions and ban OHV use. Closure of La Grande Tract to OHV use would leave only a narrow strip of land along the beach to provide access to the remainder of ODSVRA. Expansion of the closure of beach riding or vehicular access during all or part of the year to protect species such as the western snowy plover would effectively block access to the ODSVRA, requiring it to shut down to OHV riding.

Our Response: We believe that the designation of critical habitat will not require closure of any additional OHV riding areas. We believe that the designation will not affect any area used by OHVs. The 5 percent figure included in the economic analysis is a high-end estimate of economic impacts based on possible voluntary actions that may be taken by CDPR in response to the designation. The possible voluntary actions could include: (1) CDPR decides to manage the 75 acres for *Cirsium loncholepis* and close the area to OHV use, or (2) in completion of their HCP, CDPR decides to close these areas to manage them for *Cirsium loncholepis*. Speculation regarding the outcome of current or future litigation concerning the La Grande tract is beyond the scope of the economic analysis. As a result, complete loss of OHV recreational opportunities is not considered to be a reasonably foreseeable outcome and therefore is not quantified in the report. A qualitative discussion of the policy issues surrounding the future use of La Grande Tract has been added to the FEA

(see paragraphs 125 through 127 of the FEA).

Comment 51: One commenter states that the DEA failed to consider what impact designating critical habitat for *Cirsium loncholepis* may have on the pending litigation concerning ODSVRA. Pending litigation includes a suit brought by Friends of Oceano Dunes against the county challenging the jurisdiction of the county over land use at ODSVRA and a suit brought by the Sierra Club seeking to compel CDPR to stop OHV riding on La Grande Tract.

Our Response: A qualitative discussion of the policy issues surrounding the future use of La Grande Tract has been added to the FEA (see paragraphs 122 through 127 of the FEA). Speculation regarding the outcome of current or future litigation concerning the La Grande tract is beyond the scope of the FEA.

Comment 52: One commenter states that the DEA failed to adequately support its assumption that ODSVRA has only 1.3 million annual visitors. The commenter stated that annual visitation is 2.1 million, not 1.3 million, and that the DEA failed to obtain data from the CDPR on visitation and user patterns.

Our Response: Exhibit 5-3 in the DEA presented monthly ODSVRA visitation data since 2002 provided by the CDPR. Total visitation to the park is expected to remain around two million for the next 20 years, but the DEA only considers impacts to visitors who are OHV users. The DEA assumes that 65 percent of visitors are OHV users, or 1.3 million OHV user visitors. This assumption is based on data provided by and personal communication with the CDPR.

Comment 53: One commenter states that the DEA failed to quantify the cost of ''internal'' section 7 consultations within section 10 habitat conservation plans.

Our Response: The DEA quantifies the cost associated with internal consultation under section 7 of the Act during section 10 deliberations with the CDPR for their incidental take permit. These costs are included in the baseline and the additional costs associated with addressing the adverse modification standard are included as incremental to the critical habitat designation. See sections 5.5.1 and 5.5.2 in the DEA for more detail.

Comment 54: One commenter states that the DEA failed to adequately support its assumption that 5 percent of the riding area at ODSVRA would be closed due to the critical habitat designation for *Cirsium loncholepis*.

Our Response: We believe that the designation of critical habitat will not require closure of any additional OHV riding areas. We believe that the designation will not affect any area used by OHVs. The 5 percent figure included in the economic analysis is a high-end estimate of economic impacts based on possible voluntary actions that may be taken by CDPR in response to the designation. The possible voluntary actions could include: (1) CDPR decides to manage the 75 acres for *Cirsium loncholepis* and close the area to OHV use, or (2) in completion of their HCP, CDPR decides to close these areas to manage them for *C. loncholepis*.

Summary of Changes From the Revised Proposed Rule and Previous Critical Habitat Designation

TABLE 1—CHANGES BETWEEN THE MARCH 17, 2004, CRITICAL HABITAT DESIGNATION, THE AUGUST 6, 2008, PROPOSED DESIGNATION, AND THIS FINAL REVISED DESIGNATION

Critical habitat unit in this final rule	County	2004 designation of critical habitat (69 FR 12553)	2008 proposed revision to the critical habitat designation (73 FR 45806)	2009 final revised critical habitat designation
1. Callender-Guadalupe Dunes	San Luis Obispo	Included as part of Unit 1 (Pismo-Orcutt): 38,262 ac (15,484 ha)	Included as Unit 1: 10,329 ac (4,180 ha)	Included as Unit 1: 9,690 ac (3,921 ha)
2. Santa Maria River-Orcutt Creek	San Luis Obispo and Santa Barbara	Included as part of Unit 1 (Pismo-Orcutt): 38,262 ac (15,484 ha)	Included as Unit 2: 13,227 ac (5,353 ha)	Included as Unit 2: 13,227 ac (5,353 ha)
3. Cañada de las Flores	Santa Barbara	Unit 2: 2,827 ac (1,144 ha)	Included as Unit 3: 740 ac (299 ha)	Included as Unit 3: 740 ac (299 ha)
4. San Antonio Creek	Santa Barbara	Not included	Included as Unit 4: 4,335 ac (1,754 ha)	Included as Unit 4: 185 ac (75 ha)
5. San Antonio Terrace	Santa Barbara	Not included	Included as Unit 5: 7,334 ac (2,968 ha)	Included as Unit 5: 52 ac (21 ha)
6. Santa Ynez River	Santa Barbara	Not included	Included as Unit 6: 2,482 ac (1,005 ha)	Included as Unit 6: 210 ac (85 ha)
Totals		**41,089 ac (16,628 ha)**	**38,447 ac (15,559 ha)**	**24,103 ac (9,754 ha)**

In preparing this final revised critical habitat designation for *Cirsium loncholepis*, we reviewed and considered comments from the public and peer reviewers on the proposed revised designation of critical habitat published on August 6, 2008 (73 FR 45806), and public comments on the draft economic analysis published on March 10, 2009 (74 FR 10211). As a result of all comments received on the revised proposed rule and the draft economic analysis, we made changes to our proposed revised designation, as follows:

(1) We revised the boundaries of critical habitat within the OHV area of the ODSVRA to only include polygons consisting of vegetated habitat patches. This resulted in a reduction of Unit 1 from 10,329 ac (4,180 ha) to 9,690 ac (3,921 ha), for a decrease of 639 ac (259 ha). The acreage change is reflected in Table 1.

(2) We excluded 4,151 ac (1,680 ha) of lands on VAFB that we had proposed in Unit 4 based on potential impacts to national security. We are designating approximately 185 ac (75 ha) of non-

DOD lands in Unit 4 as critical habitat. The acreage change is reflected in Table 1.

(3) We excluded 7,282 ac (2,947 ha) of lands on VAFB that we had proposed as Unit 5 based on potential impacts to national security. We are designating approximately 52 ac (21 ha) of non-DOD lands in Unit 5 as critical habitat. The acreage change is reflected in Table 1.

(4) We excluded 2,272 ac (919 ha) of lands on VAFB that we had proposed in Unit 6 based on potential impacts to national security. We are designating approximately 210 ac (85 ha) of non-DOD lands in Unit 6 as critical habitat. The acreage change is reflected in Table 1.

(5) We incorporated technical information provided by the peer reviewers.

With these noted exceptions, this final designation is unchanged from the proposed revised designation. The result of these changes has been the reduction of final revised critical habitat designated to 24,103 ac (9,754 ha); this represents a total reduction of 14,344 ac (5,804 ha) from what we proposed in 2008.

The areas identified in this revised critical habitat designation constitute a revision from the areas we designated as critical habitat for *Cirsium loncholepis* on March 17, 2004 (69 FR 12553). The main differences include the following:

(1) The 2004 critical habitat rule (69 FR 12553) consisted of 2 units comprising a total of 41,089 ac (16,628 ha). This revision includes 6 units comprising a total of 24,103 ac (9,754 ha). Three of the units in the revision are generally located in the same geographic locations as those from the previous designation. Unit 1 in the previous designation has been divided into two units, one consisting of the Callender-Guadalupe Dunes and one consisting of the Santa Maria River and Orcutt Creek. There has been an overall reduction of approximately 15,345 ac (6,210 ha) in these areas from the previous designation of critical habitat primarily due to the removal of large areas of agricultural lands that are used as row crops because these areas do not contain the physical and biological features that are essential to the conservation of this species, identified as the species' PCEs laid out in the appropriate quantity and spatial arrangement.

(2) The area in Unit 3 Cañada de las Flores (Unit 2 in the previous designation) has decreased from 2,827 ac (1,144 ha) to 740 ac (299 ha). Additionally, we now consider Unit 3 to be unoccupied because we do not have recent data that indicate *Cirsium loncholepis* still occurs in this unit. Plants were last reported here in 1987 and 1989 (see our response to Comment 6 above). While *C. loncholepis* may still be at Cañada de las Flores, we are considering it to be unoccupied for the purposes of this rule based on the continued lack of observation of *C. loncholepis* since 1987 (Thornton 2008, unpaginated).

(3) We included lands in three additional units of unoccupied habitat. Unit 4 contains 185 ac (75 ha) along San Antonio Creek, Unit 5 contains 52 ac (21 ha) through San Antonio Terrace, and Unit 6 contains 210 ac (85 ha) along the Santa Ynez River.

This represents a decrease of 16,986 ac (6,873 ha) from the previously designated critical habitat in 2004.

Critical Habitat

Critical habitat is defined in section 3 of the Act as:

(1) 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

(a) Essential to the conservation of the species and

(b) Which may require special management considerations or protection; and

(2) 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, as defined under section 3 of the Act, means the use of all methods and procedures that are necessary to bring any endangered or threatened species to the point at which the measures provided under the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, transplantation, and in the extraordinary case where population pressures within a given ecosystem cannot otherwise be relieved, may include regulated taking.

Critical habitat receives protection under section 7(a)(2) of the Act through the prohibition against Federal agencies carrying out, funding, or authorizing the destruction or adverse modification of critical habitat. Section 7(a)(2) of the Act requires consultation on Federal actions that may affect critical habitat. 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 the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by private landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) would apply, but even in the event of a destruction or adverse modification finding, the landowner's obligation is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

For inclusion in a critical habitat designation, the habitat within the geographical area occupied by the species at the time of listing must contain the physical and biological features that are essential to the conservation of the species, and which may require special management considerations or protection. Critical habitat designations identify, to the extent known using the best scientific and commercial data available, habitat areas that provide essential life cycle needs of the species (i.e., areas on which are found the PCEs laid out in the appropriate quantity and spatial arrangement essential to the conservation of the species). Under the Act, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed as critical habitat only when we determine that those areas are essential for the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific and commercial data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific and commercial data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific and commercial data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat,

our primary source of information is generally the information developed during the listing process for the species.

Additional information sources may 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.

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 we may eventually determine are necessary for the recovery of the species, based on scientific data not now available to the Service. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not promote the recovery of the species.

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. They are also subject to the regulatory protections afforded by section 9 of the Act and the section 7(a)(2) jeopardy standard, as determined on the basis of the best available scientific and commercial information at the time of the agency 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, HCPs, or other species conservation planning efforts if information available at the time of these planning efforts calls for a different outcome.

Primary Constituent Elements (PCEs)

In accordance with section 3(5)(A)(i) of the Act and the regulations at 50 CFR 424.12, in determining which areas occupied by the species at the time of listing to designate as critical habitat, we consider those physical and biological features essential to the conservation of the species that may require special management considerations or protection. We consider the physical and biological features to be the PCEs laid out in the appropriate quantity and spatial arrangement essential to the conservation of the species. The PCEs include, but are not limited to:

(1) Space for individual and population growth and for normal behavior;

(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;

(3) Cover or shelter;

(4) Sites for breeding, reproduction, or rearing (or development) of offspring; and

(5) Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species.

We derive the PCEs required for *Cirsium loncholepis* from its biological needs as described below, in the proposed revised designation of critical habitat published in the **Federal Register** on August 6, 2008 (73 FR 45806), and in the NOA published in the **Federal Register** on March 10, 2009 (74 FR 10211). Additional information can also be found in the previous final listing rule published on March 20, 2000 (65 FR 14888), and in the original final critical habitat rule published on March 17, 2004 (69 FR 12553).

Space for individual and population growth

Cirsium loncholepis generally grows in association with mesic areas on the margins of dune swales, dune lakes, marshes, estuaries, coastal meadows, seeps, springs, intermittent streams, creeks, and rivers (Elvin 2006, unpaginated, 2007a, unpaginated, 2007b, unpaginated; California Natural Diversity Database (CNDDB) 2007, unpaginated; CCH 2008, unpaginated). *Cirsium loncholepis* occurs in a series of dynamic systems of dunes and riparian floodplains. *Cirsium loncholepis* can appear and disappear from particular sites, appearing to ''move'' from place to place in areas with suitable habitat on a fairly regular basis (this has been observed several times over the past 50 or more years (Hendrickson 1990, pp. 1-25; Chesnut 1998a, unpaginated; CNDDB 2007, unpaginated; Kelch 2008, unpaginated)). New suitable sites are continuously created throughout the dynamic ecosystems where *C. loncholepis* grows over time (i.e., floods remove vegetation and create new sites; dunes move and suitable sites open up). The conservation of *C. loncholepis* depends not only on maintaining suitable sites for germination and growth as they exist at the present, but also on maintaining the dynamic nature of the habitat (the dune and riparian complexes) where it grows, which will ensure that suitable sites for germination and growth will develop in the future (Damschen 2008, unpaginated; Kelch 2008, unpaginated; McEachern 2008, unpaginated).

Nutritional and Physiological Requirements Including Soils, Communities, and Dispersal

Soils

Soils where *Cirsium loncholepis* are found are somewhat variable, but include a large component of sand. Coastal populations occur on dune sands, Oceano sands, Camarillo sandy loams, riverwash, and sandy alluvial soils at elevations of less than 100 ft (31 m) (Hendrickson 1990, pp. 1-25; CNDDB 2001, unpaginated, 2007, unpaginated). Occasionally, individuals have been found on dune slopes or ridges, rather than in the more typical dune swale habitat; more stable dunes have been shown to act as reservoirs of moisture, and these individuals may be tapping into this moisture (Thomas 2001, unpaginated). Plants at an inland population have been found on Camarillo sandy loam at an elevation of 600 ft (183 m) (CNDDB 2001, unpaginated).

Communities

The suitable sites adjacent to mesic areas that are important for *Cirsium loncholepis* generally occur within larger vegetation communities and associations. *Cirsium loncholepis* is most often associated with the following diverse vegetation communities: freshwater seeps and springs, coastal and valley freshwater marsh and fen, riparian scrub (e.g., mule fat scrub, willow scrub), riparian forest, intermittent streams, and other wetland communities, which are generally interspersed within larger associations of the following vegetation communities: central dune scrub, coastal dune, coastal scrub, chaparral, oak woodland (Hendrickson 1990, pp. 1-25; CNDDB 2007, unpaginated). *Cirsium loncholepis* is often growing in and amongst a mat of low-growing, herbaceous, wetland plants including *Juncus* spp. (rush), *Scirpus* spp. (tule), *Carex praegracilis* (sedge), *Distichlis spicata* (salt grass), *Cynodon dactylon* (Bermuda grass), *Trifolium wormskioldii* (clover), *Anemopsis californica* (yerba mansa), *Potentilla anserina* (silverweed), and *Lotus corniculatus* (birdfoot trefoil) (Reed 1988, pp. 15-51; Chesnut 1998b, pp. 1-40; Langford 2001, unpaginated; Elvin 2006, unpaginated, 2007b, unpaginated; CNDDB 2007, unpaginated). Other closely associated riparian plants include *Salix* spp. (willow), *Rubus* (blackberry), and *Baccharis douglasii* (Douglas' baccharis) (Reed 1988, pp. 15-51; Chesnut 1998b,

pp. 1-40; Elvin 2006, unpaginated, 2007a, unpaginated, 2007b, unpaginated; CNDDB 2007, unpaginated). Upland plants that occur adjacent to or nearby include *Toxicodendron diversilobum* (poison oak), *Baccharis pilularis* (coyote brush), *Solidago californica* (California goldenrod), *Isocoma menziesii* (coast goldenbush), and *Corethrogyne filaginifolia* (California aster) (Hendrickson 1990, pp. 1-25; Elvin 2006, unpaginated, 2007a, unpaginated, 2007b, unpaginated; CNDDB 2007, unpaginated). Plants at the most inland site for *C. loncholepis* have been found primarily around gently sloping hillside seeps within a grassland community, at the edge of willows around a seep bordering an oak woodland community (Hendrickson 1990, pp. 1-25, Elvin 2007a, unpaginated). *Cirsium loncholepis* does occasionally occur in non-mesic conditions such as on ridges or dune tops such as in the Guadalupe Dunes (Elvin 2006, unpaginated) or throughout meadows (temporally and spatially) on flat valley bottoms, which are rather dry compared to the mesic seeps in these area (Elvin 2007a, unpaginated).

Dispersal

Genetic material can move both within a population and between different populations. In plants this can be accomplished through the movement of pollen, seeds, plants, or plant parts to other plants or sites within the same population or to another population. For *Cirsium loncholepis*, the main agents for gene flow are pollen and seeds. Pollinators move pollen from one flower to another. Most pollinators move pollen within the same population, but it can be moved to another population if it is close enough and the pollinator is capable of moving the pollen across that distance. *Cirsium loncholepis* seeds are capable of being moved within the same population and to another population by animals, wind, and water.

Pollinators: *Cirsium loncholepis* is capable of both self-fertilization (pollination events on the same individual) and cross-fertilization (pollination events between two individuals). Other similar, riparian, monocarpic *Cirsium* species self- and cross-pollinate (Hamzé and Jolls 2000, pp. 141-153). *Cirsium loncholepis* flowers produce nectar and copious quantities of pollen and are visited by birds and a wide variety of insects (Keil 2008, unpaginated). *Cirsium loncholepis* and other *Cirsium* taxa with similar heads are pollinated by bees (i.e., solitary, mining, (families Andrenidae and Anthophoridae), mason (*Osmia* sp.), carpenter (*Xylocopa* sp.), and leaf cutter bees (family Megachilidae) and the introduced honeybee (*Apis mellifera*)), butterflies (order Lepidoptera), flies (order Diptera), beetles (order Coleoptera (e.g., darkling ground beetles (family Tenebrionidae))), black ants (family Formicidae), and hummingbirds (family Trochilidae) (Moldenke 1976, pp. 305-361; Krombein *et al.* 1979, Vol. 2, pp. 1751-2209; Keil 2001, unpaginated, 2008, unpaginated; Lea 2001, unpaginated). Specialist-feeding bees (solitary bees, which are known to visit *Cirsium* species (Krombein *et al.* 1979, Vol. 2 pp. 1751-2209)) commonly develop co-evolutionary relationships with particular host plants (Moldenke 1976, pp. 305-361). While we do not have comprehensive information on the home ranges and species fidelity of these pollinators, we do have some data. A number of the insects noted above that are known to visit *Cirsium* flowers (i.e., ants, some beetles, butterflies, flies, and many bee taxa) live, nest, and reproduce in upland habitats (e.g., coastal dune scrub, coastal scrub, chaparral, oak woodland, grassland) within the range of *C. loncholepis* (Moldenke 1976, pp. 305-361; Krombein *et al.* 1979, Vol. 2 pp. 1751-2209; Thorp *et al.* 1983, pp. 1-79; Hogue 1993, 446 pp.). Alternative pollen source plants may be necessary for the persistence of these insects when *C. loncholepis* is not in flower seasonally or annually because of poor environmental conditions.

The main dispersal vectors for *Cirsium loncholepis* pollen include ants, beetles, butterflies, flies, bees, and hummingbirds. Some of these visitors (e.g., bumble bees, hummingbirds) can fly large distances and are therefore capable of transferring pollen longer distances, from plants in one population to plants in another population. Studies to quantify the distance that bees will fly to pollinate their host plants are limited in number, but the few that exist show that some bees will routinely fly from 328 to 984 ft (100 to 500 m) to pollinate plants (Thorp and Leong 1995, pp. 3-7; Schulke and Waser 2001, pp. 239-245). In a study of experimental isolation and pollen dispersal of *Delphinium nuttallianum* (Nuttall's larkspur), Schulke and Waser (2001, pp. 239-245) report that adequate pollen loads were dispersed by bumblebees within control populations and in isolated experimental ''populations'' from 328 to 1,312 ft (100 m to 400 m) distant from the control populations. One of the several pollinator taxa effective at 1,312 ft (400 m) was *Bombus* (bumblebee), which has also been documented to visit *Cirsium* (Ascher 2006, unpaginated). Studies by Steffan-Dewenter and Tscharntke (2000, pp. 288-296) demonstrated that it is possible for bees to fly as far as 3,280 ft (1,000 m) to pollinate flowers, and at least one study suggests that bumblebees may forage many kilometers from a colony (Sugden 1985, pp. 299-312). Hummingbirds can fly long distances while foraging for nectar or food or migrating. Using area rather than distance, an Anna's hummingbird (*Calypte anna*), for example, will hold a core territory of about 0.25 ac (0.1 ha) and a ''buffer zone'' of variable size, but usually 10-15 ac (4-6 ha) (Russell 1996, pp. 1-13). Hummingbirds are not restricted to these territories, but may venture greater distances crossing through neighboring territories to feed. Additionally, because extant populations of *C. loncholepis* are located within the Pacific flyway for migratory birds, while migrating, hummingbirds could forage in one population one day, and in another population later that day or the next day, thereafter, until either reaching their breeding or wintering grounds, or traveling beyond the range of *C. loncholepis*.

Seed Dispersal Vectors: According to Craddock and Huenneke (1997, pp. 215-219), *Cirsium* seeds are usually wind-dispersed, but birds and small mammals also disperse *Cirsium* seeds (Bent 1940, pp. 332-352, 1968, pp. 447-466; Burton and Black 1978, pp. 383-390). According to Keil and Turner (1993, pp. 232-239), wind is a likely dispersal vector for *C. loncholepis* seeds based on the architecture of their achenes, which are topped by an umbrella of long awns that are ideal for wind dispersal. The distribution of plants within a population (often an elongated pattern) is consistent with seed dispersal caused by the prevailing coastal winds (Lea 2002, pp. 1-84; Teed 2003, pp. 1-58). Additional dispersal vectors for *C. loncholepis* include small mammals and birds. Several small mammals that feed on seed of *Cirsium* species and move them among their seed caches live in the range of *C. loncholepis*. These include such species as kangaroo rats (*Dipodomys* spp.), pocket gophers (*Thomomys bottae*), California ground squirrels (*Spermophilus beecheyi*), and pocket mice (*Perognathus* spp.) (Burton and Black 1978, pp. 383-390; Blecha *et al.* 2007, pp. 1-354). Some small mammals, such as mice, use *Cirsium* tufts or down (the achene and pappus) as nest material (Root 2008, unpaginated). Various mammals such as mule deer (*Odocoileus hemionus*) and

cattle occur in the Callender-Guadalupe Dunes and have been documented grazing on thistle there (Nellis and Ross 1969, pp. 191-195; Theo *et al.* 2000, pp. 73-80; Blecha *et al.* 2007, pp. 1-354; Elvin 2007b, unpaginated). Some bird species, such as American Goldfinch (*Carduelis tristis*) and hummingbirds, some of which live within the range of *C. loncholepis*, use its tufts (or down) for nest construction (Weydemeyer 1923, pp. 117-118; Bent 1940, pp. 332-352, 1968, pp. 447-466; Blecha *et al.* 2007, pp. 1-354).

Water has been shown to be an important dispersal vector for seeds in another thistle, *C. vinaceum*, which also occurs in spring and streamside habitats (Craddock and Huenneke 1997, pp. 215-219). *Cirsium* seeds disperse via water ''considerable distances along streams'' (Craddock and Huenneke 1997, pp. 215-219). *Cirsium loncholepis* populations have been documented from the upper reaches of drainages and watersheds outlined below to suitable sites near the mouths of the rivers and creeks (within 1,000 ft (300 m)) of the Pacific Ocean (CNDDB 2007, unpaginated; Santa Barbara Botanic Garden Herbarium 2007, unpaginated; University of California Santa Barbara Herbarium 2007, unpaginated).

Sites for Reproduction, Population Growth, and Dispersal

Cirsium loncholepis has been reported from one or more polygons within 25 occurrences that are part of 11 populations distributed throughout 2 dune complexes and 4 drainages. All of these groupings are connected to each other in one or more ways. *Cirsium loncholepis* is closely associated with wetlands and mesic sites on the margins along four drainages that end in the Pacific Ocean (Arroyo Grande Creek, Santa Maria River, San Antonio Creek, and Santa Ynez River) (CNDDB 2007, unpaginated; CCH 2008, unpaginated). *Cirsium loncholepis* has not been seen along Arroyo Grande Creek since 1910; there is little suitable habitat remaining; most of the area is now urbanized by the cities of Oceano, Grover Beach, Pismo Beach, and Arroyo Grande Oaks or is currently under active agriculture; the remaining areas of suitable habitat have been separated from other historically and recently occupied habitat areas by this urbanization and agriculture; therefore, this area is not considered to be essential and is not discussed further in this rule. The dynamic nature of these drainages is an essential part of the life cycle for *C. loncholepis*. The habitat along these creeks and rivers is constantly changing. It is under a constant state of succession and renewal. A mosaic of habitat occurs along these drainages with new suitable sites being created with every storm or flow event. The flows of water are also an important mechanism to move seeds from currently occupied sites to these newly created suitable sites.

Orcutt Creek runs from the southeast to the northwest parallel with wind direction in the area. The headwaters for Orcutt Creek are southeast of the town of Orcutt on the northwest face of Graciosa Ridge. The stretch of Orcutt Creek near the town of Orcutt is within the area that is the most likely site where the type specimen was collected (see discussion in Background section of the proposed revised designation of critical habitat published in the **Federal Register** on August 6, 2008 (73 FR 45806) and our response to Comment 35). Orcutt Creek flows to the northwest and enters into the Santa Maria River near the Pacific Ocean. *Cirsium loncholepis* seeds that are deposited in the waters of Orcutt Creek would flow downstream from Orcutt toward the Santa Maria River. This stretch of the Santa Maria River has historically contained the largest population of *C. loncholepis*. Most of the records for *C. loncholepis* are from within the historical boundaries of the Santa Maria River floodplain.

Graciosa Ridge is the dividing line between the headwaters of Orcutt Creek (in the Santa Maria River watershed) and Cañada de las Flores (in the San Antonio Creek watershed). Because the prevailing winds in this area are from the northwest during most of the year, *Cirsium loncholepis* seed in the Orcutt area could be blown over Graciosa Ridge toward Cañada de las Flores, which is southeast of the headwaters of Orcutt Creek. Cañada de las Flores, which flows south, is the headwaters for one of the tributaries of San Antonio Creek which flows to the Pacific Ocean. Hunt (2008, 5 pp.) noted that Graciosa Ridge is a substantial geological formation and may be a formidable barrier between Orcutt Creek and Cañada de las Flores and posits that San Antonio Terrace and San Antonio Creek are more plausible seed sources for the Cañada de las Flores *C. loncholepis* population than Orcutt Creek. The estuary system (lagoon) at the mouth of San Antonio Creek was described by Fray Juan Crespi as La Graciosa in 1769 (Smith 1976, p. 282, 1998, pp. 153-154) and is also within the area that is the most likely site where the type specimen of *C. loncholepis* was collected (see Comment 35 and our response and our discussion in the Background section of the proposed revised designation of critical habitat published in the **Federal Register** on August 6, 2008 (73 FR 45806)).

The Santa Ynez River flows from east to west where it empties into the Pacific Ocean. The prevailing, strong winds in this area, from the west, would move *Cirsium loncholepis* seeds eastward, which is further upriver. Any resulting seed from upriver *C. loncholepis* populations that are deposited in the waters of the Santa Ynez River would then flow downstream toward the estuary system at the mouth of the river. Seed from any occurrence in the Santa Ynez River population would likely be dispersing to other occurrences in the Santa Ynez River (e.g., seed from upriver plants dispersing to the estuary via water and seed from estuary plants dispersing upriver via wind). The Santa Ynez River is a dynamic riparian system similar to the Santa Maria River with historical records of high flows and floods that can change the banks of the river, such as with the 1969 flood that reached a stage of 24.2 ft (7.4 m) above normal flow height (Linn 2008). These high flows create the new, unvegetated areas such as those that also occur along the Santa Maria River after high flows.

Habitats that are Representative of the Historical, Geographical, and Ecological Distributions of Cirsium loncholepis

Cirsium loncholepis has throughout time had a limited distribution in southwestern San Luis Obispo County and northwestern Santa Barbara County, California, within a unique geomorphic area known as the Santa Maria Basin (Hunt 1993, pp. 5-72). See Figure 1 for a map containing the locations of place and feature names in this region. The Santa Maria Basin stretches along a 39-mi (63-km) section of the coastal region of central California that is dominated by a system of dune complexes that are interspersed with several major drainages. The Santa Maria Basin is comprised of the Santa Maria Valley, in the north, and the Santa Ynez Valley, in the south. The Santa Maria Valley is located between the hills northeast of Pismo and the Casmalia and Solomon Hills that end at Point Sal in the west. The Santa Ynez Valley is located between the Casmalia and Solomon Hills and the Santa Ynez Mountains (on the south side of the Santa Ynez River). The Santa Maria Basin is dominated by moderate to strong winds from the northwest (categorized as greater than 7.47 miles per hour (mph) (12.02 kilometers per hour (kph)) most of the time and throughout the year (Hendrickson 1990, pp. 1-25; National Oceanic and Atmospheric Administration Western Regional Climate Center (NOAA) 2007,

unpaginated; USDA NRCS 2008, unpaginated). These prevailing northwest winds are a major factor in shaping the terrain and creating the dunes such that the active dune and swale systems are aligned with these winds (Hunt 1993, pp. 5-72). Deflation areas (the swales between two parallel dunes and behind the foredunes) are often at or near the water table, creating the wetlands and back-dune lakes (Hunt 1993, pp. 5-72). This terrain, the parallel ridges and swales, and the physical features that created and maintain it are essential for the conservation of *C. loncholepis*.

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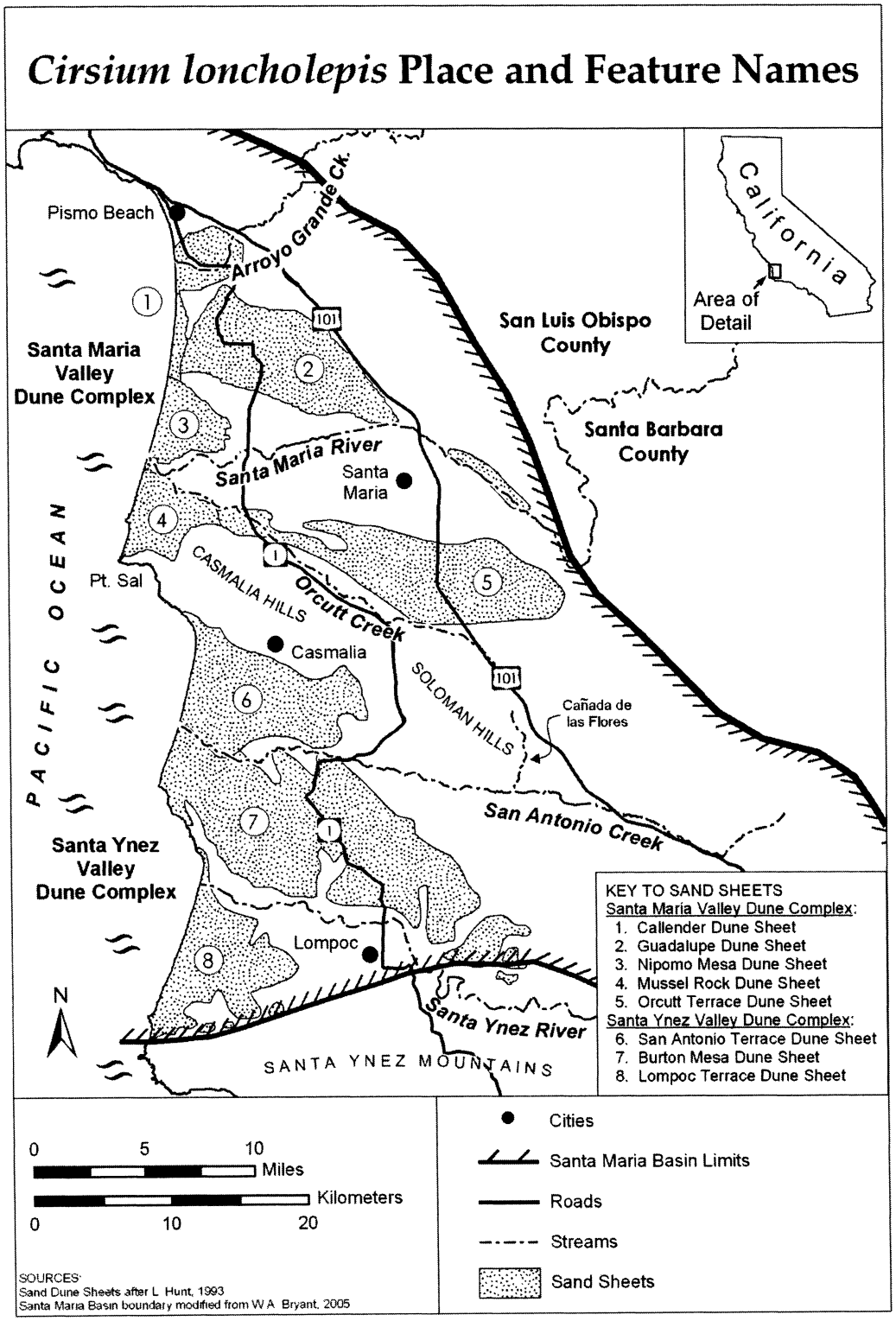

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Santa Maria Valley

The Santa Maria Valley contains one major dune complex (the Santa Maria Valley Dune Complex) and three major riparian systems (or drainages): Arroyo Grande Creek, the Santa Maria River, and Orcutt Creek. The Santa Maria Valley Dune Complex contains five Dune Sheets (or associated sand depositional episodes): Callender, Nipomo Mesa, Guadalupe, Mussel Rock, and Orcutt Terrace. Individual dune sheets represent sequential and spatially overlapped depositional episodes within contiguous areas of any particular dune complex. Arroyo Grande Creek and its floodplain are at the northern edge of the Callender Dune Sheet (specifically) and the Santa Maria Valley Dune Complex (in general) (Hunt 1993, pp. 5-72). The junction of Arroyo Grande Creek and the Callender Dune Sheet also marks the northern limit for *Cirsium loncholepis*, which occurred here in the low ''grassy'' areas among the sand hills at the junction of the dunes and Arroyo Grande Creek (University of California [Berkeley] Herbarium 2007, unpaginated). The Callender Dune Sheet reaches Oso Flaco Creek and Oso Flaco Lake at its southern extent. *Cirsium loncholepis* has occurred at numerous sites throughout the Callender Dunes (Hendrickson 1990, pp. 1-25; CNDDB 2007, unpaginated). The Guadalupe Dune Sheet extends from Oso Flaco Lake to the Santa Maria River. *Cirsium loncholepis* has occurred at numerous sites throughout the Guadalupe Dunes (Hendrickson 1990, pp. 1-25; CNDDB 2007, unpaginated). The Santa Maria Valley is a broad floodplain that is bounded by Orcutt Creek along its southern edge and by the Callender Dune Sheet and the Nipomo Dune Sheet (including Nipomo Mesa) along its northern edge. Between the city of Santa Maria and the coast 12 mi (19 km) to the west, the valley floor has historically been dotted with small settlements and a few oil fields, but the vast majority of the land has been converted to agriculture. A member of the Gaspar de Portola expedition to Monterey in 1769 noted that the expedition had difficulty getting through the Santa Maria Valley because of all the marshes (Companys 1983, pp. 105-344). As has been typical along the central coast of California, however, many of the valley's wetlands have been drained or filled to maximize agricultural production; old maps show lakes such as Lake Guadalupe that no longer exist. *Cirsium loncholepis* has occurred at numerous mesic sites throughout the Santa Maria River floodplain and the Guadalupe Dunes (Hendrickson 1990, pp. 1-25; CNDDB 2007, unpaginated). According to Wilken (2009b), the lowering of the water tables has adversely affected habitat conditions in the Santa Maria River Valley. Orcutt Creek and the Santa Maria River mark the northern edge of the Mussel Rock Dune Sheet, and Orcutt Creek and the Santa Maria River have had multiple *C. loncholepis* occurrences (Hendrickson 1990, pp. 1-25; CNDDB 2007, unpaginated). *Cirsium loncholepis* most likely had a more widespread distribution within this area, but may have been eliminated from most of the locations in this area by the vast conversion of this area to agriculture and extraction of groundwater before it could be documented. However, even with such conversion, current aerial photos and topographic maps show the persistence of numerous, small marshes, wetlands, and drainages in this area; some of these may still harbor small populations of *C. loncholepis*.

Santa Ynez Valley

The Santa Ynez Valley contains one major dune complex (the Santa Ynez Valley Dune Complex) and two major riparian systems (or drainages): San Antonio Creek and the Santa Ynez River. The Santa Ynez Valley Dune Complex contains three Dune Sheets: San Antonio, Burton Mesa, and Lompoc Terrace. The San Antonio Terrace Dune Sheet is at the northern edge of the Santa Ynez Valley Dune Complex. It supports numerous dune wetlands and swales and is very similar in habitat, physical, and geological features to the Callender and Guadalupe Dune Sheets (Hunt 1993, pp. 5-72; Google Earth 2008, unpaginated). San Antonio Creek is downwind on the southern edge of the San Antonio Terrace Dune Sheet. The mouth of San Antonio Creek is within the area that is the most likely site for the type locality (La Graciosa) for *Cirsium loncholepis* (Smith 1976, p. 282, 1998, pp. 153-154; Oyler *et al.* 1995, pp. 1-76; Hendrickson 1990, pp. 1-25; Keil and Holland 1998, pp. 83-84; Wilken 2009a, unpaginated) and still harbors numerous small marshes and wetlands that are apparent in aerial imagery (Google Earth 2008, unpaginated). Hunt (2008, unpaginated) believes that *Cirsium loncholepis* was historically much more widely distributed within the San Antonio Creek watershed. Historical collections indicate that *C. loncholepis* used to occur along the Santa Ynez River, somewhere between the towns of Surf and Lompoc, at the current edge of VAFB (University of Minnesota Saint Paul Herbarium 2007, unpaginated; Rancho Santa Ana Botanic Garden Herbarium 2007, unpaginated; Santa Barbara Botanical Garden Herbarium 2007, unpaginated; University of California Riverside Herbarium 2007, unpaginated). Collections of the plant were made here in 1958; however, by 1988 when surveys were conducted to relocate this population, none could be found (Hendrickson 1990, pp. 1-25). Over the years, some, but not all, habitat for *C. loncholepis* in the floodplain for the river has been altered. According to Smith's notes, agricultural fields have been plowed to the banks of the drainage, willows have been bulldozed, and herbicides were sprayed to eradicate *C. vulgare* (bull thistle) (Smith 1976, p. 282, 1998, pp. 153-154). According to Wilken (2009b), the lowering of the water tables has adversely affected habitat conditions in the Santa Ynez River Valley. Additionally, Wilken (2009b) stated that the current hydrological regulatory process in the Santa Ynez River may not be conducive to conditions favoring establishment of *C. loncholepis*. The hydrological regulatory process in the Santa Ynez River (i.e., artificial manipulation of surface flow and aquifer levels through impoundments, diversions, and groundwater extraction) is similar to that of the Santa Maria River. The effects of the current, altered hydrological regime and subsequent alteration of potential habitat for *C. loncholepis* should be considered in any plans for its successful recovery. Because this area historically supported the southernmost, documented *C. loncholepis* populations and because some habitat still remains today, it is considered to be an important area for the conservation of *C. loncholepis* (Morey 1990, pp. 1-13; U.S. Fish and Wildlife Service 2008, unpaginated).

Historically, *Cirsium loncholepis* has been reported or documented from a total of 25 occurrences as parts of 11 populations ranging from the dunes near Pismo Beach inland to hillside seeps at Cañada de las Flores south to the floodplains of the Santa Ynez River (CNDDB 2007, unpaginated; CCH 2008, unpaginated). Of these 25 occurrences; 8 were not considered in the final listing rule (65 FR 14888); 6 from San Antonio Terrace that were reported, but not documented in 1979; 1 newly documented in the Guadalupe Dunes in 2006; and 1 newly documented on the Guadalupe-Nipomo Dunes National Wildlife Refuge in 2007. Since the time of listing, we have received additional information indicating that the identities of the plants from the six occurrences on San Antonio Terrace were revised to *C. brevistylum* instead of

C. loncholepis (Linn, 2008, unpaginated; Wilken *et al.*, 2008, 13 pp.). At the time of the listing in 2000, there were 17 known occurrences of which 11 were extant. These 11 extant occurrences were distributed among seven populations (CNDDB 1998, unpaginated; 65 FR 14888, March 20, 2000). Since the time of listing in 2000, *C. loncholepis* has experienced considerable declines throughout its range in the number of both occurrences and populations and in the number of individuals within each of the remaining occurrences and populations. Currently, *C. loncholepis* is considered to be extant at seven occurrences that are distributed among four populations. The seven extant occurrences consist of five occurrences that were identified in the final listing rule in 2000 as well as two new occurrences that have been identified since that time (Elvin 2006, unpaginated, 2007b, unpaginated; CNDDB 2007, unpaginated). *Cirsium loncholepis* is not currently known to occur at the following populations: Oceano, northern Callender Dune Sheet Lakes, Guadalupe, La Graciosa, Cañada de las Flores, San Antonio Terrace Dune Sheet, and Santa Ynez River. Since the time of listing, the loss of known polygons, occurrences, and populations has outpaced the discovery of new polygons, occurrences, and populations.

In habitats that are fragmented and/or isolated, the trend for native plant species is one of decline (Soule *et al.* 1992, pp. 39-47). This supports the equilibrium theory of island biogeography (MacArthur and Wilson, 1963, pp. 373-387, 1967, 203 pp.) that predicts that species with populations that are isolated and have more extirpation events than re-colonization events will decline to zero (extinction). Recent research on species that are long-distance dispersers (such as *Cirsium loncholepis*) determined that when the distances between suitable habitat sites for a species become greater than its dispersal distance (such as due to habitat fragmentation); its long-term survival will be threatened unless the long-distance dispersal between the sites can be re-established (Trakhtenbrot *et al.* 2005, pp. 173-181). The study by Trakhtenbrot *et al.* (2005, pp. 173-181) regarding long-distance dispersal species supports the study by Soule *et al.* (1992, pp. 39-47) and the equilibrium theory of island biogeography (MacArthur and Wilson 1963, pp. 373-387, 1967, 203 pp.). Based on these studies, comments from peer reviewers, and our current understanding of this species and its decline, we believe that conserving solely the areas with the remaining known occurrences and populations of *C. loncholepis* is not sufficient to conserve or recover the species. The additional habitat that would provide connectivity between occurrences and populations is essential for the conservation of *C. loncholepis*. This is supported by Damschen *et al.* (2006, pp. 1284-1286), who showed that habitat patches that were connected by corridors benefitted wildlife and plants.

Primary Constituent Elements for *Cirsium loncholepis*

Under the Act and its implementing regulations, we are required to identify the physical and biological features essential to the conservation of *Cirsium loncholepis*. The physical and biological features are the primary constituent elements (PCEs) laid out in the appropriate quantity and spatial arrangement essential to the conservation of the species. Areas designated as critical habitat for *C. loncholepis* contain both occupied and unoccupied areas within the species' historical geographic range, and contain sufficient PCEs to support at least one life history function.

Based on our current knowledge of the life history, biology, and ecology of *Cirsium loncholepis* and the requirements of the habitat to sustain the essential life history functions of the species, we determined that the PCEs specific to *Cirsium loncholepis* are:

(1) Mesic areas associated with: (a) margins of dune swales, dune lakes, marshes, and estuaries that are associated with dynamic (changing) dune systems including the Santa Maria Valley Dune Complex and Santa Ynez Valley Dune Complex; (b) margins of dynamic riparian systems including the Santa Maria and Santa Ynez Rivers and Orcutt and San Antonio Creeks; and (c) freshwater seeps and intermittent streams found in other habitats, including grassland, meadow, coastal scrub, chaparral, and oak woodland. These areas provide space needed for individual and population growth including sites for germination, reproduction, seed dispersal, seed bank, and pollination;

(2) Associated plant communities including: Central dune scrub, coastal dune, coastal scrub, freshwater seep, coastal and valley freshwater marsh and fen, riparian scrub (e.g., mule fat scrub, willow scrub), oak woodland, intermittent streams, and other wetland communities, generally in association with the following species: *Juncus* spp. (rush), *Scirpus* spp. (tule), *Salix* spp. (willow), *Toxicodendron diversilobum* (poison oak), *Distichlis spicata* (salt grass), *Baccharis pilularis* (coyote brush), and *B. douglasii* (Douglas' baccharis);

(3) Soils with a sandy component including but not limited to dune sands, Oceano sands, Camarillo sandy loams, riverwash, and sandy alluvial soils; and

(4) Features that allow dispersal and connectivity between populations, particularly: (a) Natural riparian drainages in Santa Maria River, Orcutt Creek, San Antonio Creek, and Santa Ynez River that are not channelized or confined by barriers or dams, such that they have soft bottoms and sides and a natural flood plain (allowing uninterrupted water flows); and (b) Natural aeolian geomorphology in the Santa Maria Dune Complex and Santa Ynez Dune Complex, and along the Santa Maria River, Orcutt Creek, San Antonio Creek, and Santa Ynez River drainages that is not confined by barriers or wind-blocks such as large manmade structures, tree rows, or wind-breaks (allowing uninterrupted winds across these areas).

With this final revised designation of critical habitat, we intend to conserve the physical and biological features essential to the conservation of the species, through the identification of the appropriate quantity and spatial arrangement of the PCEs sufficient to support the life history functions of the species. Some units contain all of these PCEs and support multiple life processes, while some units contain only a portion of these PCEs, those necessary to support the species' particular use of that habitat. Because not all life history functions require all the PCEs, not all critical habitat units will contain all the PCEs.

Special Management Considerations or Protection

When designating critical habitat, we assess whether the areas within the geographical area occupied at the time of listing contain features essential to the conservation of the species that may require special management considerations or protection. We also considered how revising the current designation of critical habitat highlights habitat with essential features in need of special management considerations or protection.

Many of the known occurrences of *Cirsium loncholepis* are threatened by direct and indirect effects from energy-related operations (i.e., maintenance activities, hazardous waste cleanup); development that results in additional habitat modification or land use changes (i.e., conversion of agricultural and urban development); county zoning changes; issuance of development permits; non point source pollution

such as from urban and agricultural runoff (e.g., herbicides, fertilizers); facility accidents by oil companies or VAFB; groundwater extraction throughout the range of the species; hydrological alterations; direct and indirect effects from off highway vehicle (OHV) activity (i.e., habitat disturbance, hazardous materials spills); small population size; and habitat fragmentation and loss through the invasion of aggressive nonnative weeds such as *Ammophila arenaria* (European beach grass), *Carpobrotus* spp. (iceplant), *Ehrharta calycina* (veldt grass), and *Mesembryanthemum crystallinum* (crystalline iceplant) (Smith 1976, p. 282, 1998, pp. 153-154; Davis *et al.* 1988, pp. 169-195; Zedler and Schied 1988, pp. 196-201; Morey 1989, pp. 1-16; Hendrickson 1990, pp. 1-25; CDFG 1992, pp. 111-112; Odion *et al.* 1992, pp. 1-2; CNDDB 1998, unpaginated, 2008, unpaginated; Chesnut 1998a, unpaginated, 1998b, pp. 1-40; Keil 2006, unpaginated; Damschen 2008, unpaginated; Hunt 2008, 5 pp.; McEachern 2008, unpaginated; Orahoske 2008, unpaginated; Swenk 2008, 4 pp.; Thornton 2008, unpaginated; Murphy 2009, unpaginated; Wilken 2009b, unpaginated). These threats may require special management to ensure the long-term conservation of *C. loncholepis*. Threats specific to individual units are described in the unit descriptions below.

Criteria Used To Identify Critical Habitat

We analyzed the biology, life history, ecology, and distribution (historical, at the time of listing, and current) of *Cirsium loncholepis*. Based on this information, we are designating revised critical habitat in areas within the geographical area occupied by *C. loncholepis* at the time of listing in 2000. We also designate some specific areas outside the geographical area occupied by *C. loncholepis* at the time of listing, which although are currently unoccupied, are within the historical range of the species, and because we have determined that such areas are essential for the conservation of *C. loncholepis*.

To delineate revised critical habitat, we first determined occupancy within the extant range of *Cirsium loncholepis*. Occupancy status was determined using occurrence data from research and survey observations included in reports and other manuscripts (i.e., theses, monitoring reports); data from research and survey observations published in peer-reviewed articles; data submitted to the CNDDB; reports and survey forms prepared for Federal, State, and local agencies, and private corporations; written and oral communications from species and physical science experts; information from herbarium specimens; scientific information in our draft recovery outline for *C. loncholepis* (U.S. Fish and Wildlife Service 2008, unpaginated); and visits by Service biologists to *C. loncholepis* populations. Areas or sites containing data indicating occupancy from 1989 or later (within approximately the past 20 years) were considered currently occupied. We then determined which areas were occupied at the time of listing by comparing survey and collection information to descriptions of occupied areas in the final listing rule published on March 20, 2000 (65 FR 14888).

Based on these studies, comments from the public and peer reviewers, and our current understanding of the status of *Cirsium loncholepis* since the time of listing, the species continues to decrease in the number of populations, in the number of occurrences within populations, and in the number of individuals within the remaining occurrences and populations. Therefore, based on these data and comments from the peer reviewers, we determined that the areas in which the extant populations are distributed are alone not sufficient to conserve or recover it. Based on its decline, its biology, new scientific information on the biological conditions necessary for long-distance dispersal species (such as *C. loncholepis*), and comments from the peer reviewers, we have determined that habitat providing connectivity between the areas containing the extant populations is also essential for its conservation.

Once we determined the extant range of the species, we analyzed areas outside the geographical area occupied by *Cirsium loncholepis* at the time of listing, but within the historical range of the species, for areas that are essential. We first looked for large, continuous blocks of suitable habitat, such as the numerous mesic areas and seeps in and surrounding the lower reaches of the Santa Ynez River. We then looked for important corridors of suitable habitat that connect the large, continuous areas based on their abilities to disperse seed or pollen, such as the area along Orcutt Creek between the Guadalupe Dunes and Cañada de las Flores. We then analyzed the presence and characteristics of other features that are important to maintain the metapopulation dynamics for *C. loncholepis* in these areas (e.g., winds and their relationship to the formation of geographic features, movement patterns for various dispersal agents, watersheds, geology).

Within the Callender-Guadalupe Dune Unit, we only included areas of the OHV riding area that are within the existing fenced vegetation islands and the immediately adjacent dune habitats in areas that the vegetation islands are likely to migrate. To identify the specific boundaries of the final critical habitat subunits in this area, we utilized a formula developed in accordance with the following parameters. We developed the conformation of the vegetation island subunits of final critical habitat by migrating the outline of the existing fenced areas 80 m (262 ft) at a compass heading of 327 degrees (the prevailing wind vector for the area - approximately West Northwest). We derived a distance of 80 m (262 ft) by evaluating the rates of dune and vegetation island migration (Bowen and Inmand 1966, 43 pp.; CGS 2007, 113 pp.) within a time-frame relevant to ODSVRA planning horizons and *C. loncholepis* life history. A value of 4 m/yr (13 ft/yr), representing a mid-range estimate for the rate of dune and vegetation island movement within the Callender-Guadalupe Dunes (CGS 2007, 113 pp.), taken over a 20–year planning and recovery time-frame resulted in the 80-meter migration value. Final boundaries of the vegetation island subunits were created by combining the boundary of the existing fenced vegetation islands with the area described by the migrated fence boundary.

Using all the information above, we were able to discern areas that are potentially important for the recovery of *C. loncholepis*. From this, we then selected the extent of those areas that we consider to be essential to the conservation of the species. All of the areas that we are designating as critical habitat that are currently not known to be occupied by the species are essential for its conservation.

To map the revised critical habitat units (both those occupied at the time of listing and those outside the geographical area occupied by the species at the time of listing), we overlaid *Cirsium loncholepis* occurrences (current and historical) on soil series, vegetation types, and watershed/wetland data to determine appropriate polygons that would contain one or more PCEs in the quantity and spatial arrangement necessary to provide the features essential to the conservation of *C. loncholepis*. This taxon is closely associated with dynamic ecosystems such as dune and riparian watershed systems and with the presence of sandy soil types and mesic conditions, but it

also occurs in adjacent upland habitats and areas. Units were delineated by first mapping the occurrences (current and historical) and continuous and intervening suitable habitat, then considering other geographical features such as developed, urban, heavy recreational use (e.g., active OHV use lands), and agriculture (e.g., row crops) areas that are continuously maintained or utilized and removing areas with these features that did not contain the appropriate quantity and spatial arrangement of the PCEs essential to the conservation of the species.

When determining the revisions to critical habitat boundaries within this final rule, we made every effort to avoid including developed areas, such as buildings, paved areas, and other structures, as well as active heavy use OHV areas and tilled fields and row crops that lack the PCEs for *Cirsium loncholepis*. The scale of the maps prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of all such developed areas. Any such areas inadvertently left inside critical habitat boundaries shown on the maps of this final revision to critical habitat are excluded by text in the revision and are not designated as critical habitat. Therefore, Federal actions limited to these areas would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action may affect adjacent critical habitat.

Using the above criteria, we identified six units that contain the necessary features essential to the conservation of *Cirsium loncholepis*. These six units are located near the Pacific Coast in southwestern San Luis Obispo and northwestern Santa Barbara Counties. The northern-most unit consists of the dune system from Pismo Beach to the Santa Maria River in San Luis Obispo County. The second unit consists of the lower reaches of the Santa Maria River in San Luis Obispo and Santa Barbara Counties and of Orcutt Creek in Santa Barbara County. The remaining units are all within Santa Barbara County: one at Cañada de las Flores, one along the lower reaches of San Antonio Creek, one on San Antonio Terrace, and one along portions of the lower reaches of the Santa Ynez River.

We are designating critical habitat on lands that meet the first prong of the definition of critical habitat and, therefore, were determined to be occupied at the time of listing and contain the physical and biological features essential for the conservation of the species. We are also designating critical habitat on lands that meet the second prong of the definition of critical habitat and, therefore, consist of specific areas outside the geographical area occupied by the species at the time it is listed that are essential for the conservation of the species. The revision to critical habitat is designed to provide sufficient habitat to maintain self-sustaining populations of *Cirsium loncholepis* throughout its range and provide the necessary features that are essential for the conservation of the species. The essential features include: (1) space for individual and population growth, including sites for germination, pollination, reproduction, pollen and seed dispersal; (2) areas that allow gene flow and provide connectivity between occupied areas; and (3) areas that provide basic requirements for growth, such as appropriate soil type and openings within vegetation cover. All revised critical habitat units were delineated based on the appropriate quantity and spatial arrangement of PCEs being present to support *C. loncholepis* life processes essential to the conservation of the species.

Section 10(a)(1)(B) of the Act authorizes us to issue permits for the take of listed animal species incidental to otherwise lawful activities. An incidental take permit application must be supported by a habitat conservation plan (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 often exclude non-Federal public lands and private lands that are covered by an existing operative HCP and incidental take permit under section 10(a)(1)(B) of the Act from designated critical habitat because the benefits of exclusion outweigh the benefits of inclusion as discussed in section 4(b)(2) of the Act. We are currently unaware of any areas within this critical habitat designation that fall into this category.

Final Critical Habitat Designation

The critical habitat areas described below constitute our current best assessment of areas determined to meet the definition of critical habitat for *Cirsium loncholepis*. We are designating approximately 24,103 ac (9,754 ha) of land as critical habitat for *C. loncholepis* in six units. Table 2 outlines these units and provides the approximate areas being designated as critical habitat.

TABLE 2—CRITICAL HABITAT UNITS FOR *CIRSIUM LONCHOLEPIS* IN CALIFORNIA; LAND OWNERSHIP AND FINAL SIZE OF EACH AREA

Critical habitat unit	Land ownership	Area that meets the definition of critical habitat	Area excluded from final critical habitat	Estimate of total acreages designated as critical habitat
1. Callender-Guadalupe Dunes				
1A. Callender-Guadalupe	Federal	2,404 ac (973 ha)	0 ac (0 ha)	2,404 ac (973 ha)
	State	1,863 ac (754 ha)	0 ac (0 ha)	1, 863 ac (754 ha)
	Local	80 ac (32 ha)	0 ac (0 ha)	80 ac (32 ha)
	Private	5,176 ac (2,095 ha)	0 ac (0 ha)	5,176 ac (2,095 ha)
1B. Moymell	State	<1 ac (<1 ha)	0 ac (0 ha)	<1 ac (<1 ha)
	Local	3 ac (1 ha)	0 ac (0 ha)	3 ac (1 ha)
	Private	<1 ac (<1 ha)	0 ac (0 ha)	<1 ac (<1 ha)
1C. Pavillion Hill/Worm Valley	State	2 ac (1 ha)	0 ac (0 ha)	2 ac (1 ha)
	Local	27 ac (11 ha)	0 ac (0 ha)	27 ac (11 ha)
	Private	<1 ac (<1 ha)	0 ac (0 ha)	<1 ac (<1 ha)
1D. BBQ Flats	State	<1 ac (<1 ha)	0 ac (0 ha)	<1 ac (<1 ha)
	Local	7 ac (3 ha)	0 ac (0 ha)	7 ac (3 ha)

TABLE 2—CRITICAL HABITAT UNITS FOR *CIRSIUM LONCHOLEPIS* IN CALIFORNIA;—Continued

LAND OWNERSHIP AND FINAL SIZE OF EACH AREA

Critical habitat unit	Land ownership	Area that meets the definition of critical habitat	Area excluded from final critical habitat	Estimate of total acreages designated as critical habitat
1E. BBQ Flats South	State ..... Local	<1 ac (<1 ha) 3 ac (2 ha)	0 ac (0 ha) 0 ac (0 ha)	<1 ac (<1 ha) 3 ac (2 ha)
1F. Heather	State ..... Local	<1 ac (<1 ha) 6 ac (2 ha)	0 ac (0 ha) 0 ac (0 ha)	<1 ac (<1 ha) 6 ac (2 ha)
1G. Acacia	State ..... Local ..... Private	1 ac (<1 ha) 4 ac (2 ha) <1 ac (<1 ha)	0 ac (0 ha) 0 ac (0 ha) 0 ac (0 ha)	1 ac (<1 ha) 4 ac (2 ha) <1 ac (<1 ha)
1H. Cottonwood	Local	9 ac (4 ha)	0 ac (0 ha)	9 ac (4 ha)
1I. Eucalyptus North	State ..... Local	2 ac (1 ha) 7 ac (3 ha)	0 ac (0 ha) 0 ac (0 ha)	2 ac (1 ha) 7 ac (3 ha)
1J. Eucalyptus South	State ..... Private	19 ac (8 ha) 3 ac (1 ha)	0 ac (0 ha) 0 ac (0 ha)	19 ac (8 ha) 3 ac (1 ha)
1K. Indian Midden South	State ..... Private	2 ac (1 ha) 1 ac (<1 ha)	0 ac (0 ha) 0 ac (0 ha)	2 ac (1 ha) 1 ac (<1 ha)
1L. Boyscout North	State	11 ac (4 ha)	0 ac (0 ha)	11 ac (4 ha)
1M. Tabletop	State	14 ac (6 ha)	0 ac (0 ha)	14 ac (6 ha)
1N. 1	State	2 ac (1 ha)	0 ac (0 ha)	2 ac (1 ha)
1O. 2	State	1 ac (<1 ha)	0 ac (0 ha)	1 ac (<1 ha)
1P. Pipeline	State	42 ac (17 ha)	0 ac (0 ha)	42 ac (17 ha)
Unit 1 Subtotals by ownership	Federal ..... State ..... Local ..... Private	2,404 ac (973 ha) 1,959 ac (793 ha) 147 ac (59 ha) 5,181 ac (2,097 ha)	0 ac (0 ha) 0 ac (0 ha) 0 ac (0 ha) 0 ac (0 ha)	2,404 ac (973 ha) 1,959 ac (793 ha) 147 ac (59 ha) 5,181 ac (2,097 ha)
Subtotal		**9,690 ac (3,921 ha)**	**0 ac (0 ha)**	**9,690 ac (3,921 ha)**
2. Santa Maria River-Orcutt Creek	Federal ..... State ..... Local ..... Private	0 ac (0 ha) 252 ac (102 ha) 542 ac (219 ha) 12,432 ac (5,031 ha)	0 ac (0 ha) 0 ac (0 ha) 0 ac (0 ha) 0 ac (0 ha)	0 ac (0 ha)252 ac (102 ha)542 ac (219 ha)12,432 ac (5,031 ha)
Subtotal		**13,227 ac (5,353 ha)**	**0 ac (0 ha)**	**13,227 ac (5,353 ha)**
3. Cañada de las Flores	Private	740 ac (299 ha)	0 ac (0 ha)	740 ac (299 ha)
4. San Antonio Creek 4A. La Graciosa 4B. Barka Slough	Federal ..... Private ..... Private	4,151 ac (1,680 ha) 3 ac (1 ha) 182 ac (74 ha)	4,151 ac (1,680 ha) 0 ac (0 ha) 0 ac (0 ha)	0 ac (0 ha) 3 ac (1 ha) 182 ac (74 ha)
Subtotal		**4,335 ac (1,754 ha)**	**4,151 ac (1,680 ha)**	**185 ac (75 ha)**
5. San Antonio Terrace	Federal ..... Private	7,282 ac (2,947 ha) 52 ac (21 ha)	7,282 ac (2,947 ha) 0 ac (0 ha)	0 ac (0 ha) 52 ac (21 ha)
Subtotal		**7,334 ac (2,968 ha)**	**7,282 ac (2,947 ha)**	**52 ac (21 ha)**
6. Santa Ynez River 6A. Ocean Park 6B. Surf 6C. Lompoc	 Local ..... Private ..... Private ..... Federal	 35 ac (14 ha) 12 ac (6 ha) 32 ac (13 ha) 2,444 ac (990 ha)[1]	 0 ac (0 ha) 0 ac (0 ha) 0 ac (0 ha) 2,272 ac (919 ha)	 35 ac (14 ha) 12 ac (6 ha) 32 ac (13 ha) 132 ac (53 ha)
Subtotal		**2,482 ac (1,005 ha)**	**2,272 ac (919 ha)**	**210 ac (85 ha)**
Total		**37,810 ac (15,300 ha)**	**13,705 ac (5,546 ha)**	**24,103 ac (9,754 ha)**

[1] 43 ac (18 ha) were listed as private property in the proposed revised designation, but current information indicates that this area is federal property.

Below, we present brief descriptions of the units designated as critical habitat for *Cirsium loncholepis*. For more information about the areas excluded from critical habitat, please see the Exclusions Under Section 4(b)(2) of the Act and Relationship of Critical Habitat to Lands Managed by the Department of Defense (DOD) sections of this final rule.

Unit 1: Callender-Guadalupe Dunes (9,690 ac (3,921 ha))

Unit 1 is located in the southwestern corner of San Luis Obispo County, California. It stretches along 8.5 mi (13.5 km) of coast from Arroyo Grande Creek to the Santa Maria River. This unit is south of Pismo Beach, west of Nipomo and north of Guadalupe. Unit 1 was occupied at the time of listing, is currently occupied, and contains the physical and biological features essential to the conservation of the species (65 FR 14888, March 20, 2000; Elvin 2006, unpaginated, 2007a, unpaginated; CNDDB 2007, unpaginated). Unit 1 is essential because it contains three of the four remaining *C. loncholepis* populations. These three populations represent the northern-most populations of the species, and it includes the largest block of native habitat still occupied by *C. loncholepis*. While all of these three remaining populations and the 9,690 ac (3,921 ha) of habitat in this unit are essential for this species to survive, maintaining only these populations and habitat does not appear to be sufficient for the long term survival of this species because four occurrences (of eight known at the time of listing) within the three populations in this unit have not been observed since 1990 and are considered to be extirpated. This unit also supported two occurrences in the Guadalupe/Callender Dunes that have since been extirpated where the water table has been lowered (due to ground water pumping) (Keil 2006).

Unit 1 is comprised of sixteen subunits totaling 2,404 ac (973 ha) of Federal lands; 1,959 ac (793 ha) of State lands; 147 ac (59 ha) of County and other local jurisdiction land; and 5,181 ac (2,097 ha) of private land (174 ac (70 ha) of which belongs to non-governmental organizations (NGOs)). Unit 1 includes a portion of the Guadalupe-Nipomo Dunes National Wildlife Refuge, Pismo Dunes State Preserve, Oceano Dunes State Vehicular Recreation Area, and privately owned lands. Unit 1 is located within the Santa Maria Valley Dune Complex (Hunt 1993, pp. 5-72). This dune complex contains numerous mesic areas on the margins of dune swales, dune lakes, marshes, and estuaries within the dynamic (changing) Callender and Guadalupe Dune Sheets (PCE 1).

We included polygons of vegetation that occur and are fenced off within the OHV riding area of ODSVRA because they are essential to the conservation of the species. We attempted to delineate the boundaries based on the best available science, with the understanding that this is a dynamic ecosystem and it has been documented that these vegetation islands move over time (CGS 2007, 113 pp.). The habitat patches (including dune swales and vegetation islands) move up to 120 m over a 20–year time frame (CGS 2007, 113 pp.); therefore, we developed a formula to determine the predicted migration of these patches over the next 20 years. For a description of this formula, please see the Criteria Used to Identify Critical Habitat section of this rule.

The areas within the habitat patches (including vegetation and open sand dune swales) containing PCEs in the appropriate quantity and spatial arrangement necessary to provide the features essential to the conservation of *Cirsium loncholepis* are essential and therefore, pursuant to this rule, are being designated as critical habitat. However, the areas within the boundaries of these polygons that are outside of the habitat patches (but within the OHV riding area of ODSVRA) and are used on a regular basis for OHV recreation do not currently contain PCEs in the appropriate quantity and spatial arrangement necessary to provide the features essential to the conservation of *C. loncholepis*. These areas are designated as critical habitat because the vegetation islands will migrate beyond their current boundaries in the foreseeable future.

These vegetation islands contain suitable habitat and are adjacent to currently occupied and historically occupied sites. The vegetation islands are northwest of a large continuous block of occupied habitat. The Callender Dunes are dominated by moderate to strong winds from the northwest (categorized as greater than 7.47 mph (12.02 kph) most of the time and throughout the year (NOAA 2007, unpaginated; USDA NRCS 2008, unpaginated). However, moderate to strong winds from the southeast also occur in this area during parts of the year (November through February), which overlaps with at least 2 months of the approximately 5–month period that seeds are dispersed from the remains of the flowering stalk (August through December). These winds are an essential dispersal vector that helps move *Cirsium loncholepis* seeds between areas of suitable habitat; as a result, the vegetated islands become essential in maintaining connectivity within and between occurrences and populations. Further, several peer reviewers indicated that for fugitive species (i.e., species that move from place to place through time) like *C. loncholepis* that also rely on long-distance dispersal, adjacent occupied and unoccupied suitable habitat is essential for survival. These vegetation islands meet this need for the species, and provide a shifting mosaic of habitats that depend upon geomorphic processes operating across large landscape areas for their maintenance.

The geomorphological processes that shaped/developed the terrain features in the Santa Maria Valley Dune Complex are intact and continue to rejuvenate and maintain the dynamic dune and riparian features and processes of the constantly shifting mosaic of terrain, vegetation, and wetlands (PCE 4). The vegetation in the dunes includes central dune scrub, coastal dune, coastal scrub, coastal freshwater marsh and fen, riparian scrub, chaparral, and oak woodland (PCE 2) (Cooper 1967, pp. 75-90; Holland 1986, pp. 1-156; Hunt 1993, pp. 5-72; CNDDB 2007, unpaginated; CNPS 2008, unpaginated). The soils throughout the dunes are dominated by sand (PCE 3). The dunes support a wide diversity of flora and fauna including numerous insects, many of which are pollinators for *Cirsium loncholepis*, and hummingbirds (Martin *et al.* 1951, pp. 92-277; Krombein *et al.* 1979, Vol. 2 pp. 1751-2209; Blecha *et al.* 2007, pp. 1-354; Keil 2008, unpaginated). The dunes also support numerous small mammal and bird species (Blecha *et al.* 2007, pp. 1-354) that act as dispersal vectors for *C. loncholepis* seed (PCE 4). This unit contains large tracts of undeveloped land including dunes, wetlands, and upland areas occupied by the species and its pollinators (PCEs 1, 2, 3, and 4). The dynamic geomorphological processes, mosaic of habitats, and diversity of flora and fauna provide for and enhance the dispersal of genetic material of *C. loncholepis* between and among the various populations (and occurrences) within this dune complex and provide adjacent uplands for pollinators (PCEs 1, 3, and 4).

The prevailing, strong wind patterns blow southeast across the lower Santa Maria River Valley, up Orcutt Creek, past the town of Orcutt, and beyond Graciosa Ridge to Cañada de las Flores. These winds are an essential dispersal vector that help move plants/seeds from the *Cirsium loncholepis* populations in the Callender and Guadalupe Dunes to

populations in the Santa Maria River, Orcutt Creek, and Cañada de las Flores and are essential in maintaining connectivity between populations in the Santa Maria River Valley and those in the San Antonio Creek and Santa Ynez River Valleys.

The essential features found in Unit 1 may require special management considerations or protection resulting from: (1) direct and indirect effects from energy-related operations (i.e., maintenance activities, hazardous waste cleanup, facility accidents); (2) ground water extraction which lowers the water table, dries the wetlands, and can destroy surface and subsurface hydrologies; (3) stochastic (i.e., random) extirpation/extinction events that occur because the population size is small or isolated; (4) trampling and grazing from trespass of cattle; (5) competition from invasive, aggressive, nonnative weeds (e.g., *Ammophila arenaria* , *Carpobrotus* spp., *Ehrharta calycina, Mesembryanthemum crystallinum*); (6) direct and indirect effects from OHV activity (i.e., habitat disturbance, hazardous materials spills); (7) habitat fragmentation; and (8) nutrient inputs in the water systems that are above concentrations known to adversely affect freshwater ecosystems and cause adverse ecological effects including altering the composition of the plant community and inducing biostimulation (Smith 1976, p. 282, 1998, pp. 153-154; Davis *et al.* 1988, pp. 169-195; Zedler and Schied 1988, pp. 196-201; Morey 1989, pp. 1-16; Hendrickson 1990, pp. 1-25; CDFG 1992 pp. 111-112; Odion *et al.* 1992, pp. 1-2; Chesnut 1998a, unpaginated, 1998b, pp. 1-40; CNDDB 1998, unpaginated, 2008, unpaginated; Dodds *et al.* 1998, pp. 1455-1462; Central Coastal Ambient Monitoring Program 2002, pp. 1-60; California State Water Resources Control Board 2006, pp. 1-71; Elvin 2006, unpaginated; Keil 2006, unpaginated; Damschen 2008, unpaginated; Hunt 2008 5 pp.; Murphy 2009, unpaginated).

Unit 2: Santa Maria River-Orcutt Creek (13,227 ac (5,353 ha))

Unit 2 is located along the lower 5 mi (8 km) of the Santa Maria River and along the length of Orcutt Creek (approximately 13 mi (21 km)) in San Luis Obispo and Santa Barbara Counties, California. Unit 2 was occupied at the time of listing, is currently occupied, and contains the physical and biological features essential to the conservation of the species (65 FR 14888, March 20, 2000; CNDDB 2007, unpaginated). Unit 2 is essential because it contains the last *Cirsium loncholepis* population in riparian habitat. Unit 2 also contains what has historically been recognized as the largest *C. loncholepis* population with an estimated 54,000 individuals being reported in 1990 (Hendrickson 1990, pp. 1-25; CNDDB 2007, unpaginated). However, only about 25 plants were observed in the lower 0.9 mi (1.5 km) stretch of the Santa Maria River when visited in November 2006 (Elvin 2006, unpaginated). This unit contains large blocks of intact riparian habitat along the Santa Maria River and the southwest side of Orcutt Creek. Unit 2 is also essential as a dispersal corridor between the Santa Maria Valley and the Santa Ynez Valley.

Unit 2 is comprised of 252 ac (102 ha) of State land; 542 ac (219 ha) of County and other local jurisdiction land; and 12,432 ac (5,031 ha) of private lands. Unit 2 includes Rancho Guadalupe Dunes Park in Santa Barbara County. Unit 2 is located within the broad Santa Maria Valley, in the floodplains of the lower Santa Maria River and Orcutt Creek. Unit 2 is also within the Santa Maria Valley Dune Complex (Hunt 1993, pp. 5-72). It skirts the edges of the Guadalupe Dune Sheet to the north of the Santa Maria River, the Mussel Rock Dune Sheet to the southeast of Orcutt Creek and the Santa Maria River, and the Orcutt Terrace Dune Sheet to the northeast of the upper reaches of Orcutt Creek (Hunt 1993, pp. 5-72). These drainages and the adjacent dune sheets contain numerous mesic areas on the margins and floodplains of the river and creek and freshwater seeps and in grasslands, coastal scrub, and chaparral in the adjacent dune sheets (PCEs 1, 2, 3 and 4).

The geomorphological processes (fluvial and aeolian) that shaped and developed the terrain features in the Santa Maria Valley Dune Complex are intact and continue to affect the dynamic dune and riparian features and processes and their associated habitats in this unit (PCEs 1, 2, 3, and 4). The more interior portions of this unit are primarily within the lower portion of the Santa Maria River Valley where conversion to agricultural production to the edges of the river and the northeastern edge of the creek has occurred. The lower 5 mi (8 km) of the Santa Maria River remain intact with riparian scrub vegetation, sandy alluvial soils (PCEs 2 and 3), and dynamic fluvial geomorphological processes, which allow it to operate as a dynamic riparian system with uninterrupted water flows (PCEs 1 and 4). Pockets of numerous small marshes, wetlands, and drainages are still interspersed within the agricultural fields along Orcutt Creek, and the dynamic processes that rejuvenate and maintain the ever-changing mosaic of coastal scrub and riparian habitats are still largely intact (PCEs 1, 2, and 3). Additionally, areas to the southwest of Orcutt Creek contain large blocks of intact habitat (PCEs 1, 2, and 3) including suitable upland habitat areas between the intermittent streams and freshwater seeps (PCE 1) that provide habitat for pollinators and other dispersal vectors (PCE 4) such as birds and small mammals that move *Cirsium* seed. The vegetation in this unit includes central dune scrub, coastal dune, coastal scrub, freshwater seep, coastal and valley freshwater marsh and fen, riparian scrub (e.g., mule fat scrub, willow scrub), chaparral, oak woodland, and intermittent streams (PCE 2) (Holland 1986, pp. 1-156; Elvin 2006, unpaginated; CNDDB 2007, unpaginated; CNPS 2008, unpaginated). The soils in this unit are predominantly sandy (U.S. Department of Agriculture, Natural Resources Conservation Service (USDA NRCS) 2000, unpaginated, 2005, unpaginated) (PCE 3).

Unit 2 is dominated by the prevailing, moderate to strong winds from the northwest that blow southeast along the length of Orcutt Creek, which would then function as a dispersal corridor for *Cirsium loncholepis* seed from the dunes to Cañada de las Flores. These winds help move seeds from the populations in the Callender and Guadalupe Dunes to pocket wetlands along Orcutt Creek, to seeps and intermittent drainages southwest of the creek (along the Mussel Rock Dune Sheet), and eventually to the *C. loncholepis* population at Cañada de las Flores (PCEs 1 and 4). Orcutt Creek also acts as a dispersal vector by carrying seed from upstream plants down to the Santa Maria River population (PCE 1 and 4). These intermittent wetland sites or ''pocket wetlands'' and the intervening habitat areas are essential to maintain connectivity between more distant populations (Higgins and Richardson 1999, pp. 464-475; Trakhtenbrot *et al.* 2005, pp. 173-181), particularly between those in the Santa Maria Valley and those in the San Antonio Creek and Santa Ynez Valleys. These pocket wetlands also act as important core areas for *C. loncholepis*.

The essential features found in Unit 2 may require special management considerations for or protection from: (1) nutrient inputs in the water systems that are above concentrations known to adversely affect freshwater ecosystems and cause adverse ecological effects including altering the composition of the plant community and inducing biostimulation; (2) ground water extraction, which lowers the water

table, dries the wetlands, and can destroy surface and subsurface hydrologies; (3) stochastic (i.e., random) extirpation/extinction events that occur because the population size of some occurrences is small or isolated; (4) trampling and grazing from cattle; (5) competition from invasive, aggressive, nonnative weeds (e.g., *Ammophila arenaria, Carpobrotus* spp., *Ehrharta calycina, Mesembryanthemum crystallinum*); (6) County zoning permits development within the floodplain with minimal setbacks from creeks; (7) non-point source pollution runoff from agricultural (i.e., herbicide, fertilizer) and urban areas; (8) habitat fragmentation; and (9) flood control measures (Smith 1976, p. 282, 1998, pp. 153-154; Davis *et al.* 1988, pp. 169-195; Zedler and Schied 1988, pp. 196-201; Morey 1989, pp. 1-16; Hendrickson 1990, pp. 1-25; CDFG 1992, pp. 111-112; Odion *et al.* 1992, pp. 1-2; Chesnut1998a, unpaginated, 1998b, pp. 1-40; CNDDB 1998, unpaginated, 2007, unpaginated; Dodds *et al.* 1998, pp. 1455-1462; Central Coastal Ambient Monitoring Program 2002, pp. 1-60; California State Water Resources Control Board 2006, pp. 1-71; Elvin 2006, unpaginated; Keil 2006, unpaginated; Damschen 2008, unpaginated; Hunt 2008 5 pp.; Swenk 2008, 4 pp.; Wilken 2009b, unpaginated).

Unit 3: Cañada de las Flores (740 ac (299 ha))

Unit 3 is located approximately 5 mi (8 km) northwest of the town of Los Alamos and southwest of the Solomon Hills in Santa Barbara County, California. Unit 3 was considered to be occupied at the time of the listing and at the time critical habitat was designated for this species in 2004. *Cirsium loncholepis* may still be extant at Cañada de las Flores; however, it was last documented at this site in 1987 (Thornton 2008, unpaginated) and last reported in 1989 (Hendrickson 1990, pp. 1-25). Some habitat conditions at the site have declined due to grazing intensity, but the basic suitable habitat conditions are still present (e.g., freshwater seeps and native vegetation) (Elvin 2007a, unpaginated). The best available scientific and commercial data indicate that this site was last documented as occupied in 1987 and reported in 1989. Therefore, based on the continued lack of observation of *C. loncholepis* since 1989 (Hendrickson 1990, pp. 1-25; 65 FR 14888, March 20, 2000; CNDDB 2007, unpaginated; Elvin 2007b, unpaginated; CCH 2008, unpaginated; Thornton 2008, unpaginated; Kisner 2009, unpaginated), we consider Cañada de las Flores to be unoccupied for the purposes of this rule. The population in Unit 3 represented the eastern-most and farthest-inland location at which *Cirsium loncholepis* has been documented. Additionally, Unit 3 occurs at a pivotal location for the species as a whole; it is down-wind from populations in the Santa Maria Valley and areas on San Antonio Terrace and along San Antonio Creek (Hunt 2008, 5 pp.) and upstream from populations in the San Antonio Valley (e.g., the mouth of San Antonio Creek (one of the potential type locality sites for *C. loncholepis*) and San Antonio Terrace Dunes). Therefore, the Cañada de las Flores location is essential to maintain connectivity between populations in the Santa Maria Valley and populations in the San Antonio Creek and Santa Ynez Valleys (PCE 4) and contains habitat for a core population area. Thus it is essential for the conservation of the species.

Unit 3 is comprised of 740 ac (299 ha) of private land at the head of Cañada de las Flores in Santa Barbara County, California. Unit 3 contains mesic areas at the edge of freshwater seep, marsh, meadow, grassland, chaparral, and oak woodland habitats (PCEs 1 and 2). We consider the two *Cirsium loncholepis* occurrences that have been recorded (and may still occur) here to be part of one population that has expanded at times to represent one large polygon of plants (CNDDB 2007, unpaginated; Elvin 2007a, unpaginated). Cañada de las Flores has slightly different environmental conditions than the coastal areas; specifically, it is at a higher elevation (200 ft (61 m)) and has a warmer climate. Preserving any genetic variability within the species that has allowed it to adapt to these slightly different environmental conditions would be important for the long-term survival and conservation of the species. Cañada de las Flores is mapped as Camarillo sandy loam with sand visible on the surface throughout the floor and lower portions of the surrounding hills/ridges in the canyon (PCE 3) (U.S. Soil Conservation Service 1972, unpaginated; Hendrickson 1990, pp. 1-25; CNDDB 2007, unpaginated; Elvin 2007a, unpaginated). It is thus essential for the conservation of the species.

Unit 4: San Antonio Creek (185 ac (75 ha))

Unit 4 is located in the northwestern portion of Santa Barbara County, California. The majority of Unit 4 lands occur on VAFB. Most of the mission-critical projects and activities on VAFB are confined to areas outside of wetlands in general, and San Antonio Creek in particular. The few known land uses in and immediately adjacent to San Antonio Creek consist of agriculture leases and transportation and communications crossings (SRS Technologies 2007, pp. 1-35). There are many sensitive resources along San Antonio Creek including jurisdictional wetlands, cultural resources, and sensitive species (SRS Technologies 2003, pp. 1-1 to- 9-14; SRS Technologies 2007, pp. 1-35). Management activities for these resources may also benefit *Cirsium loncholepis*. Unit 4 was not considered to be occupied at the time of listing, and is currently considered to be unoccupied, although it is within the historical distribution of the species. We determined that all lands in Unit 4 (4,335 ac (1,754 ha)), which stretch along the lower 11 mi (17 km) of San Antonio Creek, are essential to the conservation of *C. loncholepis*. The mouth of San Antonio Creek is within the area that is the most likely location for the type locality for *Cirsium loncholepis* (Eastwood 1906, unpaginated; Smith 1976, p. 282, 1998, pp. 153-154; Hendrickson 1990, pp. 1-25; Oyler *et al.* 1995, pp. 1-76; California Academy of Sciences Herbarium 2007, unpaginated). We are excluding 4,151 ac (1,680 ha) of lands on VAFB owned by the DOD from this revised designation due to potential impacts to national security and are designating two subunits, one at the lower end of San Antonio Creek near the mouth (Subunit 4A – La Graciosa) and one upstream near Barka Slough (Subunit 4B – Barka Slough). Please see the section below entitled Relationship of Critical Habitat to Lands Managed by the Department of Defense (DOD) for an in-depth discussion of this exclusion.

Unit 4 is comprised of two subunits totaling 185 ac (75 ha) of private lands. Subunit 4A (La Graciosa) is near the mouth of the creek and consists of 3 ac (1 ha) of private property that spans San Antonio Creek. The lands in Subunit 4A consist of the creek, riparian areas on both banks, the flood plain on both sides of the creek, and riparian, mesic, and upland scrub habitats that stretch up the adjacent slopes to the mesas. Subunit 4B (Barka Slough) is approximately 11 mi (18 km) from the Pacific Ocean and consists of 182 ac (74 ha) of private property on the east side of Barka Slough. The lands in Subunit 4B consist of marshy areas on both sides of the creek with riparian, mesic, and upland scrub habitats to the adjacent slopes. Unit 4 is located within the Santa Ynez Valley Dune Complex, and

San Antonio Creek is one of the two major drainages in it (Hunt 1993, pp. 5-72). San Antonio Creek is the geological feature that separates the San Antonio Dune Sheet and the Burton Mesa Dune Sheet. This drainage and the adjacent dune sheets contain numerous mesic areas on the margins of the creek and its floodplain; in freshwater marshes (e.g., Barka Slough); and in freshwater seeps in adjacent grasslands, coastal scrub, chaparral, and the adjacent dune sheets that allow for dispersal (PCEs 1, 3, and 4) (Cooper 1967, pp. 75-90; Dial 1980, pp. 1-100; Hunt 1993, pp. 5-72; CNDDB 2007, unpaginated).

The geomorphological processes (fluvial and aeolian) that shaped and developed the terrain features in the San Antonio Valley are intact and continue to affect the dynamic riparian and adjacent dune features and processes in this unit (PCEs 1 and 4). The lower 10 mi (16 km) of San Antonio Creek remain intact with riparian scrub, woodland, and forest vegetations (PCE 2); sandy alluvial soils (PCE 3); and dynamic fluvial geomorphological processes, which allow it to operate as a dynamic riparian system with uninterrupted flows of water (PCEs 1 and 4). Numerous small marshes, wetlands, and intermittent tributary drainages still occur naturally along this stretch of San Antonio Creek and the dynamic processes that rejuvenate and maintain the riparian habitats are still largely intact here (PCEs 1 and 4) (Dial 1980, pp. 1-100; Keil 1997, pp. 1-12; SRS Technologies 2003, pp. 1-1 to 9-14; SRS Technologies 2007 pp. 1-35; Google Earth 2008, unpaginated). Additionally, areas adjacent to the creek on both sides still contain large blocks of intact habitat (PCEs 1, 2 and 4) and include suitable upland habitat areas between the intermittent streams and freshwater seeps (PCEs 1 and 2) that provide habitat for pollinators and other dispersal vectors (PCE 4) such as birds and small mammals that move *Cirsium* seed (SRS Technologies 2007, pp. 1-35). The vegetation in this unit includes central dune scrub, coastal dune, coastal scrub, freshwater seep, coastal and valley freshwater marsh and fen, riparian scrub (e.g., mule fat scrub, willow scrub), chaparral, oak woodland, and intermittent streams (PCE 2) (Holland 1986, pp. 1-156; Keil 1997, pp. 1-12; CNDDB 2007, unpaginated; SRS Technologies 2007, pp. 1-35; Elvin 2007c, unpaginated; CNPS 2008, unpaginated). The soils in this unit are predominantly sandy (SRS Technologies 2003, pp. 1-1 to 9-14; USDA NRCS 2005, unpaginated) (PCE 3).

This unit is dominated by the prevailing, moderate to strong winds from the northwest that blow southeast across the San Antonio Dune Sheet and up San Antonio Creek (NOAA 2007, unpaginated; USDA NRCS 2008, unpaginated). These winds constitute an essential dispersal vector that helps disperse seeds from the San Antonio Dunes and the estuary at the mouth of San Antonio Creek to suitable habitat sites upstream along San Antonio Creek (PCE 4). The uninterrupted flow of water from the headwaters of San Antonio Creek and its tributaries down to its mouth is essential to facilitate the dispersal of *Cirsium loncholepis* seeds from and maintain connectivity between upstream populations such as Cañada de las Flores to other suitable mesic habitat sites downstream along San Antonio Creek and to mesic areas in the adjacent dune sheets (PCE 4).

While this unit was not occupied at the time of listing, Unit 4 is essential to the conservation of the species because it contains lands along San Antonio Creek that can function both as a core area and dispersal corridor for *Cirsium loncholepis*. Unit 4 is essential as a core area for *C. loncholepis* and would decrease fragmentation for the species. It contains many intermittent wetlands along the length of the creek and in the estuary at the mouth of the San Antonio Creek and is capable of supporting populations for long periods of time. These intermittent wetland sites (PCE 1) and the intervening habitat areas are also essential to maintain connectivity between more distant *C. loncholepis* populations (Higgins and Richardson 1999, pp. 464-475; Trakhtenbrot *et al.* 2005, pp. 173-181), such as those in the upper watershed of San Antonio Creek and those in the lower reaches of the creek and the adjacent San Antonio Terrace Dunes. Unit 4 is more easily managed for the species than many other areas in the historical distribution of the species because there are fewer pressures for commercial or agricultural development.

Unit 5: San Antonio Terrace (52 ac (21 ha))

Unit 5 is located in western Santa Barbara County, California. We determined that all lands in Unit 5 (7,334 ac (2,968 ha)) on San Antonio Terrace are essential to the conservation of *Cirsium loncholepis*. Unit 5 stretches along 4 mi (6.5 km) of the coast north from San Antonio Creek. This unit is southwest of the town of Casmalia. Unit 5 was not considered to be occupied at the time of listing and is currently considered to be unoccupied; it is within the historical distribution of the species. *Cirsium loncholepis* has been reported from wetlands in the San Antonio Terrace Dunes, but has not been officially documented with a herbarium specimen (CNDDB 2007, unpaginated; CCH 2008, unpaginated). We are excluding 7,282 ac (2,947 ha) of lands on VAFB owned by the DOD from this revised designation due to potential impacts to national security. Please see the section below entitled Relationship of Critical Habitat to Lands Managed by the Department of Defense (DOD) for an in-depth discussion of this exclusion.

Unit 5 is comprised of 52 ac (21 ha) of private lands that cut through VAFB. Unit 5 is located within the Santa Ynez Valley Dune Complex (Hunt 1993, pp. 5-72). The San Antonio Terrace Dune Sheet is the primary physiographic feature in Unit 5. San Antonio Creek is one of the two major drainages in the Santa Ynez Valley Dune Complex (Hunt 1993, pp. 5-72). This dune complex contains numerous mesic areas on the margins of dune swales, dune lakes, and marshes within the dynamic (changing) San Antonio Terrace Dune Sheet (PCEs 1 and 3). Unit 5 is dominated by strong winds from the northwest throughout the majority of the year that are a major factor in creating the dunes and shaping the terrain, such as the parallel ridges and the swales and other dune wetlands that are so important for *Cirsium loncholepis* (PCE 4) (Hendrickson 1990, pp. 1-25; NOAA 2007, unpaginated; USDA NRCS 2008, unpaginated).

The geomorphological processes that shaped and developed the terrain features in the Santa Ynez Valley Dune Complex are intact and continue to rejuvenate and maintain the dynamic dune and riparian features and processes of the constantly shifting mosaic of terrain, vegetation, and wetlands (PCEs 1, 2, 3, and 4). The vegetation in the dunes includes central dune scrub, coastal dune, coastal strand, coastal scrub, coastal freshwater marsh and fen, riparian scrub, chaparral, and oak woodland (PCE 2) (Cooper 1967, pp. 75-90; Holland 1986, pp. 1-156; SRS Technologies 2003, pp. 1-1 to 9-14; CNDDB 2007, unpaginated; SRS Technologies 2007, pp. 1-35; CNPS 2008, unpaginated). The soils throughout these dunes are dominated by sand (PCE 3) (Cooper 1967, pp. 75-90; Hunt 1993, pp. 5-72; USDA NRCS 2005, unpaginated). Dunes in the vicinity of VAFB support a wide diversity of flora and fauna including numerous insects and hummingbirds, many of which are pollinators for *Cirsium loncholepis* (Martin *et al.* 1951, pp. 92-277; Krombein *et al.* 1979, Vol. 2 pp. 1751-2209; SRS Technologies 2003, pp. 1-1 to 9-14; Blecha *et al.* 2007,

pp. 1-354; Keil 2008, unpaginated). The dunes also support numerous small mammal and bird species (SRS Technologies 2003, pp. 1-1 to 9-14; Blecha *et al.* 2007, pp. 1-354) that act as dispersal vectors for *C. loncholepis* seed (PCE 4). This unit contains large tracts of undeveloped land including dunes, wetlands, and upland areas utilized by the species and its pollinators (PCEs 1, 2, 3, and 4). The dynamic geomorphological processes, mosaic of habitats, and diversity of flora and fauna provide for and enhance the dispersal of genetic material of *Cirsium loncholepis* between and among the various wetlands within this dune complex and provide adjacent uplands for pollinators (PCEs 1, 2, 3, and 4).

The prevailing, strong wind patterns from the northwest, greater than 7.47 mph (12.02 kph) most of the time throughout the year, blow southeast across the San Antonio Terrace Dunes to areas up San Antonio Creek, across the Burton Mesa Dune Sheet, and along the Santa Ynez River. These winds are an essential dispersal vector that would help disperse *Cirsium loncholepis* seeds from the San Antonio Dunes to suitable habitat sites upstream along San Antonio Creek, in the Burton Mesa Dunes, and along the Santa Ynez River (PCE 4). The uninterrupted flow of these winds is essential to facilitate this dispersal and to maintain connectivity between *C. loncholepis* populations that might occur in these areas (PCEs 1 and 3) (SRS Technologies 2003, pp. 1-1 to 9-14; USDA NRCS 2008, unpaginated; NOAA 2007, unpaginated).

While this unit was not occupied at the time of listing, Unit 5 is essential as a core area for *C. loncholepis* in that the many mesic areas and intermittent wetlands within the dune system are capable of supporting *C. loncholepis* populations for long periods of time. The San Antonio Terrace Dune Sheet supports numerous dune wetlands and swales and is very similar in habitat, physical, and geological features to the Callender and Guadalupe Dune Sheets (Cooper 1967, pp. 75-90; Hunt 1993, pp. 5-72; Google Earth 2008, unpaginated). These wetland sites and the intervening upland habitat areas are essential to maintain connectivity within this dune system and between more distant *C. loncholepis* populations (Higgins and Richardson 1999, pp. 464-475; Trakhtenbrot *et al.* 2005, pp. 173-181), such as along San Antonio Creek and those in and along the Santa Ynez River or those between the Santa Maria Valley (specifically in the Santa Maria Valley Dune Complex and the Santa Maria River drainage system) and those downwind in the Santa Ynez Valley. Unit 5 is more easily managed for the species than many other areas in the historical distribution of the species because there are fewer pressures for commercial or agricultural development.

Unit 6: Santa Ynez River (210 ac (85 ha))

Unit 6 is located in the western portion of Santa Barbara County, California. We determined that all lands in Unit 6 (2,482 ac (1,005 ha)), which stretch along the lower 4 mi (6 km) of the Santa Ynez River, are essential to the conservation of *Cirsium loncholepis*. Unit 6 is west of Lompoc and east of Surf. Unit 6 was not considered to be occupied at the time of listing, and is currently considered to be unoccupied. Unit 6 is within the historical distribution of the species. We are excluding 2,272 ac (919 ha) of lands on VAFB owned by the DOD from this revised designation due to potential impacts to national security and are designating three subunits in the unit, two at the mouth of the Santa Ynez River and one upriver, closer to Lompoc. Please see the section below entitled Relationship of Critical Habitat to Lands Managed by the Department of Defense (DOD) for an in-depth discussion of this exclusion.

Unit 6 is comprised of three subunits totaling approximately 210 ac (85 ha) of Federal, County, and private property (acreages do not add up due to rounding). Subunit 6A (Ocean Park) is near the mouth of the river and consists of approximately 35 ac (14 ha) of County lands at Ocean Park and approximately 12 ac (6 ha) of private lands along the railroad tracks. The lands in Subunit 6A consist of the river and estuary, marsh and riparian areas on both banks of the Santa Ynez River, the flood plain on both sides with marsh, riparian, mesic, and upland scrub habitats. Subunit 6B (Surf) consists of approximately 32 ac (13 ha) of private lands along the railroad tracks that run parallel with Highway 246. The lands in Subunit 6B consist of marshy areas on the south side of the Santa Ynez River with marsh, riparian, mesic, and upland scrub habitats to the adjacent slopes. Subunit 6C (Lompoc) is approximately 4 mi (6 km) from the Pacific Ocean and consists of approximately 132 ac (53 ha) of Federal (non-DOD) lands adjacent to VAFB. The lands in Subunit 6C consist of mesic areas in the floodplain on the south side of the Santa Ynez River with marsh, riparian, mesic, and upland scrub habitats, some of which are periodically used for agriculture. The Santa Ynez River is one of the two major drainages in the Santa Ynez Valley Dune Complex (Hunt 1993, pp. 5-72). The Santa Ynez River is the geological feature that separates the Burton Mesa Dune Sheet and the Lompoc Terrace Dune Sheet. This drainage and the adjacent uplands contain numerous mesic areas on the margins of the river and its floodplain; in freshwater marshes; in intermittent streams that are tributaries; and in freshwater seeps in adjacent grasslands, coastal scrub, and chaparral (PCEs 1, 2, and 3) (CNDDB 2007, unpaginated; Elvin 2008, unpaginated; Google Earth 2008, unpaginated). The Santa Ynez River is a dynamic riparian system similar to the Santa Maria River with historical records of high flows and floods that can change the banks of the river creating new, unvegetated areas such as those that occur along the Santa Maria River after high flows.

The geomorphological processes (fluvial and aeolian) that shaped and developed the terrain features in the Santa Ynez Valley are intact and continue to affect the dynamic dune and riparian features and processes and their associated habitats in this unit (PCEs 1 and 4). The lower 4 mi (6 km) of the Santa Ynez River remain mostly intact with some adjacent agriculture; adjacent riparian scrub vegetation and sandy alluvial soils (PCE 2); and dynamic fluvial geomorphological processes, which allow it to operate as a dynamic riparian system with uninterrupted water flows (PCEs 1 and 4). Additionally, areas to the north and south of the river contain large blocks of intact habitat (PCEs 1 and 4), including suitable upland habitat areas between the intermittent streams and freshwater seeps (PCE 1) that provide habitat for pollinators and other dispersal vectors (PCE 4), such as birds and small mammals that move *Cirsium* seed. The vegetation in this unit includes central dune scrub, coastal dune, coastal scrub, freshwater seep, coastal and valley freshwater marsh and fen, riparian scrub (e.g., mule fat scrub, willow scrub), chaparral, and intermittent streams (PCEs 1 and 2) (Cooper 1967, pp. 75-90; Holland 1986, pp. 1-156; Hunt 1993, pp. 5-72; SRS Technologies 2003, pp. 1-1 to 9-14; CNDDB 2007, unpaginated; Elvin 2007c, unpaginated; SRS Technologies 2007, pp. 1-35; CNPS 2008, unpaginated; Elvin 2008, unpaginated). The soils in this unit are predominantly sandy (SRS Technologies 2003, pp. 1-1 to 9-14; SRS Technologies 2007, pp. 1-35; Elvin 2007c, unpaginated; Elvin 2008, unpaginated; USDA NRCS 2008, unpaginated) (PCE 3).

In Unit 6, as in Units 4 and 5, the prevailing, strong wind patterns from the northwest, greater than 7.47 mph

(12.02 kph) most of the time throughout the year, blow southeast across the San Antonio Terrace Dunes to areas up San Antonio Creek, across the Burton Mesa Dune Sheet, and along the Santa Ynez River. These winds are an essential dispersal vector that would help disperse *Cirsium loncholepis* seeds from the San Antonio Dunes to suitable habitat sites upstream along San Antonio Creek, in the Burton Mesa Dunes, and along the Santa Ynez River (PCE 4). The uninterrupted flow of these winds is essential to facilitate this dispersal and to maintain connectivity between *C. loncholepis* populations that might occur in these areas (PCEs 1 and 4) (SRS Technologies 2003, pp. 1-1 to 9-14; NOAA 2007, unpaginated; USDA NRCS 2008, unpaginated). These strong winds also blow from the lower portion of the Santa Ynez River along the north base of the Santa Ynez Mountains, more or less upstream along the Santa Ynez River and to the numerous seeps along the north base of the Santa Ynez Mountains. These winds are an essential dispersal vector that would help move any *Cirsium loncholepis* seeds from San Antonio Terrace Dunes to the Santa Ynez River (and its ancillary, adjacent wetlands) and from the lower reaches of the Santa Ynez River to the pocket wetlands along the river and upstream. These uninterrupted winds are essential to maintain connectivity between population areas in the Santa Ynez Valley (PCEs 1 and 4) (SRS Technologies 2003, pp. 1-1 to 9-14; NOAA 2007, unpaginated; USDA NRCS 2008, unpaginated). The Santa Ynez River also acts as a dispersal vector by carrying seed from upstream plants down to the mouth (PCE 1 and 4). The uninterrupted flow of water from up-river along the Santa Ynez River to the wetlands at its mouth is essential to maintain the connectivity between occurrences in Unit 5 (PCE 4). The lower reaches of the Santa Ynez River contain numerous pocket wetlands, intermittent streams/tributaries, marshes, and estuaries. Several hillside seeps also occur in this stretch of the river (PCE 1).

While this unit was not occupied at the time of listing, Unit 6 is essential to the conservation of the species as a potential core area for *C. loncholepis* in that the many intermittent wetlands and freshwater seeps within the dynamic river system are capable of supporting *C. loncholepis* populations for long periods of time. The wetlands and the intervening upland habitat areas in Unit 6 are essential to maintain connectivity within and throughout this riparian system as a core area for *C. loncholepis*. Unit 6 is more easily managed for the species than many other areas in the historical distribution of the species because a large part of this unit has fewer pressures for commercial or agricultural development.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out are not likely to jeopardize the continued existence of a listed species or destroy or adversely modify designated critical habitat. Decisions by the Fifth and Ninth Circuit Courts of Appeals have invalidated our definition of ''destruction or adverse modification'' (50 CFR 402.02) (see Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service, 378 F. 3d 1059 (9th Cir 2004) and Sierra Club v. U.S. Fish and Wildlife Service *et al.*, 245 F.3d 434, 442F (5th Cir 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, destruction or adverse modification is determined on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional to serve its intended conservation role for the species.

Under section 7(a)(2) of the Act, 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. As a result of this consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat;

or

(2) A biological opinion for Federal actions that are likely to adversely affect listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat, we also provide reasonable and prudent alternatives to the project, if any are identifiable. We define ''reasonable and prudent alternatives'' at 50 CFR 402.02 as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action,

(2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction,

(3) Are economically and technologically feasible, and

(4) Would, in the Director's opinion, avoid jeopardizing the continued existence of the listed species or destroying or adversely modifying 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 a new species is listed or critical habitat is subsequently designated that may be affected and the Federal agency has retained discretionary involvement or control over the action or such discretionary involvement or control is authorized by law. Consequently, Federal agencies may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions may affect subsequently listed species or designated critical habitat.

Federal activities that may affect *Cirsium loncholepis* or its designated critical habitat will require consultation under section 7(a)(2) of the Act. Activities on State, Tribal, local or private lands requiring a Federal permit such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10(a)(1)(B) of the Act) or involving some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency) are examples of agency actions that may be subject to the section 7(a)(2) consultation process. Federal actions not affecting listed species or critical habitat, and actions on State, Tribal, local or private lands that are not federally funded, authorized, or permitted, do not require section 7(a)(2) consultations.

Application of the ''Adverse Modification'' Standard

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional to serve its intended conservation role for the species. Activities that may destroy

or adversely modify critical habitat are those that alter the physical and biological features to an extent that appreciably reduces the conservation value of critical habitat for *Cirsium loncholepis*. Generally, the conservation role of *Cirsium loncholepis* critical habitat units is to support suitable habitat that allows for natural processes that can maintain or support occurrences of the species in viable occurrences (or subpopulations), core populations, and corridors, which support temporal populations that maintain connectivity between core area populations.

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

Activities that, when carried out, funded, or authorized by a Federal agency, may affect critical habitat and therefore should result in consultation for *Cirsium loncholepis* include, but are not limited to (please see ''Special Management Considerations or Protection'' section for a more detailed discussion on the impacts of these actions to the listed species):

(1) Actions that would degrade or destroy native maritime chaparral, dune, and oak woodland communities, including but not limited to, livestock grazing, clearing, discing, introducing or encouraging the spread of nonnative plants, and heavy recreational use;

(2) Actions that would appreciably diminish habitat value or quality through indirect effects (e.g., edge effects, invasion of nonnative plants or animals, or fragmentation), such as livestock grazing; clearing vegetation; discing; introducing or encouraging the spread of non-native plants; heavy recreational use; fragmentation of habitat blocks; the creation of barriers or dams; channelizing rivers, creeks, or drainages; or the introduction or creation of barriers or wind-blocks such as large manmade structures, developments, tree rows, or windbreaks.

(3) Actions that would appreciably interrupt or alter water flows in the Santa Maria River, Orcutt Creek, San Antonio Creek, or Santa Ynez River (such as channelization or confinement of the water flows by barriers or dams or converting them from soft bottoms and sides to a lined, channelized drainage).

(4) Actions that would appreciably interrupt or alter winds across the Santa Maria Valley and Santa Ynez Dune Complexes and along the Santa Maria River, Orcutt Creek, San Antonio Creek, and Santa Ynez River watershed areas such that the natural aeolian geomorphology in the Santa Maria Dune Complex and Santa Ynez Dune Complex, and along the Santa Maria River, Orcutt Creek, San Antonio Creek, and Santa Ynez River drainages, would be blocked or altered by barriers or wind-blocks such as large manmade structures, developments, tree rows, or windbreaks.

These activities could result in reduction or degradation of habitat necessary for the growth and reproduction of this plant and its habitat, including reduction or preclusion of necessary movement of seeds within and between occurrences and core populations or between core habitat areas, and directly or cumulatively causing adverse affects to *Cirsium loncholepis* and its life cycle.

Exemptions

Application of Section 4(a)(3) of the Act

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resource management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

- An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;
- A statement of goals and priorities;
- A detailed description of management actions to be implemented to provide for these ecological needs; and
- A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108-136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: ''The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.''

DOD Lands at VAFB are not discussed in this section because VAFB does not have a completed and signed INRMP. There are no DOD lands with a completed INRMP within this final revised critical habitat designation. Therefore, there are no lands exempted from this revised designation under section 4(a)(3) of the Act. Please see the section entitled Relationship of Critical Habitat to Lands Managed by the Department of Defense (DOD) below for further discussion of exclusion of lands at VAFB.

Exclusions under Section 4(b)(2) of the Act

Application of Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that the Secretary must designate and revise critical habitat on the basis of the best available scientific and commercial data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, 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. In making that determination, the legislative history is clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

In the following sections, we address a number of general issues that are relevant to our analysis under section 4(b)(2) of the Act.

Under section 4(b)(2) of the Act, we must consider the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. We consider a number of factors in a section 4(b)(2) analysis. For example, we consider whether there are lands owned or managed by the Department of Defense (DOD) where a national security impact might exist. We also consider whether the landowners have developed any conservation plans for the area, or

whether there are conservation partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at any Tribal issues, and consider the government-to-government relationship of the United States with tribal entities. We also consider the economic impacts, environmental impacts, and any social impacts that might occur because of the designation.

In considering the benefits of including in a designation, lands that are covered by a proposed or current HCP or other management plan, we evaluate a number of factors to help us determine if the plan provides equivalent or greater conservation benefit than would likely result from consultation on a designation:

(1) Whether the plan is complete and provides protection from destruction or adverse modification;

(2) Whether there is a reasonable expectation the conservation management strategies and actions will be implemented for the foreseeable future, based on past practices, written guidance, or regulations; and

(3) Whether the plan provides conservation strategies and measures consistent with currently accepted principles of conservation biology.

We balance the benefits of inclusion against the benefits of exclusion by considering the benefits of preserving partnerships and encouraging development of additional HCPs and other conservation plans in the future.

The proposed revised designation did not include any lands covered by a completed HCP for *Cirsium loncholepis*, or any Tribal lands or trust resources. Nor have any HCPs or conservation plans covering this species in these areas been approved since the proposed revised designation was issued. Therefore, we do not anticipate any impact to Tribal lands or habitat conservation plans from this critical habitat designation. Based on the best available information, we believe that all of the units contain the physical and biological features essential to the conservation of *C. loncholepis*. In addition, as discussed below under the Economic Analysis section of this rule, our economic analysis indicates an overall low economic cost resulting from the revised designation. We have not identified any area for which the benefits of exclusion outweigh the benefits of inclusion based on management plans or economic impacts; therefore, the Secretary did not exert his discretion and exclude any areas from this revised designation of critical habitat for *C. loncholepis* based on management plans or economic impacts. Because the ESMP for *Cirsium loncholepis* has not been completed, we did not consider DOD lands for exclusion under Section 4(b)(2) as discussed above.

Relationship of Critical Habitat to Lands Managed by the California Department of Parks and Recreation (CDPR)

The CDPR requested that we exclude 820 acres (332 hectares) of lands in and around the OHV area within Oceano Dunes State Vehicular Recreation Area (ODSVRA) under section 4(b)(2) of the Act for the following reasons:

(1) There is a long-standing history of OHV use of Oceano Dunes;

(2) The State law that established ODSVRA mandated the area be used for OHV recreation;

(3) Critical habitat is not needed because CDPR has a rare plant protection program in place to manage populations within ODSVRA and if *Cirsium loncholepis* is found there in the future, those plants would be protected as part of the rare plant protection program; and

(4) Economic impacts need to be considered, and they outweigh the benefits of inclusion of this area.

We analyzed all lands within ODSVRA that were proposed as critical habitat in the proposed revised critical habitat designation. We determined that approximately 639 ac (259 ha) of the 714 ac (289 ha) that were proposed within the OHV area do not contain the PCEs in the appropriate quantity and spatial arrangement that are essential for the conservation of the species. Because these areas do not meet the definition of critical habitat, these approximately 639 ac (259 ha) are not designated as critical habitat. We determined that approximately 75 ac (30 ha) within the OHV area are essential for the conservation of the species. As a consequence, these areas are included in the final designation.

State lands may be excluded from critical habitat designation based on section 4(b)(2) of the Act. An area may be excluded from critical habitat when we determine, following an analysis of relevant impacts, that the benefits of such 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.

(1) Benefits of Inclusion

The benefits of inclusion are high. Because areas within ODSVRA currently contain suitable habitat, are adjacent to currently occupied sites, and support the PCEs, are fenced off from ODSVRA activities, we determined that the subject approximately 75 ac (30 ha) are essential to the conservation of *Cirsium loncholepis*. The CDPR has proposed to address areas of proposed critical habitat for *C. loncholepis* through the development of a habitat conservation plan under section 10(a)(1)(B) of the Act and through a rare plant protection program to manage populations. The draft HCP is not complete and therefore does not meet the three criteria identified above. The rare plant protection program does not meet the three criteria because it proposes to manage populations, but not the habitat for the plants and therefore does not provide protection from destruction or adverse modification. Critical habitat would provide benefits to *C. loncholepis* because it would allow for the analysis of projects with a federal nexus that might adversely affect suitable habitat if the plant is not present. Peer reviewers concur that areas that are not occupied are important for the conservation and recovery of fugitive species such as *C. loncholepis*. Therefore, designating critical habitat in this area would provide additional Federal regulatory benefits to *C. loncholepis* that would not occur in areas where plants were not observed. Under the *Gifford Pinchot* decision, critical habitat designations may provide greater benefits to recovery of a species than was previously believed, but it is not possible to quantify these potential benefits at present.

Another possible benefit of a critical habitat designation in general is education of landowners and the public regarding the potential value of these areas to the conservation of *Cirsium loncholepis*. This may focus and contribute to conservation efforts by other parties by clearly delineating areas of high conservation value for certain species. In this case, the primary land owner is CDPR. We believe that this educational benefit has largely been achieved because we have been coordinating for many years with CDPR on its land management programs. Based on these coordination efforts, we believe that CDPR is aware of the conservation needs of *C. loncholepis*, and we believe that some of the education benefits that might arise from a critical habitat designation at ODSVRA have already been generated. Therefore, the benefits of inclusion of CDPR lands at ODSVRA as critical habitat for *C. loncholepis* are high because the approximately 75 ac (30 ha) are essential to the conservation of the species and there are additional benefits through the Federal regulatory process

and some potential educational benefits to designating critical habitat on CDPR lands.

(2) Benefits of Exclusion

The benefits of exclusion are moderate. The CDPR has commented that the designation of critical habitat at ODSVRA would result in economic impacts to the CDPR, significant delays to visitor serving and resource management efforts that outweigh the benefits of inclusion of this area (Zilke 2008). CDPR operates the ODSVRA, part of which contains an OHV use area that is one of the few areas in California where the public is allowed to legally drive and camp on a sandy beach (Zilke 2008). The CDPR claims that it needs the full space of the ODSVRA in order to complete its State mandate to operate as an OHV recreation area. It claims that the designation of critical habitat would impact its ability to use its lands for OHV recreation and could cost them additional time and monies to manage their resources (Zilke 2008).

Excluding the CDPR lands at ODSVRA from the critical habitat designation would permit the CDPR and OHV activities to proceed unaffected. Designating critical habitat on portions of ODSVRA (in the OHV area) would likely cause some additional costs and time delays for CDPR at ODSVRA in the form of surveys, reports, and consultations. The Service believes that these would be minimal.

(3) Benefits of Inclusion Outweigh the Benefits of Exclusion

Because the habitat identified on ODSVRA for *Cirsium loncholepis* does support the primary constituent elements and is directly adjacent to one of the last remaining populations, it was proposed for designation as critical habitat. We determined that 639 ac (259 ha) of the OHV riding area proposed for critical habitat do not contain the PCEs in the appropriate quantity and spatial arrangement that are essential for the conservation of the species and therefore are not essential to the conservation of the species. We determined that 75 ac (30 ha) within the OHV riding area do contain PCEs and are essential for the conservation of the species. The CDPR has provided information indicating that critical habitat for *Cirsium loncholepis* would present potential impacts to their operations as an OHV recreation area and that they plan to provide management for *C. loncholepis* plants that occur in this area. Accordingly, we have determined that the benefits of inclusion of the subject 75 ac (30 ha) of critical habitat at ODSVRA outweigh the benefits of exclusion of these areas at ODSVRA and therefore the Secretary is not exercising his discretion to exclude these lands under section 4(b)(2) of the Act.

Relationship of Critical Habitat to Lands Managed by the Department of Defense (DOD)

We have excluded all DOD lands within the boundaries of Vandenberg Air Force Base (VAFB) under section 4(b)(2) of the Act based on potential impacts to national security. We are excluding a total of 13,705 ac (5,546 ha) on VAFB: 4,151 ac (1,680 ha) from Unit 4; 7,282 ac (2,947 ha) from Unit 5; and 2,272 ac (919 ha) from Unit 6. The DOD requested that all VAFB lands be excluded based on potential impacts to national security because the designation of critical habitat would impact the DOD mission by limiting the amount of natural infrastructure that is available for mission execution and military training critical to national security.

Military lands may be excluded from critical habitat designation based on section 4(b)(2) of the Act. An area may be excluded from critical habitat when we determine, following an analysis of relevant impacts including the impact to national security, that the benefits of such 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. The DOD requested the exclusion of all lands at VAFB under section 4(b)(2) of the Act based on potential impacts to national security.

(1) Benefits of Inclusion

The benefits of inclusion are high. Because areas on VAFB were historically occupied, currently contain suitable habitat, and support the PCEs, DOD has proposed to address areas of proposed critical habitat for *Cirsium loncholepis* through interagency conference procedures under section 7(a)(4) of the Act in the pending basewide programmatic consultation for VAFB. This consultation is in the process of evaluating the various programs of activities implemented on VAFB and measures proposed by DOD to avoid and minimize adverse effects to *C. loncholepis* habitat. Additionally, *C. loncholepis* is currently included in the VAFB INRMP being developed by DOD, which also incorporates conservation and management activities. Critical habitat would provide benefits to *C. loncholepis* because it would allow for the analysis of projects that might adversely affect suitable habitat even when the plant is not present. These unoccupied areas are an important part of the life cycle for *C. loncholepis*. Peer reviewers concur that these unoccupied areas are important for the conservation and recovery of *C. loncholepis*. Therefore, designating critical habitat in this area would provide additional Federal regulatory benefits to *C. loncholepis* that would not occur otherwise. Under the *Gifford Pinchot* decision, critical habitat designations may provide greater benefits to recovery of a species than was previously believed, but it is not possible to quantify these potential benefits at present.

Another possible benefit of a critical habitat designation in general is education of landowners and the public regarding the potential conservation value of these areas to the conservation of *Cirsium loncholepis*. This may focus and contribute to conservation efforts by other parties by clearly delineating areas of high conservation value for certain species. In this case the primary land owner is DOD, and we believe that this educational benefit has largely been achieved because we have been coordinating for many years with DOD on its land management programs and its training activities. Based on these coordination efforts, we believe that DOD is very aware of the conservation needs of *C. loncholepis*. For example, DOD sponsored surveys for *C. loncholepis* in 2008 at VAFB. Additionally, DOD is including management activities for *C. loncholepis* in the programmatic consultation and in the INRMP under development for VAFB. Therefore, we believe that some of the education benefits that might arise from a critical habitat designation at VAFB have already been generated. Therefore, the benefits of inclusion of DOD lands at VAFB as critical habitat for *C. loncholepis* are high due to benefits through the Federal regulatory process and some potential educational benefits to designating critical habitat on VAFB lands.

(2) Benefits of Exclusion

The benefits of exclusion are high. The DOD has commented that the designation of critical habitat on VAFB would result in substantial economic and military readiness impacts (Linn 2008; Kephart 2009a, 2009b). VAFB operates as a missile test base and aerospace center, supports west coast launch activities for the United States Air Force, DOD, National Aeronautics and Space Administration, and commercial contractors, and is headquarters for the 30th Space Wing, which operates the Base and the

Western Test Range (Linn 2008, Att. 1). VAFB provides combat capability by providing Air and Space Superiority, Global Attack, Rapid Global Mobility, Precision Engagement, Information Superiority, and Agile Combat Support to ensure space- and combat-ready Airmen, and provides the only U.S. capability to launch military and commercial satellites. It also conducts an array of telemetry and tracking systems on the Western Test Range, and is supporting development of the Ground-Based Midcourse Defense Element of the Ballistic Missile Defense System (Kephart 2009a, p. 2; Kephart 2009b, p. 1). Kephart (2009b, p1) states: ''The base also conducts intercontinental ballistic missile testing and operates the Western Test Range. Aerospace operations in the Range are accommodated at the VAFB flightline, for fixed-wing and rotary wing aircraft operations, and through the extensive army of telemetry and tracking systems that constitute the Range hardware. Several tenant units including other DOD agencies operate from base property or maintain assets here. One example is the Missile Defense Agency's Joint Program Office supporting development of the Ground-Based Midcourse Defense element of the Ballistic Missile Defense System (BMDS). The BMDS is a critical national security concept to provide an effective defense for the United States, its deployed forces, and its friends and allies from limited missile attack, during all segments of an attacking missile's flight.'' Additionally, VAFB states that the Conventional Strike Missile program has been planned for a location in the vicinity of proposed La Graciosa Thistle critical habitat and that while the base provides large buffers around launch facilities, communications and utility corridors exist throughout the base, including through otherwise undeveloped areas. VAFB states that designation of critical habitat could result in closure of areas needed for development, a reduction in the availability of operational land required for present and future needs, and project delays due to administrative requirements. These infrastructure needs are expanding as new missions, such as Missile Defense Agency programs, establish operations at VAFB (Kephart 2009b, pp. 2-3). VAFB/DOD states that it needs the nearly 100,000 ac (40,469 ha) of operational area at VAFB, consisting of ''extensive tracts of undeveloped and encroachment free property essential for a launch safety buffer'' in order to complete its national security mission to fulfill the above-named functions (Kephart 2009a, pp. 2). It claims that the designation of critical habitat would impact its ability to use its lands for military training because it would limit the amount of natural infrastructure (e.g., land, water, and air resources) necessary to support missile operations and essential maintenance activities and could delay short-notice mission critical activities (Linn 2008).

Excluding the DOD lands on VAFB from the critical habitat designation would permit these mission critical activities to proceed, thus allowing VAFB to meet its national security mission. A critical habitat designation would likely cause some additional costs and time delays for DOD at VAFB in the form of surveys, reports, and consultations. The Service defers to DOD's expertise in identifying specific impacts to military readiness or national security.

(3) Benefits of Exclusion Outweigh the Benefits of Inclusion

Because the habitat identified on VAFB for *Cirsium loncholepis* does provide the primary constituent elements, it was proposed for designation as critical habitat. The military has provided substantial information indicating that critical habitat for *Cirsium loncholepis* presented serious potential impacts to national security and the disruption of its critical national defense mission. Accordingly, we have determined that the benefits of exclusion of critical habitat on VAFB outweigh the benefits of inclusion of critical habitat on VAFB, The Secretary is exercising his discretion to exclude these lands under section 4(b)(2) of the Act.

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

Exclusion of 13,705 ac (5,546 ha) from VAFB of this revised critical habitat designation will not result in the extinction of the species. The jeopardy standard of section 7(a)(2) of the Act and routine implementation of conservation measures through the section 7 process also provide assurances that the species will not go extinct. The protections afforded *C. loncholepis* under the jeopardy standard of section 7 of the Act will remain in place for the areas excluded from revised critical habitat if *C. loncholepis* is determined to occur on the base.

Economic Analysis

Following the publication of the proposed revised designation of critical habitat, we conducted an economic analysis to estimate the potential economic effect of the designation. The draft economic analysis (DEA; dated January 16, 2009) was made available for public review and comment from March 10, 2009, to April 9, 2009 (74 FR 10211). Substantive comments and information received on the DEA are summarized above in the **Public Comment** section and are incorporated into the final analysis, as appropriate. Taking any relevant new information into consideration, the Service completed an FEA (dated July 27, 2009) of the designation that updates the DEA by removing impacts that were not considered probable or likely to occur, and by adding an estimate of the costs associated solely with the designations of critical habitat for *Cirsium loncholepis* (incremental impacts).

The primary purpose of the economic analysis is to estimate the potential economic impacts associated with the designation of critical habitat for *Cirsium loncholepis*. This information is intended to assist the Secretary in making decisions about whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation. The economic analysis considers the economic efficiency effects that may result from the designation. In the case of habitat conservation, efficiency effects generally reflect the ''opportunity costs'' associated with the commitment of resources to comply with habitat protection measures (such as lost economic opportunities associated with restrictions on land use). It also addresses how potential economic impacts are likely to be distributed, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation activities on government agencies, private businesses, and individuals. The economic analysis measures lost economic efficiency associated with residential and commercial development and public projects and activities, such as economic impacts on water management and transportation projects, Federal lands, small entities, and the energy industry. This information can be used by the Secretary to assess whether the effects of the designation might unduly burden a particular group or economic sector. Finally, the economic analysis looks retrospectively at costs that have been incurred since the date we listed *Cirsium loncholepis* as endangered (March 20, 2000 (65 FR 14888), and considers those costs that may occur in the years following the revised designation of critical habitat, with the

timeframes for this analysis varying by activity.

The economic analysis focuses on the direct and indirect costs of the rule. However, economic impacts to land use activities can exist in the absence of critical habitat. These impacts may result from, for example, local zoning laws, State and natural resource laws, and enforceable management plans and best management practices applied by other State and Federal agencies. Economic impacts that result from these types of protections are not included in the analysis as they are considered to be part of the regulatory and policy baseline.

The economic analysis examines activities taking place both within and adjacent to the designation. It estimates impacts based on activities that are ''reasonably foreseeable'' including, but not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. Accordingly, the analysis bases estimates on activities that are likely to occur within a 20–year timeframe, from when the proposed rule became available to the public (August 6, 2008, 73 FR 45806). The 20–year timeframe was chosen for the analysis because, as the time horizon for an economic analysis is expanded, the assumptions on which the projected number of projects and cost impacts associated with those projects are based become increasingly speculative.

The vast majority of potential incremental economic impacts attributed to the revised critical habitat designation, if it was finalized as proposed, would be expected to be related to recreation (over 99 percent); the remaining incremental impacts are related to development and public lands management (less than 1 percent) The FEA estimates total potential incremental economic impacts in areas proposed as revised critical habitat over the 20 years after the 2008 proposal (to 2028) to range from $405 thousand ($26.5 thousand annualized) to $55.6 million ($3.6 million annualized) in present value terms using a 3 percent discount rate, and from $355 thousand ($31.3 thousand annualized) to $39.6 million ($3.5 million annualized) in present value terms using a 7 percent discount rate (including areas considered for exclusion under section 4(b)(2) of the Act).

Benefits of Designating Critical Habitat

The process of designating critical habitat as described in the Act requires that the Service identify those lands within the geographical area occupied by the species at the time of listing on which are found the physical or biological features essential to the conservation of the species that may require special management considerations or protection, and those areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of the species. In identifying those lands, the Service must consider the recovery needs of the species, such that, on the basis of the best scientific and commercial data available at the time of designation, the habitat that is identified, if managed or protected, could provide for the survival and recovery of the species.

The identification of areas that contain features essential to the conservation of the species that can, if managed or protected, provide for the recovery of a species, is beneficial. The process of proposing and finalizing a critical habitat rule provides the Service with the opportunity to determine the physical and biological features essential to the conservation of the species within the geographical area occupied by the species at the time of listing, as well as to determine other areas essential for the conservation of the species. The designation process includes peer review and public comment on the identified physical and biological features and areas. This process is valuable to land owners and managers in developing conservation management plans for identified areas, as well as any other occupied habitat or suitable habitat that may not be included in the areas the Service identifies as meeting the definition of critical habitat.

The consultation provisions under section 7(a)(2) of the Act constitute the regulatory benefits of critical habitat. As discussed above, Federal agencies must consult with the Service on actions that may affect critical habitat and must avoid destroying or adversely modifying critical habitat. Federal agencies must also consult with us on actions that may affect a listed species and refrain from undertaking actions that are likely to jeopardize the continued existence of such species. The analysis of effects to critical habitat is a separate and different analysis from that of the effects to the species. Therefore, the difference in outcomes of these two analyses represents the regulatory benefit of critical habitat. For some species, and in some locations, the outcome of these analyses will be similar, because effects to habitat will often also result in effects to the species. However, the regulatory standard is different, as the jeopardy analysis investigates the action's impact to survival and recovery of the species, while the adverse modification analysis investigates the action's effects to the designated habitat's contribution to conservation. This will, in many instances, lead to different results and different regulatory requirements. Thus, critical habitat designations may provide greater benefits to the recovery of a species than would listing alone.

There are two limitations to the regulatory effect of critical habitat. First, a consultation is only required where there is a Federal nexus (an action authorized, funded, or carried out by any Federal agency)—if there is no Federal nexus, the critical habitat designation of private lands itself does not restrict actions that destroy or adversely modify critical habitat. Second, the designation only limits destruction or adverse modification. By its nature, the prohibition on adverse modification is designed to ensure that the conservation role and function of those areas that contain the physical and biological features essential to the conservation of the species or of unoccupied areas that are essential for the conservation of the species are not appreciably reduced. Critical habitat designation alone, however, does not require private property owners to undertake specific steps toward recovery of the species.

Once an agency determines that consultation under section 7(a)(2) of the Act is necessary, the process may conclude informally when the Service concurs in writing that the proposed Federal action is not likely to adversely affect critical habitat. However, if we determine through informal consultation that adverse impacts are likely to occur, then formal consultation is initiated. Formal consultation concludes with a biological opinion issued by the Service on whether the proposed Federal action is likely to result in destruction or adverse modification of critical habitat.

For critical habitat, a biological opinion that concludes in a determination of no destruction or adverse modification may contain discretionary conservation recommendations to minimize adverse effects to the primary constituent elements, but it would not suggest the implementation of any reasonable and prudent alternative. We suggest reasonable and prudent alternatives to the proposed Federal action only when our biological opinion results in a destruction or adverse modification conclusion.

As stated above, the designation of critical habitat does not require that any management or recovery actions take

place on the lands included in the designation. Even in cases where consultation is initiated under section 7(a)(2) of the Act, the end result of consultation is to avoid jeopardy to the species and/or adverse modification of its critical habitat, but not necessarily to manage critical habitat or institute recovery actions on critical habitat.

Conversely, voluntary conservation efforts implemented through management plans institute proactive actions over the lands they encompass and are put in place to remove or reduce known threats to a species or its habitat, and therefore, implement recovery actions. We believe that in many instances the regulatory benefit of critical habitat is minimal when compared to the conservation benefit that can be achieved through implementing HCPs under section 10 of the Act or other habitat management plans. The conservation achieved through such plans is typically greater than what we achieve through multiple site-by-site, project-by-project, section 7(a)(2) consultations involving consideration of critical habitat.

Management plans commit resources to implement long-term management and protection to particular habitat for at least one and possibly other listed or sensitive species. Section 7(a)(2) consultations only commit Federal agencies to preventing adverse modification of critical habitat caused by the particular project, and they are not committed to provide conservation or long-term benefits to areas not affected by the proposed action. Thus, implementation of an HCP or management plan that incorporates enhancement or recovery as the management standard may often provide as much or more benefit than a consultation for critical habitat designation.

Another benefit of including lands in critical habitat is that designation of critical habitat serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by clearly delineating areas of high conservation value for *Cirsium loncholepis*. In general, critical habitat designation always has educational benefits; however, in some cases, they may be redundant with other educational effects. For example, HCPs have significant public input and may largely duplicate the educational benefits of a critical habitat designation. Including lands in critical habitat also would inform State agencies and local governments about areas that could be conserved under State laws or local ordinances.

Relationships to Conservation Partnerships on Non-federal Lands

Currently, there are no Habitat Conservation Plans on non-federal lands that include *Cirsium loncholepis* as a managed species.

Required Determinations

Regulatory Planning and Review–Executive Order 12866

The Office of Management and Budget (OMB) has determined that this rule is not significant under E.O. 12866. OMB bases its determination upon the following four criteria:

(1) Whether the rule will have an annual effect of $100 million or more on the economy or adversely affect an economic sector, productivity, jobs, the environment, or other units of the government.

(2) Whether the rule will create inconsistencies with other Federal agencies' actions.

(3) Whether the rule will materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients.

(4) Whether the rule raises novel legal or policy issues.

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

Under the Regulatory Flexibility Act, as amended by the Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 802(2)), 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. Based on our FEA of the designation, we provide our analysis for determining whether the designation of critical habitat for *Cirsium loncholepis* will result in a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, 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; and small businesses (13 CFR 121.201). 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 considered the types of activities that might trigger regulatory impacts under this designation as well as 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 revised designation of critical habitat for *Cirsium loncholepis* would affect a substantial number of small entities, we considered the number of small entities affected within particular types of economic activities, such as residential and commercial development. We considered each industry or category individually to determine if certification is appropriate. In estimating the numbers of small entities potentially affected, we considered whether the activities of these entities may entail Federal involvement. Revised critical habitat designation will not affect activities that do not have any Federal involvement; designation of critical habitat affects activities conducted, funded, or authorized by Federal agencies.

Once this revised critical habitat designation takes effect, Federal agencies must consult with us under section 7 of the Act if their activities may affect designated critical habitat. Consultations to avoid the destruction or adverse modification of critical habitat will be incorporated into the existing consultation process.

In order to determine whether it is appropriate for our agency to certify that this rule will not have a significant economic impact on a substantial number of small entities, we considered in the FEA the potential impacts related to activity categories including Vandenberg Air Force Base (VAFB), residential/commercial development, oil and gas, public lands management, agriculture/ranching, and recreation. Of these, impacts of conservation activities are not anticipated to affect small entities for the following reasons: VAFB is not considered a small entity, and furthermore no incremental impacts to

VAFB are anticipated; potential impact to residential/commercial developers is anticipated to be small; no incremental impacts to oil and gas industry are anticipated; and public lands management agencies are not considered small entities. Small entities may be affected in the agriculture/ranching sector and in recreation. Within the agriculture/ranching sector, small entities make up 55 percent of the entities that may be affected. Within the recreation sector, small entities represent 85 percent of the entities that serve OHV recreation that may be affected. Please refer to our final economic analysis (Appendix A) of the proposed revision of critical habitat for a more detailed discussion of potential economic impacts.

In summary, we considered whether this final rule to revise critical habitat would result in a significant economic effect on a substantial number of small entities. For the above reasons and based on currently available information, we certify that the revised designation will not have a significant economic impact on a substantial number of small entities. Therefore, a regulatory flexibility analysis is not required.

Energy Supply, Distribution, or Use–Executive Order 13211

On May 18, 2001, the President issued an Executive Order (E.O. 13211; Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) on regulations that significantly affect energy supply, distribution, and use. E.O. 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. This revision to critical habitat for *Cirsium loncholepis* is not considered a significant regulatory action under E.O. 12866. OMB has provided guidance for implementing this Order that outlines nine outcomes that may constitute ''a significant adverse effect'' when compared without the regulatory action under consideration. The economic analysis finds that one of these criteria is relevant to this analysis, specifically, an increase in the cost of energy production in excess of one percent. However, since oil and gas production in the area is related to the reactivation of existing wells, as opposed to new oil and gas development, based on information in the economic analysis (Appendix A), we assume that there will be no increase in the cost of energy production due to critical habitat. As such, the final designation of critical habitat is not expected to significantly affect energy supplies, distribution, or use, and a Statement of Energy Effects is not 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:

(1) 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, or 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 Families 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. Non-Federal entities that 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 does critical habitat shift the costs of the large entitlement programs listed above on to State governments.

(2) We do not believe that this rule will significantly or uniquely affect small governments because it would 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. As discussed in the economic analysis, anticipated future impacts in areas designated as critical habitat may be borne by the Federal Government (U.S. Fish and Wildlife Service at Guadalupe-Nipomo National Wildlife Refuge) and by the County of Santa Barbara (Rancho Guadalupe County Park). By definition, Federal agencies are not considered small entities, although the activities they fund or permit may be proposed or carried out by small entities. The County of Santa Barbara is also not considered to be a small entity because it services a population exceeding the criteria for a ''small entity.'' As such, a Small Government Agency Plan is not required.

Takings–Executive Order 12630

In accordance with E.O. 12630 (''Government Actions and Interference with Constitutionally Protected Private Property Rights''), we have analyzed the potential takings implications of designating critical habitat for *Cirsium loncholepis* in a takings implications assessment. Critical habitat designation does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. The takings implications assessment concludes that this final revised designation of critical habitat for *C. loncholepis* does not pose significant takings implications for lands within or affected by the designation.

Federalism–Executive Order 13132

In accordance with E.O. 13132 (Federalism), this final rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with Department of the 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. During the public comment periods, we contacted appropriate State and local agencies and jurisdictions, and invited them to comment on the proposed revised critical habitat designation for *Cirsium loncholepis*. In total, we received one comment letter during these comment periods from a State agency (California State Parks) (see ''Summary of Comments and Recommendations'' section). The designation of revised critical habitat in areas currently occupied by *C. loncholepis* may impose nominal additional regulatory restrictions to those currently in place and, therefore, may have a slight incremental impact on State and local governments and their activities. The designations may have some benefit to these governments in that the areas that contain the features essential to the conservation of the species are more clearly defined, and the primary constituent elements of the habitat are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations to occur).

Civil Justice Reform–Executive Order 12988

In accordance with E.O. 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it 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 Act. This final rule uses standard property descriptions and identifies the physical and biological features essential to the conservation of the species within the designated areas to assist the public in understanding the habitat needs of *Cirsium loncholepis*.

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 OMB under the Paperwork Reduction Act of 1995. 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.

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, ''Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951), Executive Order 13175, and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997, ''American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act,'' we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. We have determined that there are no Tribal lands occupied by *Cirsium loncholepis* at the time of listing or currently occupied that contain the features essential for the conservation of the species, and no Tribal lands that are in unoccupied areas that are essential for the conservation of the species. Therefore, in this revised final rule, We have not designated critical habitat for *C. loncholepis* on Tribal lands.

National Environmental Policy Act (NEPA) (42 U.S.C. 4321 *et seq.*)

It is our position that, outside the jurisdiction of the Circuit Court of the United States for the Tenth Circuit, we do not need to prepare environmental analyses as defined by NEPA (42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. 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 United States Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied, 516 U.S. 1042 (1996)).

References Cited

A complete list of all references cited in this rulemaking is available on the Internet at *http://www.regulations.gov* and *http://www.fws.gov/ventura/*.

Author(s)

The primary authors of this rulemaking are staff members of the Ventura Fish and Wildlife Office, Ventura, California.

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 § 17.96(a) by revising the entry for ''Family Asteraceae: *Cirsium loncholepis* (La Graciosa thistle)'' to read as follows:

§ 17.96 Critical habitat—plants.

(a) *Flowering plants.*

* * * * *

Family Asteraceae: *Cirsium loncholepis* (La Graciosa thistle)

(1) Critical habitat units are depicted for San Luis Obispo and Santa Barbara Counties, California, on the maps below.

(2) The primary constituent elements of critical habitat for *Cirsium loncholepis* are:

(i) Mesic areas associated with:

(A) Margins of dune swales, dune lakes, marshes, and estuaries that are associated with dynamic (changing) dune systems including the Santa Maria Valley Dune Complex and Santa Ynez Valley Dune Complex;

(B) Margins of dynamic riparian systems including the Santa Maria and Santa Ynez Rivers and Orcutt and San Antonio Creeks; and

(C) Freshwater seeps and intermittent streams found in other habitats, including grassland, meadow, coastal scrub, and oak woodland. These areas provide space needed for individual and population growth including sites for germination, reproduction, seed dispersal, seed bank, and pollination;

(ii) Associated plant communities including: Central dune scrub, coastal dune, coastal scrub, freshwater seep, coastal and valley freshwater marsh and fen, riparian scrub (e.g., mule fat scrub, willow scrub), oak woodland, intermittent streams, and other wetland communities, generally in association with the following species: *Juncus* spp. (rush), *Scirpus* spp. (tule), *Salix* spp. (willow), *Toxicodendron diversilobum* (poison oak), *Distichlis spicata* (salt grass), *Baccharis pilularis* (coyote

brush), and *B. douglasii* (Douglas' baccharis);

(iii) Soils with a sandy component including but not limited to dune sands, Oceano sands, Camarillo sandy loams, riverwash, and sandy alluvial soils; and

(iv) Features that allow dispersal and connectivity between populations, particularly:

(A) Natural riparian drainages in Santa Maria River, Orcutt Creek, San Antonio Creek, and Santa Ynez River that are not channelized or confined by barriers or dams, such that they have soft bottoms and sides and a natural flood plain (allowing uninterrupted water flows); and

(B) Natural aeolian geomorphology in the Santa Maria Dune Complex and Santa Ynez Dune Complex, and along the Santa Maria River, Orcutt Creek, San Antonio Creek, and Santa Ynez River drainages that is not confined by barriers or wind-blocks such as large manmade structures, tree rows, or wind-breaks (allowing uninterrupted winds across these areas).

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, airports, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule.

(4) Critical habitat map units. Data layers defining map units were created on base maps using aerial imagery from the National Agricultural Imagery Program (aerial imagery captured June 2005). Data were projected to Universal Transverse Mercator (UTM) zone 11, North American Datum (NAD) 1983.

(5) *Note*: Index map of *Cirsium loncholepis* critical habitat follows:

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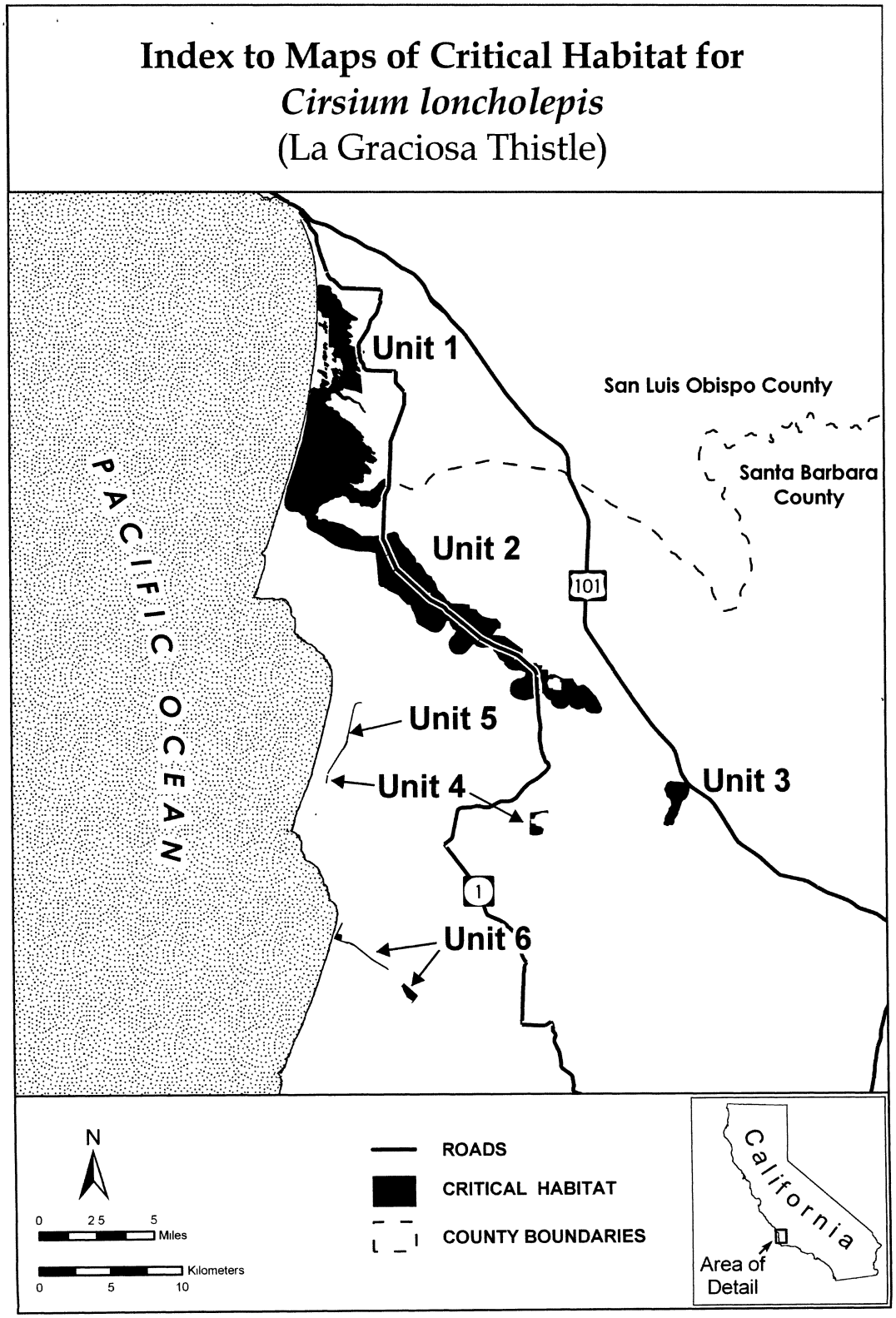

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(6) Unit 1: Callender-Guadalupe Dunes. San Luis Obispo County, California.

From USGS 1:24,000 scale quadrangle maps Oceano, Point Sal, and Guadalupe.

(i) Subunit 1A, Callender-Guadalupe.

(A) Land bounded by the following Universal Transverse Mercator (UTM) North American Datum of 1983 (NAD83) coordinates (E,N): 716558.580, 3886615.727; 716593.461, 3886608.531;716628.686, 3886609.074; 716693.321, 3886620.751; 716746.394, 3886619.168; 716810.817, 3886600.840; 716896.128, 3886564.822; 716927.810, 3886539.634; 716981.866, 3886475.432; 716997.742, 3886438.750; 716997.185, 3886411.967; 716977.933, 3886381.454; 716935.087, 3886346.255; 716925.742, 3886324.929; 716926.061, 3886308.681; 716949.343, 3886276.028; 717000.667, 3886235.718; 717033.169, 3886203.391; 717046.547, 3886178.771; 717057.601, 3886138.563; 717075.230, 3886109.665; 717095.075, 3886095.165; 717123.770, 3886086.134; 717196.122, 3886089.887; 717236.765, 3886083.749; 717292.894, 3886065.191; 717328.620, 3886044.481; 717371.983, 3885996.222; 717397.064, 3885949.513; 717408.640, 3885904.632; 717418.497, 3885823.007; 717437.655, 3885778.233; 717477.278, 3885747.347; 717570.600, 3885709.648; 717619.444, 3885669.117; 717650.160, 3885633.879; 717697.308, 3885555.395; 717703.928, 3885500.895; 717712.134, 3885476.533; 717784.214, 3885353.131; 717795.714, 3885314.162; 717800.976, 3885242.321; 717807.847, 3885214.034; 717822.747, 3885183.088; 717852.077, 3885146.765; 717921.327, 3885090.546; 718016.934, 3885023.582; 718062.820, 3884998.569; 718173.227, 3884952.799; 718200.354, 3884931.420; 718237.606, 3884887.726; 718269.890, 3884862.503; 718413.137, 3884785.107; 718556.852, 3884688.818; 718642.268, 3884644.935; 718756.820, 3884604.310; 718831.414, 3884556.450; 718910.258, 3884527.097; 718929.813, 3884512.078; 718940.214, 3884497.478; 718943.587, 3884471.253; 718936.515, 3884436.448; 718916.646, 3884408.491; 718892.121, 3884394.349; 718837.466, 3884385.637; 718778.298, 3884360.606; 718737.773, 3884353.318; 718672.279, 3884355.345; 718504.277, 3884375.569; 718472.805, 3884363.241; 718451.663, 3884337.819; 718450.015, 3884310.030; 718481.935, 3884269.088; 718490.526, 3884234.838; 718486.608, 3884224.610; 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(B) Excluding land bounded by the following UTM NAD83 coordinates (E,N): 717937.807, 3880783.475; 717849.041, 3880821.504; 717848.938, 3880817.720; 717849.392, 3880817.650; 717845.549, 3880807.313; 717843.593,

3880800.027; 717841.269, 3880793.548; 717837.501, 3880785.669; 717836.131, 3880783.911; 717828.857, 3880776.863; 717817.989, 3880765.903; 717812.187, 3880758.047; 717776.455, 3880744.115; 717946.560, 3880643.422; 717990.327, 3880695.942; thence returning to 717937.807, 3880783.475.

(C) Excluding land bounded by the following UTM NAD83 coordinates (E,N): 717791.575, 3880459.554; 717799.332, 3880445.386; 717793.518, 3880418.908; 717877.719, 3880381.762; 717877.788, 3880381.731; 717878.022, 3880381.614; 717878.247, 3880381.481; 717878.464, 3880381.333; 717878.670, 3880381.172; 717931.589, 3880343.026; 717999.080, 3880459.602; 717946.560, 3880564.642; 717687.919, 3880630.938; 717691.226, 3880626.729; 717694.265, 3880622.551; 717699.251, 3880616.956; 717706.283, 3880606.405; 717710.417, 3880598.353; 717714.342, 3880595.747; 717713.908, 3880594.512; 717712.625, 3880591.920; 717715.053, 3880585.202; 717716.723, 3880581.192; 717718.867, 3880576.150; 717721.160, 3880570.917; 717723.858, 3880566.063; 717724.433, 3880561.206; 717728.941, 3880560.990; 717731.725, 3880540.438; 717732.513, 3880535.099; 717733.828, 3880528.387; 717734.669, 3880522.890; 717736.483, 3880519.997; 717735.778, 3880516.228; 717736.401, 3880511.843; 717741.119, 3880509.748; 717750.271, 3880489.562, thence returning to 717791.575, 3880459.554.

(ii) Subunit 1B, Moymell. Land bounded by the following UTM NAD83 coordinates (E,N): 716675.012, 3884158.382; 716676.309, 3884157.597; 716678.024, 3884158.333; 716678.226, 3884158.413; 716678.474, 3884158.495; 716678.728, 3884158.561; 716678.985, 3884158.610; 716679.245, 3884158.642; 716679.506, 3884158.656; 716679.768, 3884158.654; 716680.029, 3884158.635; 716680.288, 3884158.598; 716680.545, 3884158.545; 716680.797, 3884158.475; 716681.044, 3884158.389; 716681.285, 3884158.286; 716681.519, 3884158.168; 716681.649, 3884158.094; 716684.912, 3884156.151; 716685.007, 3884156.092; 716685.224, 3884155.945; 716685.430, 3884155.784; 716685.625, 3884155.610; 716685.809, 3884155.423; 716685.980, 3884155.224; 716685.994, 3884155.206; 716689.693, 3884150.562; 716694.764, 3884147.247; 716699.477, 3884144.214; 716699.562, 3884144.158; 716704.378, 3884140.882; 716704.487, 3884140.805; 716704.565, 3884140.747; 716709.041, 3884137.309; 716714.113, 3884134.063; 716714.316, 3884133.924; 716714.458, 3884133.815; 716717.876, 3884131.077; 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(iii) Subunit 1C, Pavilion Hill/Worm Valley. Land bounded by the following UTM NAD83 coordinates (E,N): 716894.817, 3883793.540; 716894.818, 3883793.513; 716895.023, 3883793.313; 716895.056, 3883793.091; 716895.113, 3883793.004; 716895.026, 3883792.897; 716895.141, 3883792.866; 716895.134, 3883791.058; 716895.279, 3883790.668; 716895.239, 3883790.462; 716895.397, 3883785.028; 716895.757, 3883781.093; 716895.982, 3883777.129; 716896.401, 3883773.172; 716896.438, 3883769.454; 716896.921, 3883764.922; 716897.180, 3883759.756; 716897.352, 3883754.768; 716897.228, 3883750.243; 716897.638, 3883745.566; 716898.109, 3883739.784; 716897.606, 3883731.547; 716896.419, 3883726.856; 716895.878, 3883721.039; 716893.923, 3883719.567; 716884.094, 3883721.726; 716880.644, 3883724.527; 716865.544, 3883729.353; 716857.382, 3883730.197; 716850.564, 3883731.733; 716843.320, 3883733.403; 716830.408, 3883738.391; 716818.587, 3883741.089; 716820.411, 3883739.552; 716811.347, 3883742.628; 716805.696, 3883744.725; 716786.251, 3883750.247; 716778.841, 3883756.654; 716781.857, 3883751.163; 716772.648, 3883764.461; 716770.316, 3883774.861; 716762.085, 3883778.041; 716755.289, 3883779.592; 716755.115, 3883779.493; 716754.879, 3883779.380; 716754.636, 3883779.282; 716754.387, 3883779.200; 716754.134, 3883779.134; 716753.877, 3883779.085; 716753.617, 3883779.053; 716753.355, 3883779.039; 716753.094, 3883779.041; 716752.833, 3883779.060; 716752.573, 3883779.097; 716752.317, 3883779.150; 716752.065, 3883779.220; 716751.975, 3883779.250; 716749.910, 3883779.950; 716750.256, 3883779.191; 716752.940, 3883774.596; 716752.209, 3883763.303; 716751.560, 3883761.180; 716751.026, 3883760.838; 716754.987, 3883761.626; 716750.283, 3883759.801; 716748.319, 3883753.354; 716745.450, 3883746.057; 716743.047, 3883738.857; 716741.138, 3883731.817; 716740.636, 3883727.264; 716742.033, 3883724.086; 716736.756, 3883719.917; 716735.780, 3883713.573; 716735.404, 3883706.794; 716739.602, 3883701.190; 716734.734, 3883695.456; 716733.680, 3883697.791; 716729.837, 3883690.909; 716722.503, 3883697.759; 716717.242, 3883698.439; 716710.537, 3883701.946; 716705.558, 3883703.903; 716699.762, 3883705.718; 716696.198, 3883706.380; 716690.006, 3883707.757; 716680.662, 3883711.183; 716673.895, 3883713.048; 716668.015, 3883714.808; 716662.611, 3883716.538; 716658.365, 3883718.094; 716655.826, 3883715.982; 716652.167, 3883717.551; 716647.656, 3883725.128; 716640.645, 3883725.486; 716636.870, 3883727.518; 716631.049, 3883729.735; 716624.483, 3883732.652; 716619.098, 3883734.323; 716610.819, 3883738.047; 716604.768, 3883742.180; 716597.199, 3883742.357; 716587.489, 3883750.730; 716580.838, 3883753.611; 716576.490, 3883754.253; 716572.680, 3883756.310; 716569.091, 3883761.247; 716564.447, 3883762.556; 716559.505, 3883762.203; 716554.060, 3883765.470; 716546.592, 3883770.798; 716539.556, 3883776.090; 716533.122, 3883779.271; 716528.231, 3883781.450; 716523.819, 3883783.496; 716518.371, 3883785.689; 716514.201, 3883787.687; 716509.412, 3883789.857; 716503.010, 3883792.562; 716495.811, 3883796.874; 716490.577, 3883797.686; 716484.646, 3883800.976; 716478.873, 3883803.353; 716472.718, 3883806.903; 716459.697, 3883812.083; 716452.556, 3883812.041; 716449.126, 3883813.090; 716445.771, 3883814.799; 716438.861, 3883813.729; 716431.707, 3883812.888; 716427.599, 3883813.116; 716425.870, 3883815.177; 716418.905, 3883814.429; 716413.260, 3883813.488; 716410.385, 3883814.331; 716405.217, 3883813.985; 716396.118, 3883821.989; 716390.959, 3883825.373; 716386.399, 3883828.618; 716377.350, 3883829.360; 716373.955, 3883831.710; 716367.160, 3883834.701; 716362.063, 3883836.701; 716357.431, 3883838.339; 716352.862, 3883840.106; 716347.132, 3883842.740; 716340.569, 3883845.584; 716336.234, 3883846.989; 716331.600, 3883849.285; 716329.067, 3883850.756; 716307.097, 3883869.711; 716306.777, 3883870.348; 716304.842, 3883871.688; 716304.766, 3883871.721; 716282.485, 3883890.944; 716254.246, 3883995.426; 716274.013, 3884037.783; 716347.432, 3884043.431; 716379.470, 3884028.108; 716391.592, 3884019.370; 716392.069, 3884016.354; 716398.233, 3884007.627; 716399.503, 3884002.347; 716402.247, 3883998.316; 716403.538, 3883993.878; 716403.685, 3883994.005; 716403.894, 3883994.163; 716404.113, 3883994.306; 716404.341, 3883994.435; 716404.577, 3883994.549; 716404.820,

3883994.647; 716405.068, 3883994.729; 716405.322, 3883994.794; 716405.579, 3883994.843; 716405.839, 3883994.875; 716406.100, 3883994.890; 716406.362, 3883994.887; 716406.623, 3883994.868; 716406.882, 3883994.832; 716407.139, 3883994.778; 716407.391, 3883994.708; 716407.638, 3883994.622; 716407.879, 3883994.520; 716407.894, 3883994.513; 716422.652, 3883987.594; 716522.781, 3883949.968; 716542.276, 3883938.949; 716553.369, 3883938.333; 716573.677, 3883928.384; 716573.834, 3883928.303; 716574.059, 3883928.170; 716574.110, 3883928.137; 716581.327, 3883923.407; 716587.636, 3883920.284; 716587.778, 3883920.210; 716588.004, 3883920.077; 716588.220, 3883919.930; 716588.256, 3883919.903; 716595.356, 3883914.596; 716594.056, 3883916.735; 716593.930, 3883916.958; 716593.816, 3883917.194; 716593.718, 3883917.436; 716593.636, 3883917.685; 716593.570, 3883917.939; 716593.548, 3883918.047; 716592.117, 3883925.385; 716592.091, 3883925.534; 716592.059, 3883925.794; 716592.054, 3883925.859; 716591.668, 3883931.129; 716591.013, 3883933.296; 716591.004, 3883933.327; 716590.938, 3883933.580; 716590.889, 3883933.838; 716590.857, 3883934.098; 716590.843, 3883934.359; 716590.845, 3883934.621; 716590.864, 3883934.882; 716590.901, 3883935.141; 716590.954, 3883935.397; 716591.024, 3883935.650; 716591.111, 3883935.897; 716591.213, 3883936.138; 716591.258, 3883936.228; 716593.105, 3883936.125; 716607.224, 3883972.835; 716606.342, 3883992.830; 716609.630, 3884000.910; 716609.706, 3884001.085; 716609.824, 3884001.319; 716609.957, 3884001.545; 716610.105, 3884001.761; 716610.159, 3884001.834; 716616.464, 3884010.069; 716616.571, 3884010.202; 716616.745, 3884010.398; 716616.932, 3884010.581; 716617.048, 3884010.684; 716619.173, 3884012.492; 716627.296, 3884023.776; 716627.312, 3884023.798; 716627.473, 3884024.004; 716627.648, 3884024.200; 716627.834, 3884024.383; 716628.033, 3884024.554; 716628.242, 3884024.712; 716628.461, 3884024.855; 716628.689, 3884024.984; 716628.924, 3884025.098; 716629.167, 3884025.196; 716629.416, 3884025.278; 716629.669, 3884025.343; 716629.926, 3884025.392; 716630.186, 3884025.424; 716630.448, 3884025.439; 716630.710, 3884025.436; 716630.971, 3884025.417; 716631.230, 3884025.380; 716631.486, 3884025.327; 716631.738, 3884025.257; 716631.986, 3884025.171; 716632.078, 3884025.134; 716635.411, 3884023.749; 716636.702, 3884025.666; 716636.789, 3884025.790; 716636.950, 3884025.996; 716637.125, 3884026.191; 716637.311, 3884026.375; 716637.510, 3884026.546; 716637.719, 3884026.703; 716637.938, 3884026.847; 716638.166, 3884026.976; 716638.402, 3884027.089; 716638.644, 3884027.187; 716638.893, 3884027.269; 716639.146, 3884027.335; 716639.404, 3884027.384; 716639.663, 3884027.416; 716639.925, 3884027.430; 716640.187, 3884027.428; 716640.211, 3884027.427; 716644.692, 3884027.213; 716644.929, 3884027.195; 716645.188, 3884027.158; 716645.444, 3884027.105; 716645.697, 3884027.035; 716645.944, 3884026.949; 716646.185, 3884026.846; 716646.418, 3884026.728; 716646.453, 3884026.709; 716651.157, 3884024.080; 716651.347, 3884023.966; 716651.564, 3884023.819; 716651.770, 3884023.658; 716651.965, 3884023.483; 716652.125, 3884023.511; 716652.385, 3884023.543; 716652.646, 3884023.558; 716652.908, 3884023.555; 716653.169, 3884023.536; 716653.428, 3884023.499; 716653.684, 3884023.446; 716653.937, 3884023.376; 716654.134, 3884023.308; 716657.966, 3884021.885; 716658.015, 3884021.866; 716658.256, 3884021.764; 716658.490, 3884021.646; 716658.716, 3884021.513; 716658.932, 3884021.366; 716659.138, 3884021.205; 716716.356, 3883977.102; 716719.294, 3883973.941; 716719.893, 3883976.072; 716723.724, 3883974.649; 716727.017, 3883969.733; 716727.856, 3883970.661; 716737.189, 3883961.003; 716739.687, 3883959.071; 716745.828, 3883955.497; 716751.094, 3883951.779; 716754.384, 3883948.849; 716756.800, 3883944.963; 716760.374, 3883939.050; 716763.707, 3883933.476; 716767.915, 3883926.347; 716771.618, 3883920.281; 716774.992, 3883914.527; 716778.561, 3883908.756; 716782.701, 3883898.341; 716785.405, 3883896.666; 716788.821, 3883890.653; 716791.264, 3883886.276; 716795.420, 3883881.684; 716800.330, 3883876.366; 716805.502, 3883871.019; 716810.101, 3883866.336; 716815.718, 3883861.322; 716820.804, 3883856.541; 716824.339, 3883855.485; 716826.789, 3883852.822; 716831.571, 3883848.034; 716835.594, 3883843.964; 716840.245, 3883839.450; 716844.653, 3883835.037; 716848.342, 3883829.618; 716849.205, 3883833.680; 716853.944, 3883829.154; 716859.415, 3883824.017; 716864.352, 3883819.915; 716868.818, 3883816.424; 716873.736, 3883812.338; 716878.287, 3883808.517; 716883.475, 3883802.657; 716887.873, 3883798.422; 716891.346, 3883796.095 thence returning to 716894.817, 3883793.540.

(iv) Subunit 1D, BBQ Flats. Land bounded by the following UTM NAD83 coordinates (E,N): 716662.492, 3883703.620; 716662.553, 3883703.539; 716662.757, 3883703.577; 716663.017, 3883703.609; 716663.279, 3883703.624; 716663.540, 3883703.622; 716663.801, 3883703.602; 716664.061, 3883703.566; 716664.317, 3883703.512; 716664.504, 3883703.462; 716670.661, 3883701.650; 716670.726, 3883701.630; 716670.973, 3883701.543; 716671.214, 3883701.441; 716671.448, 3883701.323; 716671.674, 3883701.190; 716671.890, 3883701.043; 716671.953, 3883700.996; 716676.003, 3883697.914; 716696.248, 3883691.759; 716696.341, 3883691.835; 716696.369, 3883691.858; 716696.578, 3883692.015; 716696.797, 3883692.159; 716697.025, 3883692.288; 716697.261, 3883692.401; 716697.503, 3883692.500; 716697.752, 3883692.581; 716698.005, 3883692.647; 716698.263, 3883692.696; 716698.523, 3883692.728; 716698.784, 3883692.742; 716699.046, 3883692.740; 716699.307, 3883692.721; 716699.566, 3883692.684; 716699.822, 3883692.631; 716700.075, 3883692.561; 716700.322, 3883692.475; 716700.563, 3883692.372; 716700.797, 3883692.254; 716701.022, 3883692.121; 716701.238, 3883691.974; 716701.445, 3883691.813; 716701.640, 3883691.639; 716701.823, 3883691.452; 716701.994, 3883691.253; 716702.152, 3883691.044; 716702.190, 3883690.989; 716705.299, 3883686.406; 716711.536, 3883687.450; 716711.580, 3883687.457; 716711.840, 3883687.489; 716712.101, 3883687.504; 716712.363, 3883687.502; 716712.624, 3883687.482; 716712.883, 3883687.446; 716713.139, 3883687.392; 716713.392, 3883687.322; 716713.639, 3883687.236; 716713.880, 3883687.134; 716714.114, 3883687.016; 716714.339, 3883686.883; 716714.556, 3883686.736; 716714.762, 3883686.574; 716714.957, 3883686.400; 716715.141, 3883686.213; 716715.311, 3883686.015; 716715.406, 3883685.893; 716718.530, 3883681.696; 716721.916, 3883683.006; 716721.983, 3883683.031; 716722.232, 3883683.113; 716722.485, 3883683.178; 716722.742, 3883683.227; 716723.002, 3883683.259; 716723.264, 3883683.274; 716723.525, 3883683.272; 716723.787, 3883683.252; 716724.046, 3883683.216; 716724.302, 3883683.162; 716724.554, 3883683.092; 716724.802, 3883683.006; 716725.042, 3883682.904; 716725.276, 3883682.786; 716725.502, 3883682.653; 716725.718, 3883682.505; 716725.924, 3883682.344; 716726.120, 3883682.170; 716726.218, 3883682.073; 716728.719, 3883679.518; 716736.853, 3883675.299; 716744.608, 3883673.190; 716744.753, 3883673.148; 716745.000, 3883673.061; 716745.241, 3883672.959; 716745.475, 3883672.841; 716745.701, 3883672.708; 716745.917, 3883672.561; 716746.123, 3883672.400; 716746.319, 3883672.225; 716746.447, 3883672.098; 716751.092, 3883667.250; 716756.332, 3883664.419; 716762.515, 3883661.333; 716762.646, 3883661.265; 716762.871, 3883661.132; 716763.088, 3883660.984; 716763.294, 3883660.823; 716763.489, 3883660.649; 716763.673, 3883660.462; 716763.844, 3883660.264; 716764.001, 3883660.054; 716764.078, 3883659.941;

716781.010, 3883652.836; 716781.145, 3883652.776; 716781.379, 3883652.658; 716781.605, 3883652.525; 716781.821, 3883652.378; 716782.027, 3883652.217; 716782.223, 3883652.043; 716782.406, 3883651.856; 716846.613, 3883605.661; 716847.908, 3883602.347; 716846.575, 3883596.354; 716846.118, 3883594.105; 716848.243, 3883582.344; 716830.249, 3883581.517; 716822.498, 3883548.229; 716824.840, 3883549.237; 716870.557, 3883517.523; 716877.439, 3883514.290; 716878.074, 3883513.912; 716878.697, 3883513.833; 716878.962, 3883513.084; 716876.734, 3883507.286; 716874.152, 3883499.770; 716873.834, 3883476.283; 716838.819, 3883497.907; 716830.302, 3883500.678; 716822.911, 3883503.746; 716813.954, 3883505.351; 716806.476, 3883510.453; 716806.757, 3883508.468; 716797.703, 3883511.995; 716792.915, 3883514.331; 716788.712, 3883514.407; 716783.442, 3883516.712; 716778.647, 3883519.660; 716710.077, 3883558.115; 716709.882, 3883558.290; 716709.698, 3883558.476; 716709.561, 3883558.634; 716707.444, 3883561.192; 716707.410, 3883561.232; 716707.253, 3883561.442; 716707.109, 3883561.661; 716706.981, 3883561.888; 716706.867, 3883562.124; 716706.769, 3883562.367; 716706.687, 3883562.616; 716706.621, 3883562.869; 716706.573, 3883563.126; 716706.541, 3883563.386; 716706.526, 3883563.648; 716706.527, 3883563.719; 716705.001, 3883566.328; 716704.910, 3883566.493; 716704.796, 3883566.729; 716704.698, 3883566.972; 716704.616, 3883567.220; 716704.550, 3883567.474; 716704.535, 3883567.548; 716704.137, 3883569.497; 716702.011, 3883570.841; 716702.006, 3883570.845; 716701.842, 3883570.954; 716696.499, 3883574.723; 716694.409, 3883574.886; 716694.293, 3883574.897; 716694.034, 3883574.934; 716693.777, 3883574.987; 716693.525, 3883575.057; 716693.278, 3883575.143; 716693.037, 3883575.246; 716692.803, 3883575.364; 716692.671, 3883575.439; 716686.500, 3883579.119; 716680.289, 3883582.632; 716680.116, 3883582.736; 716679.908, 3883582.877; 716673.574, 3883587.475; 716667.823, 3883590.136; 716667.820, 3883590.138; 716667.741, 3883590.175; 716662.671, 3883592.663; 716662.516, 3883592.743; 716662.291, 3883592.876; 716662.277, 3883592.884; 716658.532, 3883595.280; 716655.845, 3883596.935; 716655.812, 3883596.956; 716650.045, 3883600.586; 716650.034, 3883600.593; 716649.817, 3883600.741; 716649.643, 3883600.875; 716646.032, 3883603.830; 716641.207, 3883607.380; 716630.555, 3883613.654; 716630.533, 3883613.667; 716626.400, 3883616.138; 716614.151, 3883621.989; 716613.959, 3883622.087; 716613.733, 3883622.220; 716613.517, 3883622.368; 716613.311, 3883622.529; 716613.115, 3883622.703; 716612.932, 3883622.890; 716612.761, 3883623.088; 716612.603, 3883623.297; 716612.460, 3883623.516; 716612.331, 3883623.744; 716612.217, 3883623.980; 716612.119, 3883624.223; 716612.037, 3883624.472; 716611.972, 3883624.725; 716611.923, 3883624.982; 716611.891, 3883625.242; 716611.876, 3883625.503; 716611.879, 3883625.765; 716611.898, 3883626.026; 716611.935, 3883626.286; 716611.988, 3883626.542; 716612.058, 3883626.794; 716612.144, 3883627.041; 716612.247, 3883627.282; 716612.274, 3883627.339; 716614.124, 3883631.169; 716612.901, 3883635.949; 716612.873, 3883636.066; 716612.824, 3883636.323; 716612.793, 3883636.583; 716612.778, 3883636.844; 716612.780, 3883637.106; 716612.800, 3883637.367; 716612.836, 3883637.627; 716612.889, 3883637.883; 716612.959, 3883638.135; 716613.046, 3883638.382; 716613.148, 3883638.623; 716613.185, 3883638.700; 716618.284, 3883649.109; 716616.935, 3883652.719; 716616.926, 3883652.743; 716616.844, 3883652.992; 716616.778, 3883653.246; 716616.730, 3883653.503; 716616.698, 3883653.763; 716616.683, 3883654.024; 716616.685, 3883654.286; 716616.705, 3883654.547; 716616.741, 3883654.806; 716616.791, 3883655.048; 716618.076, 3883660.432; 716618.079, 3883660.446; 716618.149, 3883660.698; 716618.236, 3883660.946; 716618.338, 3883661.187; 716618.456, 3883661.420; 716618.589, 3883661.646; 716618.736, 3883661.862; 716618.897, 3883662.069; 716619.072, 3883662.264; 716619.258, 3883662.447; 716619.457, 3883662.618; 716619.666, 3883662.776; 716619.885, 3883662.919; 716620.113, 3883663.048; 716620.349, 3883663.162; 716620.591, 3883663.260; 716620.717, 3883663.303; 716620.892, 3883665.278; 716620.899, 3883665.351; 716620.936, 3883665.611; 716620.989, 3883665.867; 716621.017, 3883665.974; 716621.470, 3883667.640; 716621.422, 3883667.668; 716621.205, 3883667.815; 716620.999, 3883667.977; 716620.804, 3883668.151; 716620.620, 3883668.338; 716620.449, 3883668.536; 716620.292, 3883668.745; 716620.148, 3883668.964; 716620.019, 3883669.192; 716619.906, 3883669.428; 716619.808, 3883669.671; 716619.726, 3883669.919; 716619.660, 3883670.173; 716619.611, 3883670.430; 716619.579, 3883670.690; 716619.565, 3883670.951; 716619.567, 3883671.213; 716619.586, 3883671.474; 716619.623, 3883671.733; 716619.676, 3883671.990; 716619.746, 3883672.242; 716619.833, 3883672.489; 716619.935, 3883672.730; 716620.030, 3883672.922; 716625.676, 3883683.560; 716625.699, 3883683.602; 716625.742, 3883683.679; 716628.499, 3883688.472; 716628.162, 3883689.465; 716628.112, 3883689.624; 716628.046, 3883689.877; 716627.997, 3883690.135; 716627.966, 3883690.395; 716627.951, 3883690.656; 716627.952, 3883690.886; 716628.102, 3883695.334; 716628.103, 3883695.365; 716628.122, 3883695.626; 716628.159, 3883695.886; 716628.212, 3883696.142; 716628.282, 3883696.394; 716628.290, 3883696.419; 716630.037, 3883701.872; 716629.949, 3883701.940; 716629.754, 3883702.115; 716629.571, 3883702.301; 716629.400, 3883702.500; 716629.242, 3883702.709; 716629.099, 3883702.928; 716628.970, 3883703.156; 716628.856, 3883703.391; 716628.758, 3883703.634; 716628.676, 3883703.883; 716628.611, 3883704.136; 716628.562, 3883704.393; 716628.530, 3883704.653; 716628.515, 3883704.915; 716628.517, 3883705.176; 716628.537, 3883705.438; 716628.573, 3883705.697; 716628.627, 3883705.953; 716628.697, 3883706.205; 716628.783, 3883706.453; 716628.885, 3883706.694; 716629.003, 3883706.927; 716629.136, 3883707.153; 716629.283, 3883707.369; 716629.445, 3883707.575; 716629.619, 3883707.771; 716629.806, 3883707.954; 716630.004, 3883708.125; 716630.213, 3883708.283; 716630.314, 3883708.352; 716633.372, 3883710.365; 716633.490, 3883710.440; 716633.718, 3883710.568; 716633.954, 3883710.682; 716634.196, 3883710.780; 716634.445, 3883710.862; 716634.699, 3883710.928; 716634.956, 3883710.976; 716635.216, 3883711.008; 716635.477, 3883711.023; 716635.739, 3883711.021; 716636.000, 3883711.001; 716636.259, 3883710.965; 716636.515, 3883710.912; 716636.768, 3883710.842; 716637.015, 3883710.755; 716637.256, 3883710.653; 716637.490, 3883710.535; 716637.715, 3883710.402; 716637.931, 3883710.255; 716638.138, 3883710.094; 716638.333, 3883709.919; 716638.517, 3883709.732; 716638.687, 3883709.534; 716638.845, 3883709.325; 716638.988, 3883709.106; 716639.117, 3883708.878; 716639.231, 3883708.642; 716639.287, 3883708.505; 716645.857, 3883708.390; 716645.954, 3883708.387; 716646.215, 3883708.367; 716646.363, 3883708.349; 716651.171, 3883707.649; 716651.282, 3883707.632; 716651.538, 3883707.578; 716651.723, 3883707.529; 716660.505, 3883704.948; 716660.572, 3883704.928; 716660.820, 3883704.841; 716661.060, 3883704.739; 716661.294, 3883704.621; 716661.520, 3883704.488; 716661.736, 3883704.341; 716661.942, 3883704.180; 716662.138, 3883704.005; 716662.321, 3883703.819 thence returning to 716662.492, 3883703.620.

(v) Subunit 1E, BBQ Flats South. Land bounded by the following UTM NAD83 coordinates (E,N): 716883.745, 3883335.605; 716832.007, 3883326.573; 716762.938, 3883366.547; 716762.713, 3883366.680; 716762.496, 3883366.828; 716762.386, 3883366.911; 716753.954,

3883373.526; 716753.858, 3883373.604; 716753.663, 3883373.778; 716753.480, 3883373.965; 716753.309, 3883374.163; 716753.151, 3883374.372; 716753.008, 3883374.591; 716752.879, 3883374.819; 716752.765, 3883375.055; 716752.667, 3883375.298; 716752.585, 3883375.546; 716752.576, 3883375.583; 716713.260, 3883408.071; 716713.243, 3883408.085; 716713.047, 3883408.259; 716712.864, 3883408.446; 716712.693, 3883408.644; 716712.536, 3883408.853; 716712.392, 3883409.072; 716712.263, 3883409.300; 716712.149, 3883409.536; 716712.051, 3883409.779; 716711.969, 3883410.027; 716711.904, 3883410.281; 716711.855, 3883410.538; 716711.823, 3883410.798; 716711.808, 3883411.059; 716711.811, 3883411.321; 716711.830, 3883411.582; 716711.867, 3883411.841; 716711.920, 3883412.098; 716711.990, 3883412.350; 716712.076, 3883412.597; 716712.179, 3883412.838; 716712.297, 3883413.072; 716712.430, 3883413.297; 716712.577, 3883413.514; 716712.738, 3883413.720; 716712.912, 3883413.915; 716713.099, 3883414.099; 716713.298, 3883414.270; 716713.315, 3883414.284; 716718.617, 3883418.508; 716718.780, 3883418.631; 716722.305, 3883421.156; 716729.087, 3883430.383; 716729.125, 3883430.434; 716736.013, 3883439.503; 716736.129, 3883439.648; 716736.303, 3883439.844; 716736.490, 3883440.027; 716736.538, 3883440.071; 716739.111, 3883442.362; 716742.003, 3883446.657; 716742.090, 3883446.782; 716742.251, 3883446.988; 716742.426, 3883447.183; 716742.613, 3883447.367; 716742.811, 3883447.538; 716742.886, 3883447.596; 716751.935, 3883454.542; 716752.069, 3883454.641; 716752.288, 3883454.784; 716752.516, 3883454.913; 716752.752, 3883455.027; 716752.995, 3883455.125; 716753.243, 3883455.207; 716753.497, 3883455.272; 716753.754, 3883455.321; 716754.014, 3883455.353; 716754.275, 3883455.368; 716754.537, 3883455.366; 716754.798, 3883455.346; 716755.057, 3883455.310; 716755.314, 3883455.256; 716755.343, 3883455.249; 716828.044, 3883437.035; 716833.573, 3883433.873; 716896.157, 3883389.216; 716894.278, 3883387.175; 716894.264, 3883387.066; 716894.224, 3883387.056; 716892.893, 3883381.727; 716891.470, 3883373.796; 716890.273, 3883368.797; 716884.928, 3883341.941 thence returning to 716883.745, 3883335.605.

(vi) Subunit 1F, Heather. Land bounded by the following UTM NAD83 coordinates (E,N): 716784.583, 3882681.203; 716790.078, 3882678.885; 716793.882, 3882680.178; 716794.042, 3882680.229; 716794.296, 3882680.295; 716794.553, 3882680.343; 716794.813, 3882680.375; 716795.074, 3882680.390; 716795.336, 3882680.388; 716795.597, 3882680.368; 716795.856, 3882680.332; 716796.113, 3882680.279; 716796.365, 3882680.209; 716796.612, 3882680.122; 716796.853, 3882680.020; 716797.087, 3882679.902; 716797.312, 3882679.769; 716797.529, 3882679.622; 716797.735, 3882679.461; 716797.930, 3882679.286; 716798.114, 3882679.099; 716798.285, 3882678.901; 716798.442, 3882678.692; 716798.586, 3882678.473; 716798.715, 3882678.245; 716798.717, 3882678.239; 716800.128, 3882678.398; 716800.220, 3882678.408; 716800.481, 3882678.422; 716800.743, 3882678.420; 716801.004, 3882678.401; 716801.264, 3882678.364; 716801.520, 3882678.311; 716801.772, 3882678.241; 716802.019, 3882678.155; 716802.260, 3882678.052; 716802.494, 3882677.934; 716802.720, 3882677.801; 716802.840, 3882677.722; 716806.378, 3882675.294; 716808.339, 3882674.910; 716808.396, 3882674.938; 716808.589, 3882675.030; 716808.832, 3882675.128; 716809.081, 3882675.210; 716809.334, 3882675.276; 716809.591, 3882675.324; 716809.851, 3882675.356; 716810.113, 3882675.371; 716810.374, 3882675.369; 716810.399, 3882675.368; 716815.192, 3882675.139; 716815.429, 3882675.121; 716815.688, 3882675.084; 716815.944, 3882675.031; 716816.197, 3882674.961; 716816.236, 3882674.948; 716822.513, 3882672.912; 716822.721, 3882672.838; 716822.962, 3882672.736; 716823.195, 3882672.618; 716823.267, 3882672.578; 716828.870, 3882669.367; 716843.194, 3882665.639; 716847.550, 3882665.134; 716847.776, 3882665.101; 716848.032, 3882665.048; 716848.284, 3882664.978; 716848.413, 3882664.935; 716851.671, 3882663.793; 716862.880, 3882660.067; 716866.572, 3882663.574; 716866.618, 3882663.617; 716866.816, 3882663.788; 716867.026, 3882663.946; 716867.245, 3882664.089; 716867.472, 3882664.218; 716867.708, 3882664.332; 716867.951, 3882664.430; 716868.200, 3882664.512; 716868.453, 3882664.577; 716868.710, 3882664.626; 716868.970, 3882664.658; 716869.232, 3882664.673; 716869.493, 3882664.671; 716869.754, 3882664.651; 716870.014, 3882664.615; 716870.270, 3882664.561; 716870.522, 3882664.491; 716870.769, 3882664.405; 716871.010, 3882664.303; 716871.244, 3882664.185; 716871.470, 3882664.052; 716871.686, 3882663.904; 716871.892, 3882663.743; 716872.088, 3882663.569; 716936.478, 3882617.187; 716949.166, 3882602.055; 716959.466, 3882569.184; 716946.432, 3882545.182; 716926.775, 3882537.834; 716886.871, 3882517.221; 716885.448, 3882517.684; 716883.506, 3882514.298; 716883.981, 3882514.482; 716885.167, 3882514.932; 716885.707, 3882514.059; 716886.511, 3882512.426; 716886.998, 3882511.172; 716888.428, 3882506.554; 716888.704, 3882503.404; 716884.241, 3882505.969; 716820.357, 3882543.071; 716820.110, 3882543.158; 716819.869, 3882543.260; 716819.635, 3882543.378; 716819.559, 3882543.421; 716815.096, 3882545.986; 716814.947, 3882546.076; 716814.731, 3882546.224; 716814.524, 3882546.385; 716814.329, 3882546.559; 716814.175, 3882546.714; 716765.677, 3882598.293; 716762.280, 3882600.303; 716762.174, 3882600.367; 716761.957, 3882600.515; 716761.751, 3882600.676; 716761.556, 3882600.850; 716761.372, 3882601.037; 716761.335, 3882601.079; 716748.696, 3882615.209; 716748.563, 3882615.365; 716748.406, 3882615.575; 716748.262, 3882615.794; 716748.133, 3882616.021; 716748.020, 3882616.257; 716747.922, 3882616.500; 716747.898, 3882616.567; 716746.564, 3882620.419; 716730.054, 3882630.548; 716730.003, 3882630.579; 716729.787, 3882630.727; 716729.581, 3882630.888; 716729.385, 3882631.062; 716729.202, 3882631.249; 716729.031, 3882631.447; 716728.873, 3882631.656; 716728.730, 3882631.875; 716728.601, 3882632.103; 716728.487, 3882632.339; 716728.389, 3882632.582; 716728.307, 3882632.831; 716728.242, 3882633.084; 716728.193, 3882633.341; 716728.161, 3882633.601; 716728.146, 3882633.862; 716728.149, 3882634.124; 716728.149, 3882634.142; 716728.370, 3882638.923; 716723.993, 3882643.422; 716723.916, 3882643.503; 716723.745, 3882643.701; 716723.588, 3882643.910; 716723.444, 3882644.129; 716723.316, 3882644.357; 716723.202, 3882644.593; 716723.104, 3882644.836; 716723.022, 3882645.084; 716722.956, 3882645.338; 716722.908, 3882645.595; 716722.876, 3882645.855; 716722.861, 3882646.116; 716722.863, 3882646.378; 716722.883, 3882646.639; 716722.919, 3882646.898; 716722.972, 3882647.155; 716723.042, 3882647.407; 716723.129, 3882647.654; 716723.231, 3882647.895; 716723.349, 3882648.129; 716723.412, 3882648.239; 716726.009, 3882652.657; 716725.490, 3882655.870; 716725.486, 3882655.892; 716725.454, 3882656.152; 716725.445, 3882656.275; 716725.242, 3882659.750; 716723.505, 3882661.467; 716723.374, 3882661.603; 716723.203, 3882661.802; 716723.046, 3882662.011; 716722.902, 3882662.230; 716722.773, 3882662.458; 716722.660, 3882662.693; 716722.562, 3882662.936; 716722.480, 3882663.185; 716722.414, 3882663.438; 716722.365, 3882663.696; 716722.334, 3882663.955; 716722.319, 3882664.217; 716722.321, 3882664.479; 716722.340, 3882664.740; 716722.377, 3882664.999; 716722.430, 3882665.255; 716722.500, 3882665.507; 716722.587, 3882665.755; 716722.689, 3882665.996; 716722.807, 3882666.229; 716722.940, 3882666.455; 716723.087, 3882666.671; 716723.248, 3882666.878; 716723.423, 3882667.073; 716723.609,

3882667.256; 716723.808, 3882667.427; 716724.017, 3882667.585; 716724.030, 3882667.594; 716727.957, 3882670.333; 716728.240, 3882671.291; 716728.259, 3882671.353; 716728.345, 3882671.600; 716728.447, 3882671.841; 716728.565, 3882672.075; 716728.698, 3882672.301; 716728.845, 3882672.517; 716729.007, 3882672.723; 716729.181, 3882672.919; 716729.368, 3882673.102; 716729.566, 3882673.273; 716729.775, 3882673.431; 716729.994, 3882673.574; 716730.222, 3882673.703; 716730.458, 3882673.817; 716730.701, 3882673.915; 716730.949, 3882673.997; 716731.203, 3882674.062; 716731.212, 3882674.064; 716740.619, 3882676.147; 716749.592, 3882681.884; 716749.665, 3882681.929; 716749.893, 3882682.058; 716750.039, 3882682.130; 716752.537, 3882683.310; 716755.820, 3882685.107; 716758.514, 3882691.850; 716758.600, 3882692.049; 716758.718, 3882692.282; 716758.851, 3882692.508; 716758.998, 3882692.724; 716759.159, 3882692.931; 716759.334, 3882693.126; 716759.520, 3882693.309; 716759.719, 3882693.480; 716759.928, 3882693.638; 716760.147, 3882693.781; 716760.375, 3882693.910; 716760.611, 3882694.024; 716760.853, 3882694.122; 716761.102, 3882694.204; 716761.355, 3882694.269; 716761.613, 3882694.318; 716761.872, 3882694.350; 716762.134, 3882694.365; 716762.396, 3882694.363; 716762.657, 3882694.343; 716762.916, 3882694.307; 716763.172, 3882694.253; 716763.424, 3882694.183; 716763.672, 3882694.097; 716763.913, 3882693.995; 716764.146, 3882693.877; 716764.372, 3882693.744; 716764.588, 3882693.596; 716764.795, 3882693.435; 716764.990, 3882693.261; 716765.173, 3882693.074; 716765.344, 3882692.876; 716765.352, 3882692.866; 716769.410, 3882687.799; 716776.201, 3882685.905; 716776.321, 3882685.869; 716776.569, 3882685.783; 716776.809, 3882685.681; 716777.043, 3882685.563; 716777.129, 3882685.514 thence returning to 716784.583, 3882681.203.

(vii) Subunit 1G, Acacia. Land bounded by the following UTM NAD83 coordinates (E,N): 716718.721, 3882577.999; 716751.938, 3882570.643; 716752.016, 3882570.625; 716752.268, 3882570.555; 716752.515, 3882570.468; 716752.706, 3882570.389; 716759.160, 3882567.504; 716759.210, 3882567.481; 716759.444, 3882567.363; 716824.678, 3882520.366; 716822.921, 3882517.054; 716825.522, 3882511.950; 716833.378, 3882505.015; 716834.060, 3882499.460; 716835.340, 3882498.057; 716839.070, 3882490.821; 716846.482, 3882479.361; 716850.034, 3882471.968; 716848.255, 3882468.024; 716847.042, 3882462.457; 716846.229, 3882456.972; 716848.553, 3882456.039; 716837.921, 3882409.509; 716795.984, 3882413.456; 716751.234, 3882430.858; 716735.179, 3882437.432; 716665.668, 3882477.687; 716665.523, 3882477.798; 716652.405, 3882488.329; 716652.405, 3882545.528; 716659.254, 3882569.501; 716665.062, 3882570.418; 716670.843, 3882572.077; 716675.375, 3882573.500; 716675.446, 3882573.521; 716675.700, 3882573.587; 716675.957, 3882573.636; 716676.217, 3882573.668; 716676.478, 3882573.682; 716676.740, 3882573.680; 716677.001, 3882573.661; 716677.260, 3882573.624; 716677.516, 3882573.571; 716677.769, 3882573.501; 716677.843, 3882573.477; 716680.044, 3882575.383; 716680.153, 3882575.474; 716680.362, 3882575.631; 716680.581, 3882575.775; 716680.809, 3882575.904; 716681.045, 3882576.017; 716681.287, 3882576.115; 716681.536, 3882576.197; 716681.790, 3882576.263; 716682.047, 3882576.312; 716682.307, 3882576.344; 716682.568, 3882576.358; 716682.830, 3882576.356; 716683.091, 3882576.337; 716683.350, 3882576.300; 716683.606, 3882576.247; 716683.859, 3882576.177; 716684.106, 3882576.090; 716684.347, 3882575.988; 716684.581, 3882575.870; 716684.806, 3882575.737; 716685.023, 3882575.590; 716685.229, 3882575.429; 716685.245, 3882575.415; 716686.392, 3882575.833; 716688.842, 3882577.819; 716688.851, 3882577.826; 716689.060, 3882577.984; 716689.279, 3882578.127; 716689.507, 3882578.256; 716689.743, 3882578.370; 716689.985, 3882578.468; 716690.234, 3882578.550; 716690.291, 3882578.566; 716695.133, 3882579.910; 716695.329, 3882579.959; 716695.587, 3882580.008; 716695.681, 3882580.022; 716702.240, 3882580.885; 716702.406, 3882580.903; 716702.667, 3882580.918; 716702.929, 3882580.915; 716702.984, 3882580.913; 716704.726, 3882580.816; 716709.656, 3882580.675; 716709.708, 3882580.674; 716709.969, 3882580.654; 716710.228, 3882580.618; 716710.485, 3882580.564; 716710.735, 3882580.495 thence returning to 716718.721, 3882577.999.

(viii) Subunit 1H, Cottonwood. Land bounded by the following UTM NAD83 coordinates (E,N): 716958.245, 3882272.237; 716958.363, 3882274.175; 716958.230, 3882272.171; 716958.245, 3882272.237; 716958.194, 3882271.407; 716957.590, 3882263.688; 716956.216, 3882256.286; 716956.066, 3882251.747; 716956.026, 3882250.167; 716954.917, 3882248.973; 716953.891, 3882247.496; 716953.406, 3882247.886; 716945.301, 3882242.327; 716942.778, 3882239.605; 716940.008, 3882236.569; 716934.830, 3882225.382; 716934.681, 3882225.601; 716934.914, 3882225.079; 716935.273, 3882224.168; 716936.151, 3882223.929; 716938.885, 3882223.683; 716932.237, 3882219.512; 716924.946, 3882216.975; 716918.520, 3882217.118; 716895.939, 3882211.129; 716891.707, 3882212.688; 716891.193, 3882211.675; 716890.007, 3882203.390; 716883.929, 3882201.518; 716880.200, 3882204.973; 716868.753, 3882210.290; 716860.672, 3882212.167; 716849.811, 3882215.020; 716843.944, 3882215.971; 716838.615, 3882216.924; 716839.055, 3882216.396; 716832.620, 3882217.839; 716827.773, 3882219.493; 716823.108, 3882220.931; 716817.801, 3882222.841; 716813.079, 3882224.708; 716811.400, 3882221.035; 716742.806, 3882260.790; 716742.565, 3882260.892; 716742.332, 3882261.010; 716742.106, 3882261.143; 716741.890, 3882261.290; 716741.683, 3882261.451; 716741.488, 3882261.626; 716741.414, 3882261.698; 716734.340, 3882268.802; 716729.584, 3882270.513; 716722.316, 3882272.843; 716722.095, 3882272.921; 716721.900, 3882273.003; 716717.845, 3882274.822; 716713.278, 3882277.023; 716713.037, 3882277.125; 716712.803, 3882277.243; 716701.273, 3882286.689; 716701.056, 3882286.837; 716700.850, 3882286.998; 716700.655, 3882287.172; 716700.471, 3882287.359; 716700.300, 3882287.557; 716700.143, 3882287.767; 716699.999, 3882287.986; 716699.870, 3882288.213; 716699.757, 3882288.449; 716699.659, 3882288.692; 716699.577, 3882288.941; 716699.511, 3882289.194; 716699.462, 3882289.451; 716699.431, 3882289.711; 716699.416, 3882289.973; 716699.416, 3882290.181; 716699.583, 3882296.090; 716699.585, 3882296.143; 716699.588, 3882296.205; 716700.047, 3882304.254; 716699.465, 3882307.409; 716698.430, 3882310.775; 716698.380, 3882310.828; 716698.209, 3882311.026; 716698.052, 3882311.235; 716697.908, 3882311.454; 716697.779, 3882311.682; 716697.666, 3882311.918; 716697.568, 3882312.161; 716697.486, 3882312.409; 716697.457, 3882312.511; 716696.379, 3882316.575; 716696.342, 3882316.653; 716696.269, 3882316.828; 716691.545, 3882329.033; 716691.520, 3882329.102; 716691.438, 3882329.350; 716691.372, 3882329.604; 716691.323, 3882329.861; 716691.291, 3882330.121; 716691.289, 3882330.145; 716691.034, 3882333.209; 716686.653, 3882338.481; 716686.615, 3882338.527; 716686.457, 3882338.736; 716686.314, 3882338.955; 716686.185, 3882339.183; 716686.071, 3882339.419; 716685.973, 3882339.662; 716685.956, 3882339.709; 716684.007, 3882345.248; 716681.873, 3882351.241; 716681.342, 3882352.419; 716681.242, 3882352.497; 716681.047, 3882352.672; 716680.863, 3882352.859; 716680.692, 3882353.057; 716680.535, 3882353.266; 716680.419, 3882353.440; 716678.373, 3882356.699; 716678.345, 3882356.744; 716678.216, 3882356.972; 716678.102, 3882357.208; 716678.004, 3882357.451; 716677.963, 3882357.570; 716675.160, 3882366.044; 716675.120,

3882366.173; 716675.054, 3882366.426; 716675.005, 3882366.683; 716674.973, 3882366.943; 716674.970, 3882366.982; 716674.429, 3882373.776; 716674.428, 3882373.805; 716674.417, 3882373.999; 716674.420, 3882374.260; 716674.439, 3882374.521; 716674.476, 3882374.781; 716674.529, 3882375.037; 716674.599, 3882375.289; 716674.685, 3882375.536; 716674.788, 3882375.777; 716674.906, 3882376.011; 716675.038, 3882376.237; 716675.186, 3882376.453; 716675.347, 3882376.659; 716675.521, 3882376.855; 716675.708, 3882377.038; 716675.906, 3882377.209; 716676.116, 3882377.367; 716676.335, 3882377.510; 716676.562, 3882377.639; 716676.713, 3882377.714; 716679.458, 3882379.006; 716681.049, 3882382.661; 716681.088, 3882382.748; 716681.206, 3882382.982; 716681.339, 3882383.208; 716681.486, 3882383.424; 716681.648, 3882383.630; 716681.822, 3882383.826; 716682.009, 3882384.009; 716682.207, 3882384.180; 716682.416, 3882384.337; 716682.496, 3882384.392; 716684.013, 3882385.405; 716684.152, 3882385.493; 716684.277, 3882385.566; 716686.748, 3882386.953; 716686.851, 3882387.009; 716687.087, 3882387.122; 716687.330, 3882387.221; 716687.579, 3882387.302; 716687.832, 3882387.368; 716688.089, 3882387.417; 716688.349, 3882387.449; 716688.610, 3882387.463; 716688.872, 3882387.461; 716689.133, 3882387.442; 716689.393, 3882387.405; 716689.423, 3882387.400; 716717.608, 3882382.262; 716717.627, 3882382.274; 716717.630, 3882382.276; 716717.858, 3882382.405; 716717.996, 3882382.474; 716768.871, 3882406.633; 716772.823, 3882408.654; 716773.026, 3882408.751; 716773.269, 3882408.849; 716773.335, 3882408.873; 716773.688, 3882408.995; 716778.451, 3882411.176; 716778.498, 3882411.197; 716778.741, 3882411.295; 716778.989, 3882411.377; 716779.243, 3882411.442; 716779.500, 3882411.491; 716779.760, 3882411.523; 716779.951, 3882411.535; 716785.605, 3882411.769; 716785.675, 3882411.771; 716785.936, 3882411.769; 716786.198, 3882411.750; 716786.457, 3882411.713; 716786.713, 3882411.660; 716786.834, 3882411.628; 716816.816, 3882403.360; 716816.948, 3882403.321; 716817.195, 3882403.235; 716817.436, 3882403.133; 716817.670, 3882403.015; 716817.895, 3882402.882; 716818.017, 3882402.802; 716820.714, 3882400.950; 716828.435, 3882396.849; 716828.476, 3882396.827; 716828.702, 3882396.694; 716828.918, 3882396.547; 716828.962, 3882396.514; 716834.197, 3882392.581; 716838.075, 3882389.873; 716838.144, 3882389.824; 716838.350, 3882389.663; 716838.392, 3882389.628; 716840.308, 3882387.983; 716845.238, 3882384.297; 716850.771, 3882380.379; 716850.818, 3882380.345; 716850.947, 3882380.246; 716854.506, 3882377.419; 716854.548, 3882377.385; 716866.970, 3882367.240; 716869.634, 3882365.200; 716871.805, 3882364.961; 716872.055, 3882364.926; 716872.311, 3882364.872; 716872.564, 3882364.802; 716872.811, 3882364.716; 716873.052, 3882364.614; 716873.285, 3882364.496; 716873.511, 3882364.363; 716873.727, 3882364.216; 716873.934, 3882364.054; 716874.129, 3882363.880; 716874.312, 3882363.693; 716874.483, 3882363.495; 716874.641, 3882363.286; 716874.784, 3882363.067; 716874.913, 3882362.839; 716875.027, 3882362.603; 716875.032, 3882362.591; 716876.413, 3882359.440; 716878.724, 3882357.170; 716882.904, 3882356.018; 716885.789, 3882354.037; 716893.710, 3882349.830; 716899.000, 3882345.855; 716902.936, 3882343.107; 716904.955, 3882341.373; 716910.035, 3882337.576; 716915.610, 3882333.628; 716919.169, 3882330.800; 716931.639, 3882320.616; 716935.239, 3882317.859; 716938.520, 3882317.499; 716940.210, 3882313.641; 716944.365, 3882309.560; 716946.865, 3882307.188; 716949.276, 3882305.383; 716949.981, 3882301.873; 716951.491, 3882298.769; 716953.314, 3882294.002; 716955.400, 3882288.295; 716959.502, 3882276.992; 716959.373, 3882277.026 thence returning to 716958.245, 3882272.237.

(ix) Subunit 1I, Eucalyptus North. Land bounded by the following UTM NAD83 coordinates (E,N): 716901.590, 3881944.987; 716901.517, 3881945.510; 716901.273, 3881946.033; 716900.981, 3881946.346; 716900.895, 3881946.129; 716900.785, 3881946.408; 716900.685, 3881946.112; 716900.749, 3881945.906; 716900.716, 3881945.422; 716900.831, 3881945.115; 716900.900, 3881944.993; 716900.926, 3881944.926; 716901.104, 3881945.124; 716901.217, 3881945.025; 716901.590, 3881944.987; 716902.422, 3881939.019; 716911.182, 3881899.552; 716911.287, 3881899.614; 716908.773, 3881881.225; 716904.998, 3881875.564; 716902.097, 3881871.486; 716898.303, 3881867.503; 716895.618, 3881865.687; 716889.393, 3881869.389; 716862.828, 3881862.674; 716835.139, 3881871.882; 716810.171, 3881878.873; 716787.553, 3881891.762; 716781.183, 3881895.348; 716777.954, 3881896.892; 716768.183, 3881905.464; 716762.147, 3881907.219; 716708.444, 3881937.146; 716703.234, 3881940.574; 716703.234, 3882042.041; 716716.723, 3882144.560; 716726.417, 3882143.027; 716726.478, 3882143.016; 716726.735, 3882142.963; 716726.987, 3882142.893; 716727.234, 3882142.807; 716727.313, 3882142.775; 716765.764, 3882126.966; 716765.839, 3882126.935; 716771.542, 3882124.453; 716771.629, 3882124.414; 716771.694, 3882124.383; 716776.302, 3882122.145; 716778.508, 3882123.011; 716778.594, 3882123.044; 716778.843, 3882123.126; 716779.096, 3882123.191; 716779.354, 3882123.240; 716779.613, 3882123.272; 716779.875, 3882123.287; 716780.137, 3882123.285; 716780.398, 3882123.265; 716780.657, 3882123.229; 716780.913, 3882123.175; 716781.165, 3882123.105; 716781.413, 3882123.019; 716781.654, 3882122.917; 716847.121, 3882075.801; 716868.648, 3882058.674; 716871.215, 3882056.537; 716874.689, 3882053.722; 716877.292, 3882051.011; 716880.545, 3882046.465; 716881.633, 3882045.391; 716884.591, 3882002.430; 716882.651, 3882000.332; 716901.717, 3881944.965; 716901.701, 3881944.976 thence returning to 716901.590, 3881944.987.

(x) Subunit 1J, Eucalyptus South. Land bounded by the following UTM NAD83 coordinates (E,N): 716919.144, 3881805.190; 716919.266, 3881802.161; 716922.805, 3881800.049; 716922.256, 3881800.620; 716926.271, 3881797.243; 716929.593, 3881794.330; 716933.077, 3881790.280; 716932.628, 3881791.752; 716972.495, 3881748.302; 716969.825, 3881749.692; 716972.599, 3881744.935; 716973.625, 3881741.209; 716978.607, 3881736.577; 716978.746, 3881730.922; 716984.576, 3881725.141; 716986.468, 3881720.893; 716983.830, 3881720.575; 716982.507, 3881717.658; 716981.311, 3881714.831; 716978.816, 3881710.027; 716976.287, 3881703.884; 716976.411, 3881699.190; 716970.237, 3881692.141; 716969.037, 3881688.746; 716971.148, 3881688.716; 716967.414, 3881683.906; 716963.454, 3881679.231; 716955.856, 3881673.812; 716955.304, 3881670.234; 716947.782, 3881665.853; 716944.988, 3881662.510; 716936.983, 3881644.907; 716933.485, 3881639.258; 716925.558, 3881634.937; 716927.136, 3881627.499; 716913.729, 3881600.683; 716905.176, 3881583.895; 716886.621, 3881584.810; 716872.725, 3881593.767; 716856.582, 3881593.624; 716892.952, 3881567.421; 716896.865, 3881560.562; 716929.308, 3881520.671; 716926.330, 3881513.987; 716923.146, 3881507.284; 716905.362, 3881471.062; 716905.052, 3881471.943; 716897.254, 3881456.896; 716898.348, 3881455.060; 716891.188, 3881455.945; 716883.462, 3881453.525; 716875.784, 3881457.473; 716869.897, 3881456.792; 716862.100, 3881455.948; 716852.674, 3881459.227; 716848.438, 3881459.258; 716840.579, 3881454.813; 716832.623, 3881454.397; 716826.464, 3881456.270; 716815.056, 3881453.288; 716797.657, 3881463.076; 716789.810, 3881468.650; 716745.987, 3881493.262; 716745.943, 3881493.287; 716732.250, 3881500.990; 716719.735, 3881522.312; 716720.153, 3881526.181; 716720.030, 3881529.528; 716720.031, 3881529.842; 716720.050, 3881530.103; 716720.075, 3881530.290;

716720.587, 3881533.580; 716720.332, 3881536.833; 716719.367, 3881543.128; 716719.336, 3881543.377; 716719.331, 3881543.443; 716717.936, 3881562.560; 716717.929, 3881563.018; 716717.939, 3881563.188; 716718.765, 3881572.980; 716718.774, 3881573.071; 716718.810, 3881573.331; 716718.864, 3881573.587; 716718.910, 3881573.760; 716721.425, 3881582.417; 716721.954, 3881587.176; 716721.958, 3881587.210; 716723.067, 3881596.477; 716721.261, 3881601.979; 716721.223, 3881602.099; 716721.158, 3881602.353; 716721.109, 3881602.610; 716721.077, 3881602.870; 716721.062, 3881603.131; 716721.064, 3881603.393; 716721.084, 3881603.654; 716721.120, 3881603.913; 716721.174, 3881604.170; 716721.244, 3881604.422; 716721.330, 3881604.669; 716721.338, 3881604.689; 716726.563, 3881617.993; 716717.944, 3881620.223; 716714.753, 3881623.796; 716709.545, 3881626.109; 716705.391, 3881628.915; 716699.456, 3881632.235; 716696.149, 3881633.901; 716678.947, 3881643.888; 716672.172, 3881668.450; 716677.819, 3881765.307; 716687.828, 3881819.799; 716703.515, 3881832.686; 716703.604, 3881832.842; 716703.705, 3881833.010; 716703.852, 3881833.226; 716704.013, 3881833.433; 716704.188, 3881833.628; 716704.374, 3881833.811; 716704.573, 3881833.982; 716704.782, 3881834.140; 716705.001, 3881834.283; 716705.229, 3881834.412; 716705.464, 3881834.526; 716705.707, 3881834.624; 716705.956, 3881834.706; 716706.209, 3881834.771; 716706.467, 3881834.820; 716706.726, 3881834.852; 716706.988, 3881834.867; 716707.250, 3881834.865; 716707.511, 3881834.845; 716707.770, 3881834.809; 716707.893, 3881834.785; 716712.936, 3881833.742; 716714.658, 3881835.078; 716714.808, 3881835.188; 716715.027, 3881835.332; 716715.255, 3881835.461; 716715.491, 3881835.574; 716715.733, 3881835.672; 716715.982, 3881835.754; 716716.235, 3881835.820; 716716.493, 3881835.869; 716716.752, 3881835.901; 716717.014, 3881835.915; 716717.276, 3881835.913; 716717.537, 3881835.894; 716717.796, 3881835.857; 716718.052, 3881835.804; 716718.305, 3881835.734; 716718.552, 3881835.647; 716718.793, 3881835.545; 716718.956, 3881835.465; 716734.912, 3881827.160; 716736.462, 3881828.488; 716736.546, 3881828.558; 716740.266, 3881831.575; 716750.005, 3881841.350; 716752.009, 3881844.698; 716758.704, 3881856.731; 716758.821, 3881856.929; 716758.969, 3881857.145; 716759.035, 3881857.234; 716769.973, 3881871.374; 716770.067, 3881871.491; 716770.242, 3881871.686; 716770.428, 3881871.870; 716770.627, 3881872.041; 716770.836, 3881872.198; 716771.055, 3881872.342; 716771.283, 3881872.471; 716771.518, 3881872.584; 716771.761, 3881872.682; 716772.010, 3881872.764; 716772.263, 3881872.830; 716772.520, 3881872.879; 716772.780, 3881872.911; 716773.042, 3881872.925; 716773.304, 3881872.923; 716773.565, 3881872.904; 716773.824, 3881872.867; 716774.080, 3881872.814; 716774.332, 3881872.744; 716774.580, 3881872.657; 716774.821, 3881872.555; 716775.054, 3881872.437; 716775.280, 3881872.304; 716775.496, 3881872.157; 716775.703, 3881871.996; 716775.829, 3881871.886; 716777.140, 3881872.615; 716777.230, 3881872.663; 716777.466, 3881872.777; 716777.708, 3881872.875; 716777.957, 3881872.957; 716778.210, 3881873.023; 716778.468, 3881873.071; 716778.728, 3881873.103; 716778.989, 3881873.118; 716779.251, 3881873.116; 716779.512, 3881873.096; 716779.771, 3881873.060; 716780.027, 3881873.006; 716780.280, 3881872.936; 716780.527, 3881872.850; 716780.768, 3881872.748; 716781.001, 3881872.630; 716781.227, 3881872.497; 716781.443, 3881872.350; 716781.531, 3881872.284; 716785.890, 3881868.915; 716790.905, 3881866.770; 716802.340, 3881863.870; 716802.552, 3881863.810; 716802.799, 3881863.724; 716803.040, 3881863.621; 716803.274, 3881863.503; 716803.499, 3881863.370; 716803.574, 3881863.322; 716808.071, 3881860.328; 716842.794, 3881855.441; 716842.923, 3881855.420; 716843.114, 3881855.382; 716850.718, 3881853.671; 716918.891, 3881805.855; 716918.866, 3881805.877; 716918.988, 3881805.958; 716919.042, 3881805.765; 716919.101, 3881805.283 thence returning to 716919.144, 3881805.190.

(xi) Subunit 1K, Indian Midden South. Land bounded by the following UTM NAD83 coordinates (E,N): 717594.887, 3881629.742; 717587.417, 3881624.260; 717518.123, 3881664.367; 717517.907, 3881664.514; 717517.700, 3881664.675; 717517.505, 3881664.850; 717517.322, 3881665.037; 717517.151, 3881665.235; 717516.993, 3881665.444; 717516.850, 3881665.663; 717516.721, 3881665.891; 717516.694, 3881665.942; 717495.515, 3881707.890; 717488.629, 3881718.363; 717484.420, 3881724.377; 717484.282, 3881724.588; 717484.279, 3881724.592; 717478.444, 3881734.189; 717471.489, 3881742.187; 717471.393, 3881742.302; 717471.236, 3881742.511; 717471.092, 3881742.730; 717470.963, 3881742.958; 717470.850, 3881743.193; 717470.752, 3881743.436; 717470.670, 3881743.685; 717470.604, 3881743.938; 717470.555, 3881744.196; 717470.523, 3881744.455; 717470.510, 3881744.685; 717469.524, 3881775.734; 717469.524, 3881775.749; 717469.523, 3881775.766; 717469.526, 3881776.028; 717469.545, 3881776.289; 717469.581, 3881776.548; 717469.635, 3881776.804; 717469.705, 3881777.056; 717469.791, 3881777.304; 717469.893, 3881777.545; 717470.011, 3881777.778; 717470.144, 3881778.004; 717470.292, 3881778.220; 717470.453, 3881778.427; 717470.627, 3881778.622; 717470.814, 3881778.805; 717471.012, 3881778.976; 717471.221, 3881779.134; 717471.440, 3881779.277; 717471.579, 3881779.358; 717475.869, 3881781.742; 717475.958, 3881781.790; 717476.194, 3881781.904; 717476.437, 3881782.002; 717476.685, 3881782.084; 717476.939, 3881782.149; 717477.196, 3881782.198; 717477.456, 3881782.230; 717477.717, 3881782.245; 717477.979, 3881782.242; 717478.240, 3881782.223; 717478.499, 3881782.187; 717478.756, 3881782.133; 717479.008, 3881782.063; 717479.255, 3881781.977; 717479.496, 3881781.874; 717484.870, 3881779.380; 717495.967, 3881778.362; 717496.029, 3881778.355; 717496.288, 3881778.319; 717496.497, 3881778.277; 717507.934, 3881774.927; 717512.414, 3881771.652; 717514.859, 3881770.487; 717515.056, 3881770.387; 717515.282, 3881770.254; 717515.389, 3881770.184; 717534.558, 3881757.147; 717534.667, 3881757.070; 717534.874, 3881756.909; 717535.069, 3881756.734; 717571.788, 3881728.895; 717577.507, 3881724.715; 717580.290, 3881723.390; 717599.460, 3881710.353; 717610.418, 3881694.979; 717619.087, 3881686.896; 717624.513, 3881677.575; 717616.573, 3881637.608; 717610.014, 3881636.026; 717602.925, 3881633.156 thence returning to 717594.887, 3881629.742.

(xii) Subunit 1L, Boyscout North. Land bounded by the following UTM NAD83 coordinates (E,N): 717429.132, 3881607.279; 717442.528, 3881597.397; 717452.627, 3881595.331; 717454.984, 3881596.689; 717455.963, 3881597.967; 717456.069, 3881598.099; 717456.243, 3881598.295; 717456.430, 3881598.478; 717456.628, 3881598.649; 717456.837, 3881598.807; 717457.056, 3881598.950; 717457.284, 3881599.079; 717457.520, 3881599.193; 717457.763, 3881599.291; 717458.011, 3881599.373; 717458.265, 3881599.438; 717458.522, 3881599.487; 717458.782, 3881599.519; 717459.043, 3881599.534; 717459.305, 3881599.531; 717459.566, 3881599.512; 717459.825, 3881599.475; 717459.917, 3881599.458; 717474.734, 3881596.519; 717474.898, 3881596.483; 717475.151, 3881596.413; 717475.398, 3881596.326; 717475.639, 3881596.224; 717475.872, 3881596.106; 717476.098, 3881595.973; 717476.293, 3881595.841; 717478.173, 3881594.487; 717526.303, 3881594.185; 717526.444, 3881594.182; 717526.705, 3881594.162; 717526.964, 3881594.126; 717527.220, 3881594.072; 717527.473, 3881594.002; 717527.720, 3881593.916; 717527.961, 3881593.814; 717528.195, 3881593.696; 717528.420, 3881593.563; 717528.637,

3881593.416; 717593.429, 3881546.699; 717594.350, 3881544.669; 717639.305, 3881467.382; 717611.717, 3881415.200; 717570.390, 3881360.904; 717501.096, 3881401.011; 717500.969, 3881401.095; 717380.454, 3881484.126; 717380.365, 3881484.189; 717380.159, 3881484.350; 717379.963, 3881484.525; 717379.780, 3881484.712; 717379.609, 3881484.910; 717379.452, 3881485.119; 717379.308, 3881485.338; 717379.179, 3881485.566; 717379.105, 3881485.714; 717363.499, 3881518.818; 717362.407, 3881520.850; 717362.385, 3881520.890; 717362.271, 3881521.126; 717362.173, 3881521.369; 717362.092, 3881521.617; 717362.026, 3881521.871; 717361.977, 3881522.128; 717361.945, 3881522.388; 717361.941, 3881522.437; 717361.221, 3881531.789; 717358.527, 3881540.237; 717358.500, 3881540.325; 717358.445, 3881540.535; 717357.199, 3881545.825; 717357.189, 3881545.868; 717357.183, 3881545.895; 717354.192, 3881559.711; 717351.725, 3881566.927; 717351.672, 3881567.094; 717351.606, 3881567.347; 717351.593, 3881567.410; 717350.682, 3881571.812; 717350.646, 3881572.006; 717350.614, 3881572.266; 717350.600, 3881572.527; 717350.602, 3881572.789; 717350.621, 3881573.050; 717350.658, 3881573.310; 717350.711, 3881573.566; 717350.781, 3881573.818; 717350.868, 3881574.065; 717350.970, 3881574.306; 717351.088, 3881574.540; 717351.221, 3881574.766; 717351.368, 3881574.982; 717351.529, 3881575.188; 717351.704, 3881575.383; 717351.890, 3881575.566; 717357.483, 3881580.714; 717357.681, 3881580.885; 717357.890, 3881581.043; 717358.109, 3881581.186; 717358.337, 3881581.315; 717358.362, 3881581.328; 717360.442, 3881582.398; 717363.415, 3881584.799; 717363.418, 3881584.802; 717363.478, 3881584.849; 717369.815, 3881589.762; 717369.965, 3881589.873; 717369.983, 3881589.885; 717376.222, 3881594.221; 717382.663, 3881598.767; 717387.755, 3881603.069; 717387.768, 3881603.080; 717390.973, 3881605.764; 717391.031, 3881605.812; 717391.240, 3881605.969; 717391.459, 3881606.113; 717391.687, 3881606.242; 717391.923, 3881606.355; 717392.166, 3881606.454; 717392.414, 3881606.535; 717392.668, 3881606.601; 717392.925, 3881606.650; 717393.185, 3881606.682; 717393.446, 3881606.696; 717393.708, 3881606.694; 717393.956, 3881606.676; 717395.445, 3881606.521; 717415.861, 3881608.699; 717420.726, 3881609.670; 717420.892, 3881609.699; 717421.152, 3881609.731; 717421.413, 3881609.746; 717421.675, 3881609.744; 717421.936, 3881609.724; 717422.195, 3881609.688; 717422.452, 3881609.634; 717422.704, 3881609.564; 717422.733, 3881609.555; 717427.981, 3881607.868; 717428.200, 3881607.791; 717428.441, 3881607.689; 717428.675, 3881607.571; 717428.900, 3881607.438; 717429.116, 3881607.291 thence returning to 717429.132, 3881607.279.

(xiii) Subunit 1M, Tabletop. Land bounded by the following UTM NAD83 coordinates (E,N): 716940.175, 3881274.717; 716940.202, 3881274.717; 716940.238, 3881274.719; 716940.500, 3881274.717; 716940.761, 3881274.697; 716941.020, 3881274.661; 716941.276, 3881274.607; 716941.529, 3881274.537; 716941.682, 3881274.486; 716944.603, 3881273.440; 716946.287, 3881272.937; 716946.337, 3881272.922; 716946.584, 3881272.835; 716946.797, 3881272.746; 716964.921, 3881264.507; 716964.949, 3881264.494; 716965.183, 3881264.376; 716965.408, 3881264.243; 716965.430, 3881264.229; 716967.471, 3881262.916; 716967.665, 3881262.783; 716967.871, 3881262.622; 716968.066, 3881262.448; 716968.175, 3881262.340; 716976.330, 3881258.114; 716980.874, 3881256.007; 716981.108, 3881255.889; 716981.333, 3881255.756; 716981.547, 3881255.611; 716993.268, 3881247.070; 716993.271, 3881247.067; 716993.477, 3881246.906; 716993.673, 3881246.732; 716993.695, 3881246.710; 717046.342, 3881208.892; 717058.063, 3881200.350; 717114.406, 3881145.797; 717116.179, 3881145.778; 717129.174, 3881133.697; 717128.391, 3881121.741; 717125.739, 3881113.587; 717072.701, 3881075.924; 717063.409, 3881070.922; 717059.384, 3881071.179; 717052.005, 3881072.472; 717046.527, 3881074.074; 717038.977, 3881077.467; 717018.713, 3881081.699; 717009.336, 3881084.280; 717057.502, 3881049.528; 717058.275, 3881048.992; 717059.049, 3881048.455; 717059.827, 3881047.734; 717060.604, 3881047.012; 717061.235, 3881046.102; 717061.717, 3881045.004; 717062.200, 3881043.905; 717062.530, 3881042.803; 717063.013, 3881041.705; 717063.348, 3881040.418; 717063.679, 3881039.316; 717063.857, 3881038.210; 717063.884, 3881037.101; 717063.910, 3881035.992; 717063.936, 3881034.882; 717063.963, 3881033.773; 717063.681, 3881032.841; 717063.555, 3881031.729; 717063.273, 3881030.797; 717062.996, 3881029.680; 717062.870, 3881028.567; 717062.745, 3881027.454; 717062.471, 3881026.153; 717062.346, 3881025.040; 717062.068, 3881023.924; 717061.943, 3881022.811; 717061.665, 3881021.694; 717061.539, 3881020.581; 717061.414, 3881019.468; 717061.288, 3881018.355; 717061.158, 3881017.427; 717061.028, 3881016.499; 717060.898, 3881015.571; 717060.773, 3881014.458; 717060.643, 3881013.530; 717060.365, 3881012.414; 717060.235, 3881011.486; 717059.953, 3881010.554; 717059.819, 3881009.811; 717059.684, 3881009.068; 717059.550, 3881008.324; 717059.264, 3881007.578; 717058.977, 3881006.831; 717058.539, 3881006.080; 717058.248, 3881005.519; 717057.961, 3881004.772; 717057.818, 3881004.398; 717057.679, 3881003.840; 717057.388, 3881003.278; 717057.098, 3881002.716; 717056.650, 3881002.336; 717056.051, 3881001.951; 717055.143, 3881001.745; 717054.240, 3881001.353; 717053.332, 3881001.147; 717052.420, 3881001.125; 717051.360, 3881000.915; 717050.447, 3881000.893; 717049.379, 3881001.052; 717048.310, 3881001.212; 717047.237, 3881001.556; 717046.164, 3881001.900; 717045.086, 3881002.430; 717044.161, 3881002.963; 717043.235, 3881003.495; 716977.249, 3881041.795; 716976.171, 3881042.325; 716976.018, 3881042.404; 716975.939, 3881042.449; 716974.088, 3881043.514; 716973.941, 3881043.603; 716973.725, 3881043.750; 716973.519, 3881043.911; 716973.364, 3881044.048; 716972.718, 3881044.646; 716972.012, 3881045.191; 716971.461, 3881045.574; 716969.756, 3881046.556; 716969.609, 3881046.644; 716969.472, 3881046.736; 716968.063, 3881047.713; 716967.283, 3881048.162; 716967.137, 3881048.250; 716966.921, 3881048.398; 716966.714, 3881048.559; 716966.559, 3881048.695; 716966.113, 3881049.109; 716965.580, 3881049.416; 716965.434, 3881049.504; 716965.217, 3881049.652; 716965.132, 3881049.716; 716964.416, 3881050.269; 716963.725, 3881050.667; 716963.578, 3881050.755; 716963.362, 3881050.902; 716963.156, 3881051.064; 716963.001, 3881051.200; 716962.355, 3881051.799; 716961.783, 3881052.241; 716961.091, 3881052.639; 716960.945, 3881052.727; 716960.729, 3881052.875; 716960.522, 3881053.036; 716960.367, 3881053.172; 716959.797, 3881053.701; 716959.256, 3881054.076; 716959.177, 3881054.132; 716959.092, 3881054.197; 716958.162, 3881054.914; 716958.041, 3881055.011; 716957.886, 3881055.148; 716957.316, 3881055.677; 716956.775, 3881056.052; 716956.696, 3881056.108; 716956.611, 3881056.172; 716955.762, 3881056.828; 716955.072, 3881057.306; 716954.993, 3881057.362; 716954.787, 3881057.524; 716954.632, 3881057.660; 716954.061, 3881058.189; 716953.520, 3881058.564; 716953.442, 3881058.620; 716953.356, 3881058.684; 716949.956, 3881061.309; 716949.240, 3881061.661; 716949.087, 3881061.740; 716948.861, 3881061.873; 716948.645, 3881062.021; 716948.559, 3881062.085; 716947.746, 3881062.712; 716945.706, 3881064.059; 716945.551, 3881064.167; 716945.345, 3881064.328; 716945.149, 3881064.502; 716945.130, 3881064.521; 716944.462, 3881065.166; 716943.690, 3881065.676; 716943.535, 3881065.784; 716943.328, 3881065.945; 716943.133, 3881066.119; 716943.114, 3881066.137; 716942.339, 3881066.886; 716940.736, 3881068.124;

716939.273, 3881069.139; 716939.194, 3881069.195; 716939.108, 3881069.259; 716938.643, 3881069.618; 716938.523, 3881069.715; 716938.327, 3881069.889; 716938.144, 3881070.076; 716938.059, 3881070.171; 716937.971, 3881070.273; 716920.077, 3881081.730; 716919.954, 3881081.812; 716919.319, 3881082.253; 716918.539, 3881082.702; 716918.393, 3881082.790; 716918.332, 3881082.830; 716917.352, 3881083.477; 716916.532, 3881083.949; 716916.386, 3881084.037; 716916.169, 3881084.185; 716916.084, 3881084.249; 716915.473, 3881084.720; 716914.757, 3881085.072; 716914.604, 3881085.151; 716914.378, 3881085.284; 716914.162, 3881085.432; 716914.076, 3881085.496; 716911.501, 3881087.484; 716908.229, 3881089.368; 716908.249, 3881088.515; 716908.124, 3881087.402; 716907.994, 3881086.474; 716907.868, 3881085.361; 716907.742, 3881084.249; 716907.617, 3881083.136; 716907.491, 3881082.023; 716907.366, 3881080.910; 716907.236, 3881079.982; 716907.253, 3881079.242; 716907.419, 3881078.691; 716907.423, 3881078.506; 716907.579, 3881078.325; 716901.280, 3881068.185; 716900.676, 3881067.986; 716899.920, 3881067.783; 716899.169, 3881067.395; 716898.265, 3881067.004; 716897.366, 3881066.427; 716896.463, 3881066.036; 716895.568, 3881065.274; 716894.669, 3881064.698; 716893.766, 3881064.307; 716892.711, 3881063.911; 716891.803, 3881063.705; 716890.747, 3881063.310; 716889.687, 3881063.099; 716888.480, 3881062.701; 716887.268, 3881062.487; 716886.056, 3881062.273; 716884.840, 3881062.244; 716883.628, 3881062.030; 716882.564, 3881062.005; 716881.499, 3881061.979; 716880.431, 3881062.139; 716879.366, 3881062.113; 716878.450, 3881062.277; 716877.529, 3881062.625; 716876.312, 3881062.596; 716875.244, 3881062.755; 716874.027, 3881062.726; 716872.802, 3881063.067; 716871.886, 3881063.230; 716870.812, 3881063.574; 716869.891, 3881063.922; 716868.966, 3881064.455; 716868.040, 3881064.988; 716821.597, 3881091.867; 716821.699, 3881154.594; 716823.368, 3881154.634; 716823.630, 3881154.632; 716823.891, 3881154.612; 716823.970, 3881154.603; 716825.191, 3881154.447; 716825.275, 3881154.436; 716826.344, 3881154.276; 716826.440, 3881154.260; 716826.696, 3881154.207; 716826.948, 3881154.137; 716826.975, 3881154.129; 716830.195, 3881153.095; 716830.386, 3881153.028; 716831.307, 3881152.680; 716831.336, 3881152.670; 716831.577, 3881152.567; 716831.810, 3881152.449; 716831.890, 3881152.405; 716832.701, 3881151.938; 716833.660, 3881151.467; 716833.813, 3881151.387; 716833.893, 3881151.343; 716836.669, 3881149.744; 716836.815, 3881149.656; 716837.032, 3881149.508; 716837.238, 3881149.347; 716837.393, 3881149.210; 716900.452, 3881103.581; 716900.898, 3881103.324; 716901.824, 3881102.791; 716902.602, 3881102.070; 716903.379, 3881101.348; 716904.162, 3881100.442; 716904.940, 3881099.721; 716905.717, 3881098.999; 716905.783, 3881098.939; 716905.824, 3881099.045; 716906.064, 3881099.838; 716906.075, 3881099.874; 716906.157, 3881100.112; 716906.499, 3881101.003; 716906.718, 3881101.881; 716906.782, 3881102.111; 716906.796, 3881102.155; 716907.222, 3881103.460; 716907.290, 3881103.654; 716907.683, 3881104.678; 716908.927, 3881108.496; 716908.995, 3881108.689; 716909.337, 3881109.580; 716909.538, 3881110.387; 716909.796, 3881111.616; 716909.823, 3881111.737; 716909.893, 3881111.990; 716909.976, 3881112.227; 716910.835, 3881114.467; 716910.839, 3881114.477; 716910.941, 3881114.718; 716911.059, 3881114.952; 716911.177, 3881115.153; 716912.349, 3881117.031; 716912.364, 3881117.055; 716912.512, 3881117.272; 716912.593, 3881117.379; 716913.036, 3881117.945; 716913.116, 3881118.043; 716913.290, 3881118.239; 716913.477, 3881118.422; 716913.675, 3881118.593; 716913.884, 3881118.751; 716914.103, 3881118.894; 716914.331, 3881119.023; 716914.567, 3881119.137; 716914.810, 3881119.235; 716914.931, 3881119.277; 716915.535, 3881119.476; 716915.662, 3881119.516; 716915.916, 3881119.582; 716916.173, 3881119.630; 716916.433, 3881119.662; 716916.694, 3881119.677; 716916.956, 3881119.675; 716917.217, 3881119.655; 716917.476, 3881119.619; 716917.642, 3881119.586; 716918.331, 3881119.436; 716919.172, 3881119.286; 716919.414, 3881119.236; 716919.543, 3881119.202; 716920.768, 3881118.861; 716920.891, 3881118.825; 716921.138, 3881118.738; 716921.379, 3881118.636; 716921.460, 3881118.598; 716924.430, 3881117.139; 716925.224, 3881116.884; 716925.444, 3881116.806; 716925.685, 3881116.704; 716925.919, 3881116.586; 716925.998, 3881116.542; 716926.643, 3881116.170; 716927.836, 3881115.720; 716928.352, 3881115.628; 716880.020, 3881143.602; 716879.804, 3881143.749; 716879.598, 3881143.910; 716879.403, 3881144.085; 716879.219, 3881144.271; 716879.048, 3881144.470; 716878.891, 3881144.679; 716878.747, 3881144.898; 716878.618, 3881145.126; 716878.505, 3881145.362; 716878.407, 3881145.604; 716878.325, 3881145.853; 716878.259, 3881146.106; 716878.210, 3881146.364; 716878.178, 3881146.623; 716869.106, 3881153.638; 716869.083, 3881153.653; 716868.867, 3881153.800; 716868.660, 3881153.961; 716868.465, 3881154.135; 716868.282, 3881154.322; 716868.252, 3881154.354; 716827.536, 3881188.796; 716827.528, 3881188.802; 716827.333, 3881188.976; 716827.150, 3881189.163; 716826.979, 3881189.361; 716826.821, 3881189.570; 716826.775, 3881189.637; 716821.768, 3881197.074; 716821.834, 3881237.818; 716816.186, 3881322.532; 716807.748, 3881345.738; 716837.630, 3881339.679; 716837.778, 3881339.646; 716838.030, 3881339.576; 716838.277, 3881339.489; 716838.518, 3881339.387; 716838.752, 3881339.269; 716838.978, 3881339.136; 716839.194, 3881338.989; 716839.400, 3881338.828; 716839.596, 3881338.653; 716839.779, 3881338.467; 716839.950, 3881338.268; 716840.107, 3881338.059; 716840.149, 3881337.999; 716858.431, 3881310.974; 716859.487, 3881310.709; 716859.574, 3881310.702; 716859.833, 3881310.666; 716860.089, 3881310.612; 716860.341, 3881310.542; 716860.420, 3881310.517; 716861.072, 3881310.298; 716861.241, 3881310.237; 716861.482, 3881310.135; 716861.716, 3881310.017; 716861.942, 3881309.884; 716862.158, 3881309.736; 716862.364, 3881309.575; 716862.559, 3881309.401; 716862.743, 3881309.214; 716862.914, 3881309.016; 716863.071, 3881308.807; 716863.215, 3881308.588; 716863.344, 3881308.360; 716863.457, 3881308.124; 716863.555, 3881307.881; 716863.637, 3881307.633; 716863.686, 3881307.445; 716866.030, 3881306.269; 716878.557, 3881300.458; 716878.741, 3881300.367; 716884.752, 3881297.196; 716889.529, 3881295.267; 716889.866, 3881295.135; 716903.986, 3881292.272; 716906.422, 3881288.672; 716914.046, 3881285.695; 716914.274, 3881285.597; 716914.508, 3881285.480; 716914.699, 3881285.369; 716919.510, 3881282.387; 716934.890, 3881276.627 thence returning to 16940.175, 3881274.717.

(xiv) Subunit 1N, ''1''. Land bounded by the following UTM NAD83 coordinates (E,N): 716890.664, 3880945.919; 716891.316, 3880945.738; 716891.938, 3880945.753; 716892.200, 3880945.750; 716892.461, 3880945.731; 716892.540, 3880945.722; 716893.761, 3880945.566; 716893.941, 3880945.538; 716894.197, 3880945.485; 716894.326, 3880945.452; 716895.241, 3880945.197; 716896.293, 3880945.080; 716896.539, 3880945.045; 716896.795, 3880944.992; 716896.803, 3880944.990; 716897.928, 3880944.715; 716899.043, 3880944.591; 716899.289, 3880944.556; 716899.545, 3880944.503; 716899.553, 3880944.501; 716900.711, 3880944.217; 716901.674, 3880944.094; 716903.014, 3880943.946; 716903.080, 3880943.938; 716904.300, 3880943.782; 716904.480, 3880943.755; 716904.737, 3880943.702; 716904.745, 3880943.700; 716905.902, 3880943.416; 716908.119, 3880943.133; 716908.299, 3880943.106; 716908.555, 3880943.053; 716908.684, 3880943.019; 716909.672, 3880942.744; 716911.565, 3880942.462;

716911.662, 3880942.446; 716911.918, 3880942.393; 716912.170, 3880942.323; 716912.197, 3880942.314; 716914.344, 3880941.626; 716914.535, 3880941.559; 716915.456, 3880941.211; 716915.485, 3880941.200; 716915.726, 3880941.098; 716915.959, 3880940.980; 716916.038, 3880940.935; 716918.535, 3880939.498; 716920.648, 3880938.699; 716921.144, 3880938.611; 716922.158, 3880938.460; 716922.254, 3880938.444; 716922.510, 3880938.391; 716922.762, 3880938.321; 716922.981, 3880938.245; 716924.823, 3880937.549; 716924.852, 3880937.539; 716925.093, 3880937.436; 716925.326, 3880937.318; 716925.406, 3880937.274; 716926.051, 3880936.902; 716926.670, 3880936.668; 716926.698, 3880936.658; 716926.939, 3880936.555; 716927.173, 3880936.437; 716927.252, 3880936.393; 716929.103, 3880935.327; 716929.250, 3880935.239; 716929.387, 3880935.147; 716930.022, 3880934.707; 716930.802, 3880934.258; 716930.948, 3880934.169; 716931.086, 3880934.078; 716931.613, 3880933.713; 716932.421, 3880933.316; 716932.574, 3880933.236; 716932.653, 3880933.192; 716933.464, 3880932.725; 716934.424, 3880932.254; 716934.577, 3880932.174; 716934.656, 3880932.130; 716935.376, 3880931.715; 716936.387, 3880931.283; 716936.498, 3880931.234; 716936.579, 3880931.195; 716937.562, 3880930.712; 716938.694, 3880930.228; 716938.805, 3880930.179; 716938.886, 3880930.140; 716939.869, 3880929.657; 716941.002, 3880929.173; 716941.112, 3880929.124; 716941.346, 3880929.006; 716941.425, 3880928.962; 716941.982, 3880928.641; 716942.650, 3880928.427; 716942.870, 3880928.349; 716943.111, 3880928.247; 716943.191, 3880928.208; 716945.084, 3880927.279; 716945.878, 3880927.024; 716946.098, 3880926.946; 716946.339, 3880926.844; 716946.573, 3880926.726; 716946.798, 3880926.593; 716946.860, 3880926.553; 716947.730, 3880925.979; 716948.579, 3880925.562; 716948.732, 3880925.482; 716948.958, 3880925.349; 716949.174, 3880925.202; 716949.260, 3880925.138; 716950.190, 3880924.420; 716950.310, 3880924.323; 716950.506, 3880924.149; 716950.525, 3880924.130; 716951.459, 3880923.228; 716951.624, 3880923.059; 717016.613, 3880875.958; 717017.248, 3880874.864; 717017.730, 3880873.765; 717018.056, 3880872.848; 717018.382, 3880871.931; 717018.557, 3880871.010; 717018.731, 3880870.089; 717018.909, 3880868.984; 717018.784, 3880867.871; 717018.510, 3880866.569; 717018.085, 3880865.264; 717017.655, 3880864.144; 717017.074, 3880863.020; 717016.640, 3880862.085; 717016.049, 3880861.331; 717015.459, 3880860.577; 717015.159, 3880860.385; 717014.864, 3880860.008; 717014.564, 3880859.816; 717014.300, 3880858.144; 717014.004, 3880857.767; 717013.557, 3880857.387; 717013.105, 3880857.191; 717012.962, 3880856.818; 717012.667, 3880856.440; 717012.215, 3880856.245; 717011.768, 3880855.864; 717011.168, 3880855.480; 717010.417, 3880855.092; 717009.514, 3880854.700; 717008.610, 3880854.309; 717007.707, 3880853.917; 717006.951, 3880853.714; 717006.039, 3880853.693; 717005.126, 3880853.671; 717004.210, 3880853.834; 717003.297, 3880853.812; 717002.381, 3880853.975; 717001.464, 3880854.138; 717000.552, 3880854.117; 716999.787, 3880854.283; 716998.871, 3880854.447; 716997.806, 3880854.421; 716996.890, 3880854.584; 716995.973, 3880854.747; 716995.056, 3880854.911; 716994.140, 3880855.074; 716992.919, 3880855.230; 716991.702, 3880855.201; 716990.330, 3880855.353; 716989.109, 3880855.509; 716987.888, 3880855.664; 716986.511, 3880856.002; 716985.290, 3880856.157; 716984.065, 3880856.498; 716982.688, 3880856.835; 716981.315, 3880856.988; 716980.090, 3880857.328; 716978.708, 3880857.850; 716977.483, 3880858.191; 716976.258, 3880858.532; 716975.028, 3880859.058; 716973.803, 3880859.398; 716972.574, 3880859.924; 716971.501, 3880860.268; 716970.275, 3880860.609; 716969.198, 3880861.138; 716968.120, 3880861.668; 716967.043, 3880862.197; 716965.965, 3880862.726; 716964.736, 3880863.252; 716963.658, 3880863.781; 716962.581, 3880864.310; 716961.655, 3880864.843; 716960.578, 3880865.372; 716959.500, 3880865.902; 716958.423, 3880866.431; 716957.341, 3880867.145; 716956.263, 3880867.674; 716955.181, 3880868.389; 716954.099, 3880869.103; 716953.169, 3880869.821; 716952.239, 3880870.538; 716884.503, 3880909.422; 716882.644, 3880910.857; 716882.523, 3880910.954; 716882.327, 3880911.129; 716882.308, 3880911.147; 716881.374, 3880912.050; 716881.210, 3880912.218; 716881.039, 3880912.416; 716880.909, 3880912.587; 716878.549, 3880915.861; 716878.521, 3880915.899; 716878.378, 3880916.118; 716878.333, 3880916.194; 716877.698, 3880917.289; 716877.614, 3880917.441; 716877.580, 3880917.508; 716877.023, 3880918.623; 716875.611, 3880920.900; 716875.008, 3880921.736; 716873.245, 3880923.779; 716873.159, 3880923.883; 716873.029, 3880924.054; 716871.455, 3880926.236; 716871.428, 3880926.274; 716871.285, 3880926.493; 716871.239, 3880926.569; 716870.685, 3880927.525; 716870.147, 3880928.302; 716870.082, 3880928.399; 716869.608, 3880929.128; 716869.546, 3880929.226; 716869.417, 3880929.454; 716869.303, 3880929.690; 716869.205, 3880929.933; 716869.130, 3880930.160; 716868.965, 3880930.711; 716868.958, 3880930.733; 716868.893, 3880930.986; 716868.844, 3880931.243; 716868.812, 3880931.503; 716868.797, 3880931.765; 716868.788, 3880932.134; 716868.791, 3880932.396; 716868.810, 3880932.657; 716868.847, 3880932.916; 716868.900, 3880933.173; 716868.970, 3880933.425; 716869.056, 3880933.672; 716869.159, 3880933.913; 716869.277, 3880934.147; 716869.409, 3880934.372; 716869.557, 3880934.589; 716869.638, 3880934.696; 716869.766, 3880934.860; 716870.068, 3880935.376; 716870.143, 3880935.500; 716870.291, 3880935.716; 716870.372, 3880935.824; 716871.090, 3880936.741; 716871.340, 3880937.169; 716871.584, 3880937.640; 716871.625, 3880937.718; 716871.758, 3880937.943; 716871.906, 3880938.160; 716871.987, 3880938.267; 716872.060, 3880938.360; 716872.417, 3880939.292; 716872.421, 3880939.302; 716872.524, 3880939.543; 716872.900, 3880940.355; 716873.281, 3880941.348; 716873.285, 3880941.357; 716873.387, 3880941.598; 716873.463, 3880941.754; 716874.045, 3880942.878; 716874.087, 3880942.956; 716874.220, 3880943.182; 716874.245, 3880943.221; 716874.958, 3880944.317; 716875.493, 3880945.174; 716875.902, 3880945.874; 716875.978, 3880945.998; 716876.125, 3880946.215; 716876.287, 3880946.421; 716876.461, 3880946.616; 716876.648, 3880946.800; 716876.846, 3880946.971; 716877.055, 3880947.128; 716877.274, 3880947.272; 716877.502, 3880947.400; 716877.738, 3880947.514; 716877.766, 3880947.526; 716878.217, 3880947.722; 716878.432, 3880947.808; 716878.681, 3880947.890; 716878.934, 3880947.955; 716879.192, 3880948.004; 716879.451, 3880948.036; 716879.713, 3880948.051; 716880.321, 3880948.065; 716880.583, 3880948.063; 716880.844, 3880948.044; 716881.007, 3880948.023; 716882.076, 3880947.863; 716882.172, 3880947.848; 716882.428, 3880947.794; 716882.680, 3880947.724; 716882.708, 3880947.716; 716884.779, 3880947.051; 716885.650, 3880946.809; 716886.584, 3880946.689; 716886.764, 3880946.662; 716887.020, 3880946.609; 716887.273, 3880946.539; 716887.300, 3880946.530; 716888.022, 3880946.298; 716890.099, 3880946.033; 716890.279, 3880946.006; 716890.535, 3880945.953 thence returning to 716890.664, 3880945.919.

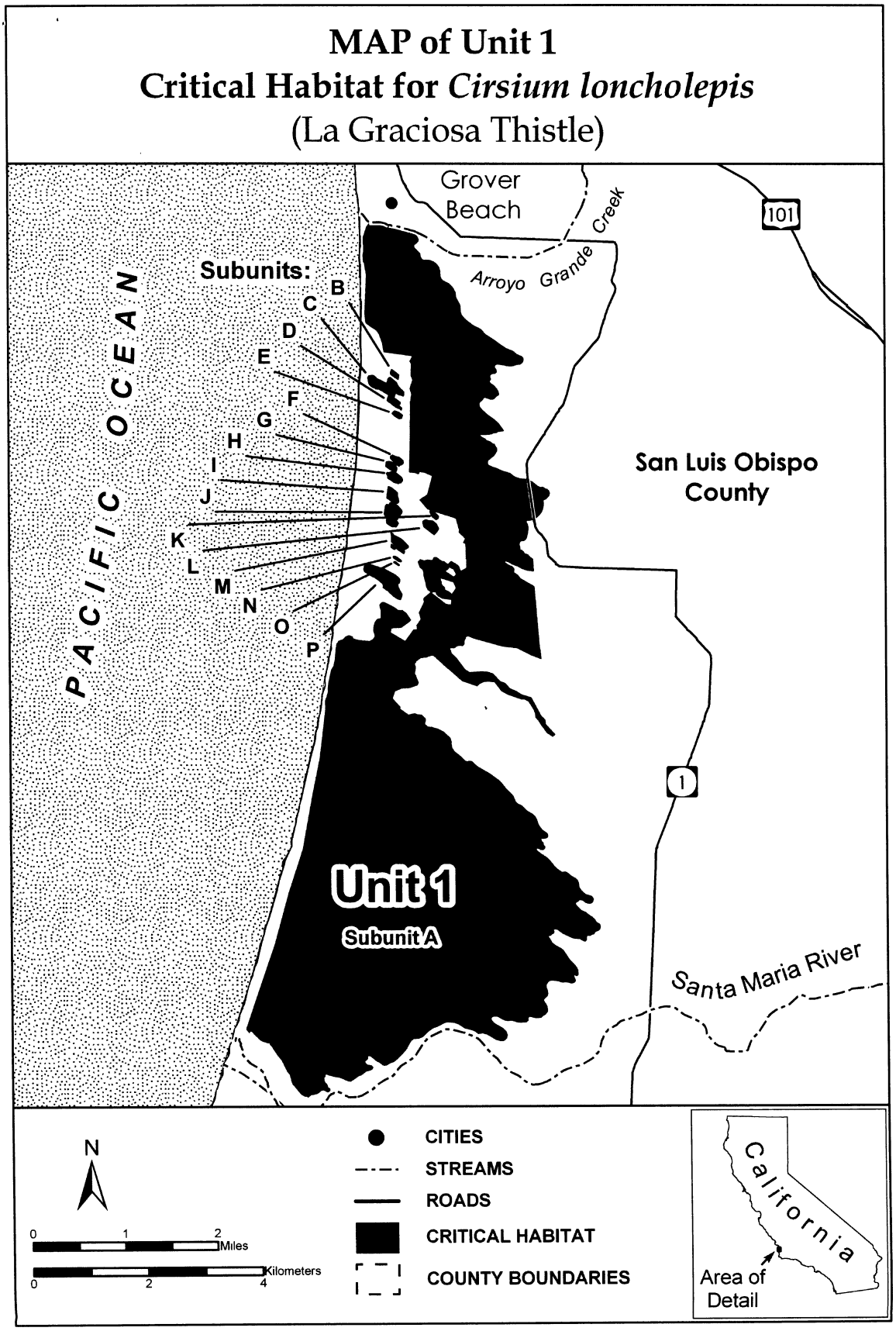
(xv) Subunit 1O. ''2''. Land bounded by the following UTM NAD83 coordinates (E,N): 716899.053, 3880854.872; 716900.158, 3880854.749; 716901.258, 3880854.776; 716901.519, 3880854.773; 716901.741, 3880854.758; 716903.266, 3880854.609; 716903.305, 3880854.605; 716903.385, 3880854.596; 716904.605, 3880854.440; 716904.785, 3880854.413; 716905.042, 3880854.360; 716905.050, 3880854.358; 716906.427, 3880854.020; 716906.548, 3880853.989; 716907.535, 3880853.714; 716908.360,

3880853.591; 716908.456, 3880853.576; 716908.713, 3880853.522; 716908.965, 3880853.452; 716909.184, 3880853.377; 716909.757, 3880853.160; 716910.308, 3880853.062; 716910.551, 3880853.011; 716910.803, 3880852.941; 716911.050, 3880852.855; 716911.271, 3880852.761; 716911.753, 3880852.541; 716911.952, 3880852.486; 716912.531, 3880852.360; 716913.371, 3880852.210; 716913.523, 3880852.180; 716914.212, 3880852.030; 716915.969, 3880851.717; 716916.211, 3880851.666; 716916.464, 3880851.596; 716916.682, 3880851.521; 716918.525, 3880850.825; 716918.553, 3880850.814; 716918.794, 3880850.711; 716919.028, 3880850.594; 716919.253, 3880850.461; 716919.470, 3880850.313; 716919.555, 3880850.249; 716919.680, 3880850.153; 716984.126, 3880803.648; 716984.262, 3880803.596; 716985.192, 3880802.879; 716985.822, 3880801.969; 716986.457, 3880800.874; 716986.787, 3880799.772; 716986.970, 3880798.481; 716986.997, 3880797.372; 716986.875, 3880796.074; 716986.750, 3880794.961; 716986.320, 3880793.841; 716986.038, 3880792.909; 716985.604, 3880791.974; 716985.161, 3880791.409; 716984.566, 3880790.839; 716983.967, 3880790.455; 716983.063, 3880790.064; 716982.008, 3880789.668; 716980.800, 3880789.270; 716979.593, 3880788.871; 716978.385, 3880788.472; 716977.330, 3880788.077; 716976.422, 3880787.870; 716975.514, 3880787.664; 716974.602, 3880787.642; 716973.689, 3880787.620; 716972.630, 3880787.410; 716971.413, 3880787.381; 716970.192, 3880787.537; 716968.972, 3880787.693; 716967.903, 3880787.852; 716966.678, 3880788.193; 716965.600, 3880788.722; 716964.527, 3880789.067; 716963.602, 3880789.599; 716962.524, 3880790.129; 716961.599, 3880790.662; 716960.673, 3880791.195; 716892.785, 3880830.488; 716891.526, 3880831.213; 716891.379, 3880831.302; 716891.163, 3880831.449; 716891.077, 3880831.513; 716890.147, 3880832.231; 716890.027, 3880832.328; 716889.871, 3880832.465; 716889.094, 3880833.186; 716889.053, 3880833.224; 716888.870, 3880833.411; 716888.786, 3880833.505; 716888.160, 3880834.230; 716887.377, 3880835.137; 716887.291, 3880835.240; 716887.133, 3880835.449; 716887.052, 3880835.570; 716886.726, 3880836.071; 716886.278, 3880836.590; 716886.191, 3880836.694; 716886.034, 3880836.903; 716885.890, 3880837.122; 716885.762, 3880837.350; 716885.648, 3880837.586; 716885.550, 3880837.829; 716885.537, 3880837.864; 716885.211, 3880838.781; 716885.142, 3880838.994; 716885.076, 3880839.248; 716885.031, 3880839.484; 716884.852, 3880840.590; 716884.849, 3880840.611; 716884.817, 3880840.871; 716884.802, 3880841.132; 716884.763, 3880842.796; 716884.765, 3880843.058; 716884.784, 3880843.319; 716884.821, 3880843.578; 716884.874, 3880843.834; 716884.933, 3880844.051; 716885.215, 3880844.982; 716885.226, 3880845.018; 716885.313, 3880845.265; 716885.415, 3880845.506; 716885.533, 3880845.740; 716885.590, 3880845.841; 716886.028, 3880846.592; 716886.104, 3880846.716; 716886.252, 3880846.933; 716886.413, 3880847.139; 716886.587, 3880847.334; 716886.774, 3880847.518; 716886.890, 3880847.620; 716887.477, 3880848.120; 716887.966, 3880848.744; 716888.046, 3880848.843; 716888.220, 3880849.038; 716888.407, 3880849.221; 716888.523, 3880849.324; 716889.417, 3880850.085; 716889.500, 3880850.154; 716889.650, 3880850.269; 716890.696, 3880851.034; 716890.755, 3880851.076; 716890.897, 3880851.171; 716891.797, 3880851.748; 716891.873, 3880851.796; 716892.101, 3880851.925; 716892.121, 3880851.935; 716893.623, 3880852.711; 716893.840, 3880852.814; 716893.868, 3880852.826; 716894.002, 3880852.885; 716894.420, 3880853.351; 716894.504, 3880853.443; 716894.691, 3880853.626; 716894.889, 3880853.797; 716895.099, 3880853.954; 716895.318, 3880854.098; 716895.545, 3880854.227; 716895.781, 3880854.340; 716896.024, 3880854.438; 716896.273, 3880854.520; 716896.526, 3880854.586; 716896.705, 3880854.622; 716897.917, 3880854.836; 716897.995, 3880854.849; 716898.255, 3880854.880; 716898.516, 3880854.895; 716898.778, 3880854.893; 716899.039, 3880854.874 thence returning to 716899.053, 3880854.872.

(xvi) Subunit 1P, Pipeline. Land bounded by the following UTM NAD83 coordinates (E,N): 717051.899, 3880234.231; 717036.683, 3880200.755; 716981.903, 3880212.928; 716913.884, 3880252.508; 716913.808, 3880252.526; 716913.556, 3880252.596; 716913.309, 3880252.682; 716913.068, 3880252.784; 716912.834, 3880252.902; 716912.609, 3880253.035; 716912.392, 3880253.183; 716912.186, 3880253.344; 716911.991, 3880253.518; 716911.807, 3880253.705; 716911.714, 3880253.810; 716831.177, 3880319.621; 716831.139, 3880319.635; 716830.898, 3880319.738; 716830.664, 3880319.856; 716830.439, 3880319.989; 716830.222, 3880320.136; 716830.016, 3880320.297; 716829.821, 3880320.471; 716829.637, 3880320.658; 716829.508, 3880320.806; 716814.633, 3880338.656; 716807.407, 3880343.714; 716796.301, 3880347.175; 716727.959, 3880386.841; 716727.954, 3880386.843; 716727.707, 3880386.929; 716727.466, 3880387.031; 716727.232, 3880387.149; 716727.007, 3880387.282; 716726.790, 3880387.429; 716726.584, 3880387.591; 716726.389, 3880387.765; 716726.205, 3880387.952; 716726.034, 3880388.150; 716725.877, 3880388.359; 716725.733, 3880388.578; 716725.605, 3880388.806; 716725.491, 3880389.042; 716725.393, 3880389.285; 716725.311, 3880389.533; 716725.245, 3880389.787; 716725.197, 3880390.044; 716725.165, 3880390.304; 716725.150, 3880390.565; 716725.152, 3880390.827; 716725.172, 3880391.088; 716725.204, 3880391.322; 716728.084, 3880408.516; 716719.423, 3880451.821; 716661.000, 3880490.770; 716662.048, 3880498.038; 716630.915, 3880514.850; 716614.196, 3880530.049; 716596.962, 3880539.043; 716582.493, 3880543.736; 716559.887, 3880558.994; 716537.847, 3880566.341; 716527.288, 3880570.808; 716400.623, 3880639.208; 716399.920, 3880640.480; 716389.081, 3880646.447; 716388.973, 3880646.509; 716382.024, 3880650.622; 716372.847, 3880673.054; 716372.847, 3880738.002; 716418.028, 3880780.359; 716458.401, 3880782.734; 716489.814, 3880771.538; 716711.756, 3880719.853; 716711.791, 3880719.845; 716712.043, 3880719.775; 716712.291, 3880719.688; 716712.532, 3880719.586; 716712.534, 3880719.585; 716928.611, 3880619.155; 716928.842, 3880619.038; 716929.067, 3880618.905; 716929.284, 3880618.758; 716929.490, 3880618.597; 716929.685, 3880618.422; 716929.869, 3880618.236; 716930.040, 3880618.037; 716930.197, 3880617.828; 716930.341, 3880617.609; 716930.470, 3880617.381; 716930.581, 3880617.152; 716994.076, 3880572.041; 717006.249, 3880544.651; 717009.293, 3880514.218; 716997.119, 3880486.828; 716978.859, 3880474.654; 716981.903, 3880425.961; 717015.379, 3880365.094; 717045.813, 3880313.358; 717061.029, 3880289.011 thence returning to 717051.899, 3880234.231.

(xvii) Note: Map of Unit 1, Subunits 1A through 1P, follows:

BILLING CODE 4310–55–S



BILLING CODE 4310–55–C

(7) Unit 2: Santa Maria River-Orcutt Creek. San Luis Obispo and Santa Barbara Counties, California. From USGS 1:24,000 scale quadrangle maps Point Sal, Guadalupe, Santa Maria, Casmalia, and Orcutt.

(i) Land bounded by the following UTM NAD83 coordinates (E,N): 724829.403, 3866899.988; 725057.778, 3866813.444; 725141.723, 3866606.554; 725306.085, 3866480.866; 725393.100, 3866297.167; 725509.121, 3865958.775; 725634.809, 3865833.087; 725982.869, 3865562.373; 726263.251, 3865185.308; 726417.945, 3865117.629; 726524.297, 3865020.946; 727336.438, 3865020.946; 727819.855, 3865001.609; 727868.197, 3864730.895; 728341.945, 3864682.554; 728419.292, 3864518.192; 728786.689, 3864228.141; 729289.443, 3864131.458; 729772.860, 3864141.126; 730072.579, 3863841.408; 730059.172, 3863511.215; 729873.603, 3863511.215; 729763.987, 3863378.348; 729624.477, 3863142.509; 729461.715, 3863009.642; 729475.002, 3862983.069; 730408.392, 3862959.817; 731495.575, 3862250.640; 731689.561, 3862117.773; 731697.533, 3861732.460; 732125.364, 3861437.495; 732125.364, 3861320.572; 732481.447, 3861206.307; 732720.608, 3861208.964; 732828.650, 3861067.158; 733104.217, 3861067.158; 733067.280, 3860762.425; 733501.294, 3860780.894; 733547.465, 3860697.785; 733547.465, 3860411.521; 733730.920, 3860414.034; 733732.479, 3860491.953; 734031.474, 3860497.524; 734221.572, 3860420.755; 734618.648, 3860236.068; 735294.160, 3860263.924; 735326.377, 3860229.307; 735349.105, 3860198.938; 735403.599, 3860093.199; 735462.593, 3860011.338; 735483.884, 3859974.453; 735517.037, 3859951.916; 735545.261, 3859926.559; 735643.062, 3859813.365; 735670.702, 3859798.525; 735720.634, 3859794.021; 735766.319, 3859809.614; 735871.918, 3859833.688; 735905.310, 3859851.056; 735940.883, 3859864.323; 735977.886, 3859872.840; 736009.141, 3859876.157; 736080.136, 3859874.534; 736122.809, 3859868.751; 736171.604, 3859853.836; 736216.491, 3859830.993; 736261.549, 3859796.286; 736294.362, 3859759.658; 736334.060, 3859743.021; 736372.074, 3859719.913; 736518.116, 3859599.532; 736555.527, 3859556.712; 736587.688, 3859498.431; 736610.153, 3859472.993; 736712.142, 3859379.831; 736751.846, 3859325.864; 736957.357, 3859144.972; 736996.597, 3859100.454; 737059.512, 3858986.838; 737079.902, 3858929.367; 737107.271, 3858897.715; 737131.128, 3858860.199; 737154.497, 3858801.550; 737179.774, 3858776.821; 737203.786, 3858747.448; 737234.740, 3858692.061; 737268.586, 3858650.461; 737289.275, 3858618.672; 737312.095, 3858566.622; 737324.584, 3858508.884; 737337.483, 3858481.829; 737376.988, 3858430.895; 737397.390, 3858391.399; 737414.318, 3858337.152; 737420.307, 3858274.761; 737412.607, 3858211.898; 737394.174, 3858158.133; 737361.676, 3858103.746; 737318.650, 3858058.109; 737266.244, 3858022.438; 737207.308, 3857999.044; 737176.609, 3857992.308; 737138.810, 3857988.687; 737100.862, 3857990.024; 737063.413, 3857996.296; 736776.935, 3857987.243; 736427.660, 3858103.668; 736233.618, 3858401.199; 736156.001, 3858323.582; 736000.768, 3858271.837; 735884.343, 3858207.157; 735703.237, 3858207.157; 735522.131, 3858258.901; 735366.898, 3858310.646; 735237.537, 3858427.071; 735159.920, 3858504.688; 735108.176, 3858452.943; 735017.623, 3858349.454; 734888.261, 3858258.901; 734758.900, 3858181.285; 734422.561, 3858181.285; 734293.200, 3858220.093; 734150.903, 3858284.774; 733982.733, 3858414.135; 733918.052, 3858595.240; 733892.180, 3858737.538; 733711.075, 3858763.410; 733568.777, 3858879.835; 733439.416, 3859060.941; 733271.246, 3859216.174; 732999.588, 3859099.749; 732909.035, 3858983.324; 732740.865, 3858866.899; 732533.888, 3858737.538; 732313.974, 3858698.729; 732068.187, 3858595.240; 731783.593, 3858646.985; 731576.615, 3858672.857; 731253.212, 3858828.091; 731072.106, 3858996.260; 731020.361, 3859254.983; 731020.361, 3859487.833; 731085.042, 3859720.683; 731227.339, 3859888.852; 731498.998, 3860069.958; 731770.656, 3860108.767; 731861.209, 3860160.511; 732003.507, 3860264.000; 732076.227, 3860553.903; 731770.656, 3860665.020; 731537.806, 3860703.828; 731356.701, 3860665.020; 731266.148, 3860665.020; 731085.042, 3860677.956; 730929.809, 3860716.764; 730774.575, 3860794.381; 730645.214, 3860897.870; 730528.789, 3861040.167; 730489.981, 3861208.337; 730334.747, 3861285.953; 730179.514, 3861350.634; 730088.961, 3861479.995; 729991.940, 3861635.229; 729940.195, 3861764.590; 729849.643, 3861816.334; 729746.154, 3861893.951; 729694.409, 3861997.440; 729655.601, 3862126.801; 729552.112, 3862139.737; 729435.687, 3862178.546; 729254.581, 3862165.610; 729125.220, 3862152.674; 728957.050, 3862113.865; 728827.689, 3862113.865; 728659.520, 3862152.674; 728478.414, 3862217.354; 728336.117, 3862359.651; 728206.755, 3862294.971; 728012.713, 3862036.248; 727909.225, 3861906.887; 727818.672, 3861777.526; 727650.502, 3861661.101; 727508.205, 3861570.548; 727327.099, 3861544.676; 727145.993, 3861544.676; 726951.952, 3861596.420; 726757.910, 3861738.718; 726641.485, 3861919.823; 726576.804, 3862100.929; 726563.868, 3862346.715; 726628.549, 3862540.757; 726744.974, 3862708.927; 726900.207, 3862851.224; 726951.952, 3862967.649; 727055.441, 3863148.755; 726926.079, 3863239.308; 726796.718, 3863291.052; 726719.101, 3863433.349; 726628.549, 3863549.775; 726576.804, 3863666.200; 726563.868, 3863808.497; 726460.379, 3863847.305; 726318.082, 3863847.305; 726240.465, 3863743.816; 726149.912, 3863446.286; 726085.232, 3863342.797; 725942.934, 3863148.755; 725761.829, 3863019.394; 725567.787, 3862980.585; 725313.663, 3863033.338; 725251.969, 3863035.361; 725195.233, 3863049.143; 724361.066, 3863472.579; 724317.800, 3863499.591; 724290.350, 3863522.640; 724264.463, 3863550.376; 724242.423, 3863581.248; 724224.608, 3863614.729; 724209.538, 3863656.540; 724201.092, 3863699.502; 724199.212, 3863743.899; 724204.217, 3863788.055; 724015.452, 3864261.261; 723899.027, 3864416.495; 723821.411, 3864584.664; 723756.730, 3864791.642; 723614.433, 3864791.642; 723498.008, 3864817.514; 723355.710, 3864921.003; 723213.413, 3865076.237; 723071.116, 3865179.726; 722890.010, 3865399.640; 722773.585, 3865464.320; 722238.253, 3865670.263; 722194.818, 3865679.936; 722159.314, 3865693.377; 722116.060, 3865717.474; 722076.497, 3865748.614; 722042.972, 3865786.160; 722015.292, 3865831.206; 721981.370, 3865833.050; 721947.174, 3865838.970; 721886.669, 3865860.507; 721859.141, 3865875.649; 721828.332, 3865897.806; 721784.239, 3865942.847; 721740.436, 3865933.285; 721690.126, 3865930.649; 721640.126, 3865936.804; 721591.331, 3865951.712; 721552.054, 3865971.170; 721511.550, 3865999.718; 721483.901, 3866025.701; 721456.170, 3866060.454; 721442.114, 3866083.333; 721244.160, 3867532.086; 721175.434, 3867904.347; 721136.375, 3868204.824; 721102.604, 3868252.666; 721049.278, 3868298.882; 720981.732, 3868316.657; 720653.088, 3868333.427; 719876.113, 3868330.877; 719268.200, 3868423.308; 718685.173, 3868487.299; 718240.792, 3868657.942; 717821.297, 3868878.354; 717408.911, 3869155.648; 716910.418, 3869403.843; 716783.223, 3869450.717; 716555.700, 3869543.148; 716369.254, 3869657.726; 716331.764, 3869689.304; 716297.648, 3869724.473; 716274.556, 3869757.054; 716240.808, 3869815.431; 716204.462, 3869917.451; 716198.331, 3869973.350; 716206.799, 3870080.414; 716223.697, 3870186.255; 716198.673, 3870237.611; 716175.329, 3870267.504; 716094.064, 3870416.382; 716059.463, 3870534.171; 716035.029, 3870553.874; 716004.296, 3870586.009; 715908.900, 3870590.962; 715865.710, 3870601.672; 715830.598, 3870615.798; 715768.457, 3870654.929; 715728.972, 3870693.289; 715702.704, 3870729.154; 715590.567, 3870806.456; 715563.278, 3870829.449;

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715762.759, 3871537.568; 715808.822, 3871507.844; 715838.881, 3871498.890; 715866.048, 3871499.402; 715883.836, 3871492.253; 715886.335, 3871486.647; 715904.606, 3871508.267; 715938.784, 3871533.366; 716032.058, 3871558.894; 716069.010, 3871581.326; 716100.360, 3871612.501; 716127.283, 3871625.912; 716155.768, 3871628.486; 716224.962, 3871597.149; 716245.850, 3871606.373; 716257.609, 3871631.746; 716258.626, 3871650.116; 716232.625, 3871660.515; 716215.293, 3871679.223; 716203.696, 3871718.427; 716162.318, 3871752.317; 716148.054, 3871788.758; 716140.409, 3871834.826; 716136.389, 3871842.800; 716158.649, 3871859.274; 716158.796, 3871887.981; 716169.073, 3871917.041; 716181.157, 3871909.000; 716222.181, 3871894.830; 716312.909, 3871874.789; 716404.870, 3871861.559; 716449.210, 3871851.521; 716521.740, 3871823.649; 716570.904, 3871809.617; 716608.995, 3871806.932; 716646.626, 3871829.396; 716684.878, 3871864.820; 716730.220, 3871900.381; 716806.872, 3871942.479; 716864.326, 3871992.712; 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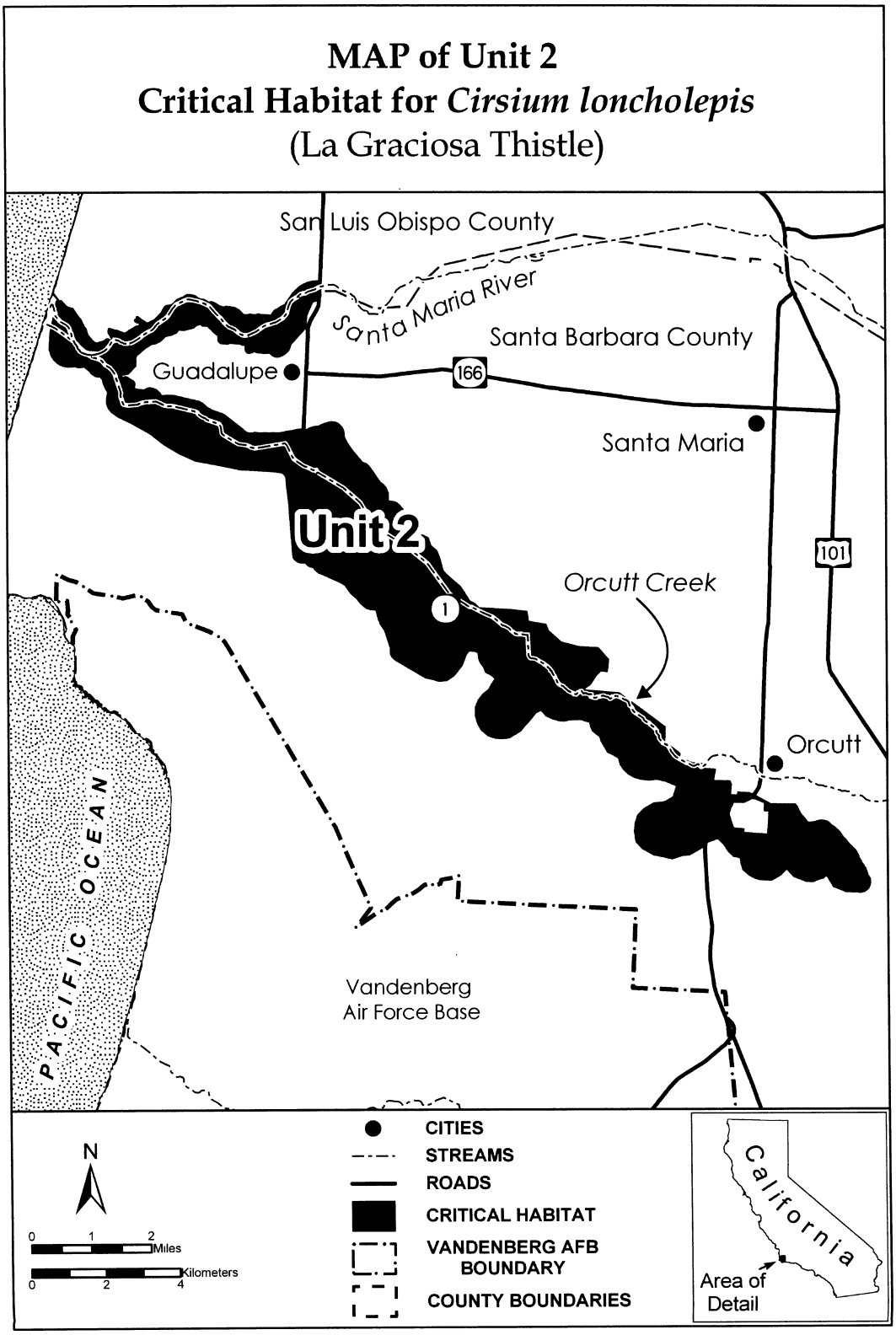
(ii) Excluding land bounded by the following UTM NAD83 coordinates (E,N): 733655.106, 3859548.220; 733713.315, 3859516.470; 733951.440, 3859516.470; 733951.440, 3859418.574; 734594.379, 3859415.928; 734594.379, 3860029.762; 734472.671, 3860021.825; 734462.087, 3860249.367; 734200.149, 3860336.680; 734110.191, 3860336.680; 733932.919, 3860286.409; 733932.919, 3860222.908; 733623.356, 3860209.679; 733615.419, 3860204.388; 733607.481, 3860127.658; 733567.794, 3860053.575; 733541.335, 3859939.804; 733533.398, 3859889.533, thence returning to 733655.106, 3859548.220.

(iii) *Note*: Map of Unit 2 follows:

BILLING CODE 4310–55–S



BILLING CODE 4310–55–C

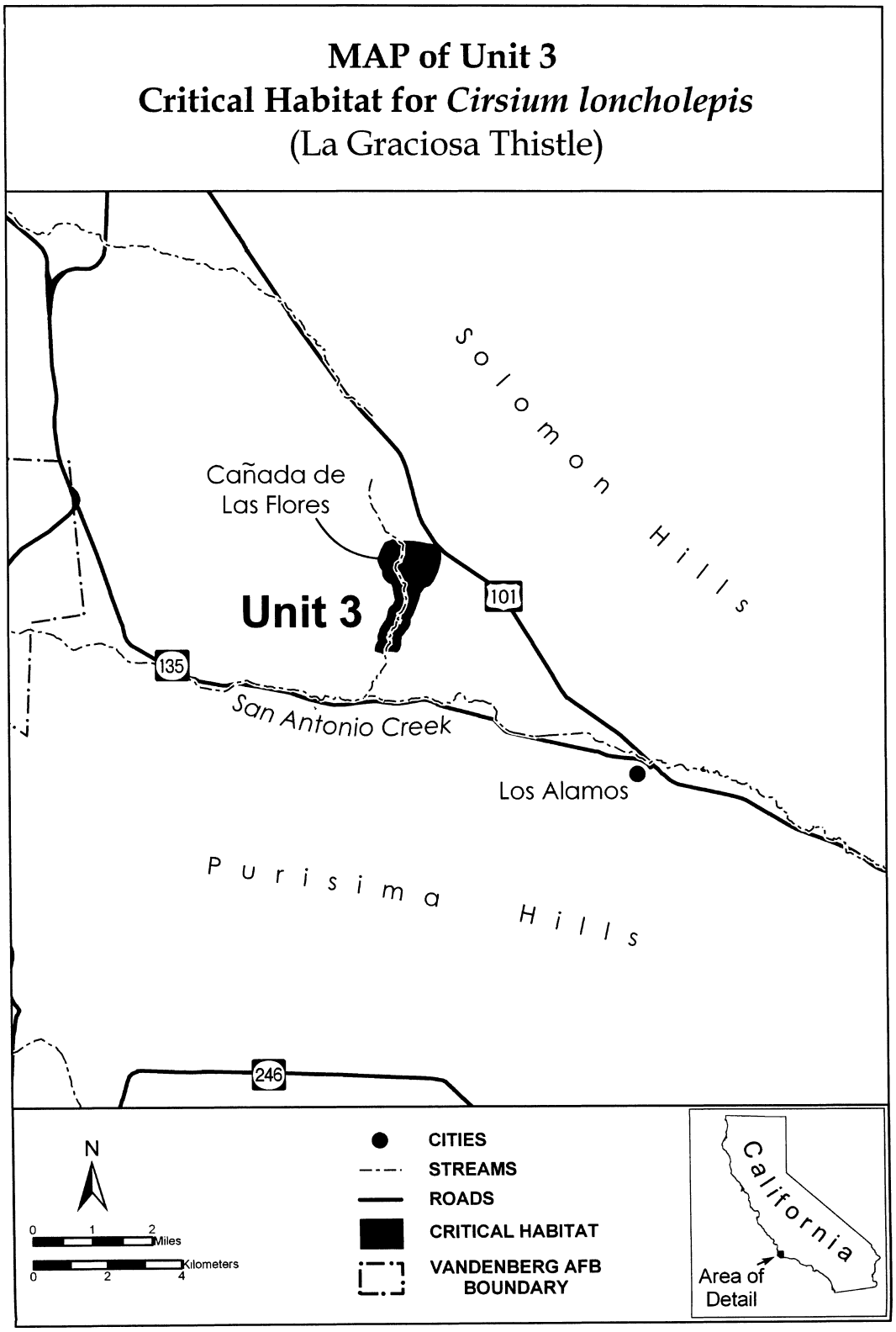
(8) Unit 3: Cañada de las Flores. Santa Barbara County, California.

From USGS 1:24,000 scale quadrangle map Sisquoc.

(i) Land bounded by the following UTM NAD83 coordinates (E,N): 742769.371, 3850494.712; 742558.045, 3850506.855; 742480.757, 3850424.047; 742403.469, 3850418.526; 742326.182, 3850451.649; 742180.608, 3850479.808; 742176.046, 3850556.333; 742179.966, 3850604.548; 742197.266, 3850665.484; 742244.872, 3850766.146; 742232.393, 3850831.688; 742235.064, 3850902.248; 742246.316, 3850957.959; 742266.282, 3851006.692; 742271.161, 3851047.735; 742280.713, 3851084.433; 742300.610, 3851130.658; 742335.427, 3851182.073; 742363.198, 3851243.405; 742393.501, 3851291.810; 742428.881, 3851332.308; 742438.447, 3851374.711; 742456.059, 3851418.737; 742460.917, 3851456.987; 742471.205, 3851495.831; 742471.056, 3851531.608; 742475.730, 3851569.237; 742483.262, 3851599.712; 742496.733, 3851635.168; 742514.722, 3851668.565; 742541.174, 3851704.310; 742572.263, 3851735.193; 742607.918, 3851761.339; 742623.907, 3851815.239; 742649.691, 3851864.564; 742652.120, 3851886.034; 742640.574, 3851923.991; 742625.158, 3851999.294; 742612.124, 3852028.925; 742601.199, 3852065.243; 742582.856, 3852157.109; 742579.204, 3852209.508; 742551.945, 3852255.210; 742534.288, 3852302.239; 742527.166, 3852315.549; 742441.643, 3852346.362; 742392.436, 3852374.906; 742341.575, 3852419.095; 742305.734, 3852466.003; 742285.334, 3852505.503; 742269.776, 3852553.356; 742261.901, 3852604.114; 742262.663, 3852655.305; 742202.779, 3852733.649; 742141.168, 3852858.166; 742121.071, 3852916.252; 742111.430, 3852978.378; 742192.962, 3853223.980; 742288.373, 3853414.498; 742484.384, 3853503.288; 742816.322, 3853483.931; 742812.165, 3853488.105; 743060.207, 3853489.280; 743065.966, 3853483.148; 743066.807, 3853489.311; 743247.057, 3853474.382; 743453.572, 3853451.259; 743453.962, 3853446.350; 743489.957, 3853448.830; 743535.430, 3853447.098; 743584.920, 3853437.679; 743624.984, 3853424.469; 743659.161, 3853407.956; 743694.440, 3853384.414; 743726.939, 3853355.604; 743756.109, 3853321.405; 743779.963, 3853283.885; 743795.542, 3853249.303; 743808.231, 3853208.181; 743817.162, 3853159.062; 743819.034, 3853114.656; 743799.586, 3852934.139; 743754.045, 3852734.460; 743648.950, 3852471.724; 743561.372, 3852342.107; 743421.246, 3852275.548; 743315.693, 3852118.528; 743278.089, 3851942.078; 743217.628, 3851741.984; 743192.999, 3851646.227; 743172.407, 3851598.724; 743164.330, 3851565.450; 743150.859, 3851529.994; 743104.645, 3851444.174; 743085.906, 3851415.556; 743094.436, 3851372.242; 743096.308, 3851327.836; 743092.485, 3851290.106; 743081.742, 3851246.974; 743058.416, 3851186.991; 743036.861, 3851148.104; 743010.075, 3851113.433; 742982.486, 3851086.618; 742954.652, 3851027.748; 742930.598, 3850990.352; 742906.183, 3850962.060; 742866.256, 3850924.586; 742863.516, 3850868.573; 742851.729, 3850818.778; 742861.749, 3850709.010; 742860.315, 3850677.654; 742854.029, 3850640.254; 742840.485, 3850597.916; 742820.986, 3850558.692; 742795.402, 3850522.322 thence returning to 742769.371, 3850494.712.

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

BILLING CODE 4310–55–S


MAP of Unit 3
Critical Habitat for *Cirsium loncholepis*
(La Graciosa Thistle)
Solomon Hills
Cañada de Las Flores
Unit 3
101
135
San Antonio Creek
Los Alamos
Purisima Hills
246
N
0 1 2 Miles
0 2 4 Kilometers
CITIES
STREAMS
ROADS
CRITICAL HABITAT
VANDENBERG AFB BOUNDARY
California
Area of Detail

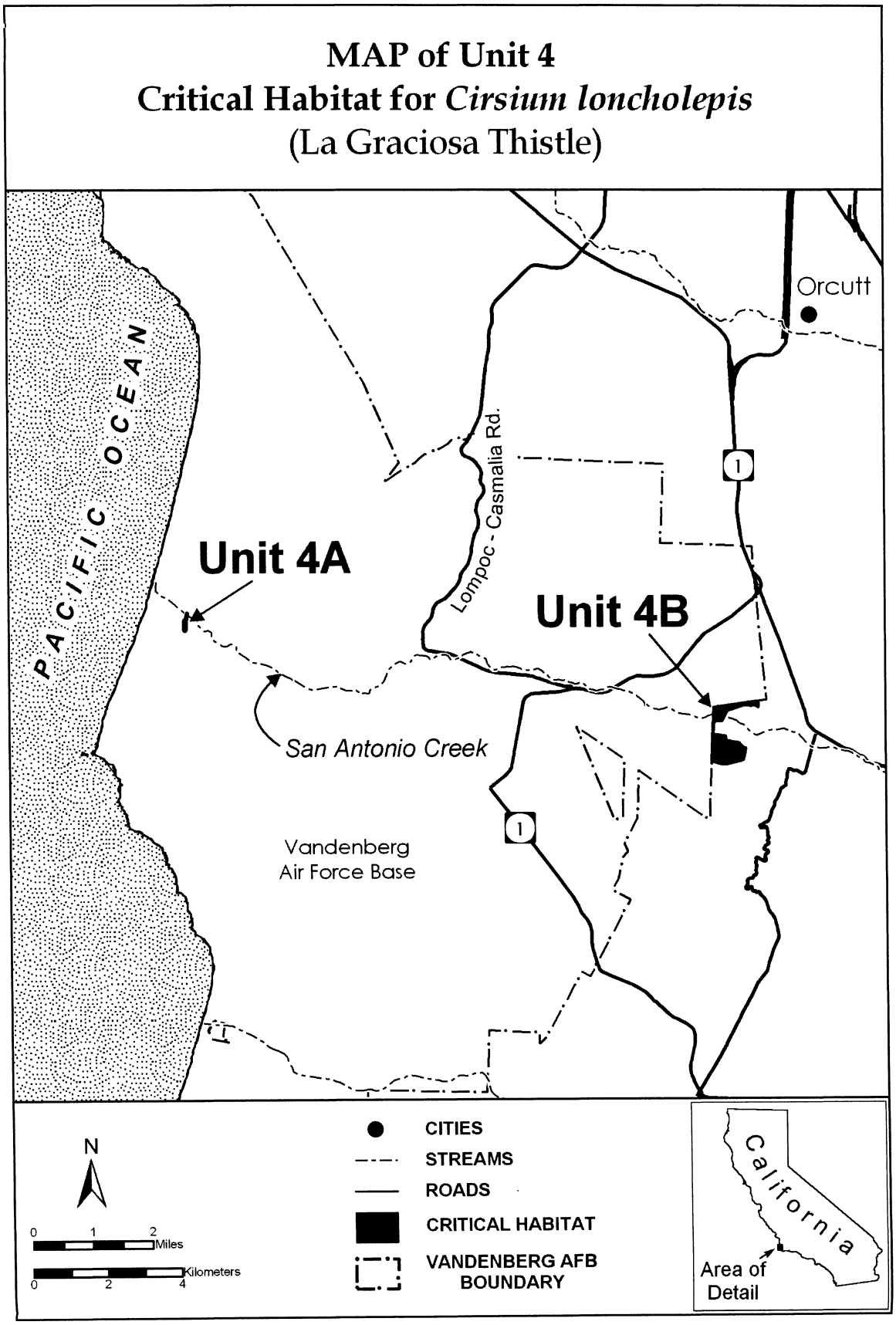
(9) Unit 4: San Antonio Creek. Santa Barbara County, California.

From USGS 1:24,000 scale quadrangle maps Casmalia and Orcutt.

(i) Subunit 4A, La Graciosa. Land bounded by the following UTM NAD83 coordinates (E,N): 732902.768, 3849271.357; 732879.271, 3850720.063; 734040.899, 3850965.604; 734057.904, 3850924.298; 734068.859, 3850868.533; 734069.479, 3850810.290; 733993.764, 3850850.470; 733870.128, 3850837.189; 733804.814, 3850834.724; 733684.096, 3850837.348; 733384.925, 3850708.757; 733248.461, 3850661.520; 733177.605, 3850514.559; 733125.119, 3850380.719; 732899.428, 3850359.725; 732902.053, 3849997.571; 733235.339, 3849968.703; 733258.958, 3849847.985; 733615.864, 3849805.997; 733710.339, 3849703.649; 733797.319, 3849670.195; 733743.180, 3849369.157; 733681.013, 3849339.808; 733359.485, 3849233.027; 733326.746, 3849224.281; 733289.144, 3849219.047; 733164.717, 3849215.800; 733114.440, 3849220.924 thence returning to 732902.768, 3849271.357.

(ii) Subunit 4B, Barka Slough. Land bounded by the following UTM NAD83 coordinates (E,N): 718574.040, 3852437.989; 718573.497, 3852437.751; 718561.975, 3852349.324; 718536.497, 3852010.956; 718515.208, 3852028.143; 718507.426, 3852030.931; 718531.635, 3852352.441; 718543.975, 3852447.144; 718543.941, 3852447.510 thence returning to 718574.040, 3852437.989.

(iii) *Note*: Map of Unit 4, Subunits 4A and 4B, follows:

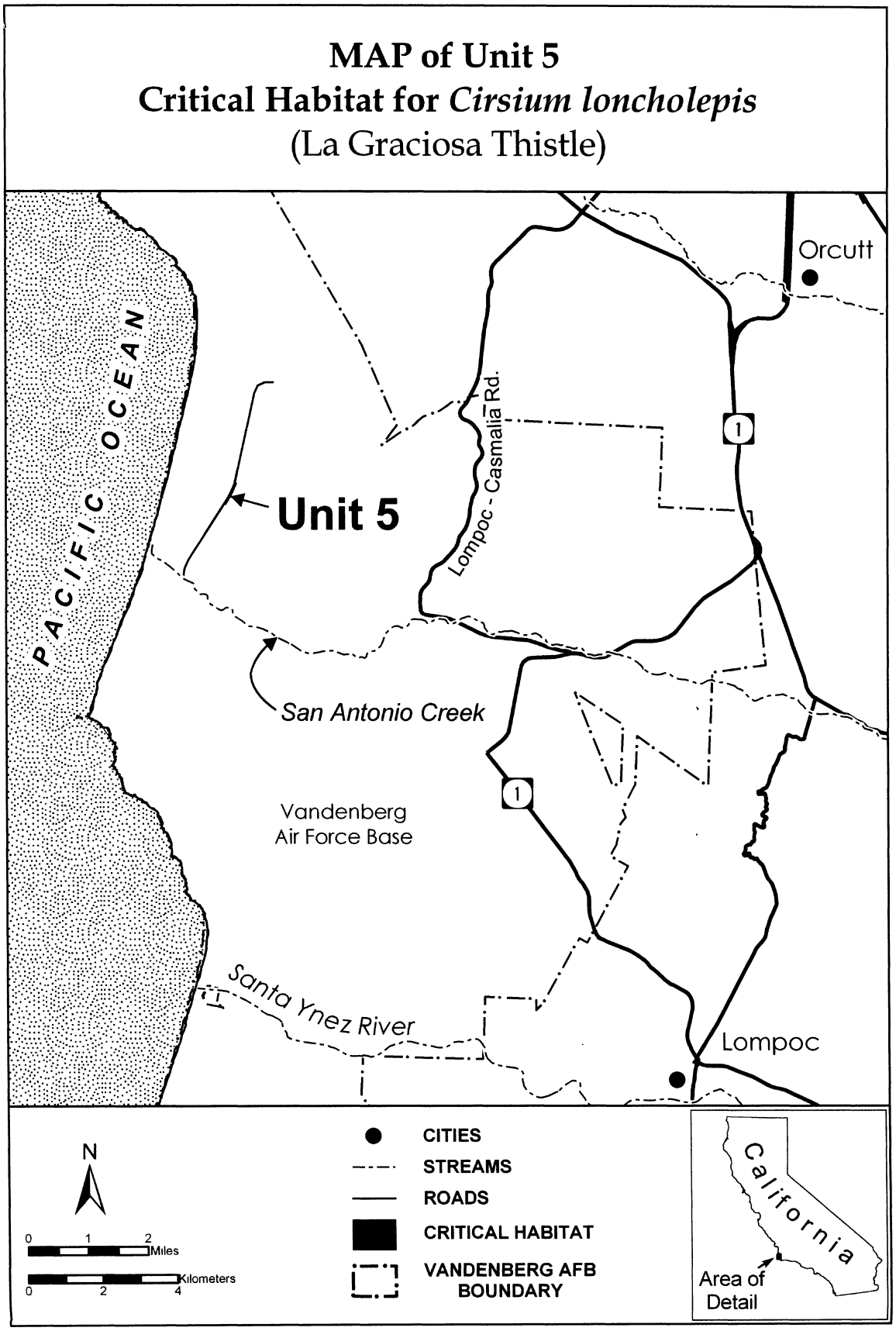

MAP of Unit 4
Critical Habitat for *Cirsium loncholepis*
(La Graciosa Thistle)
PACIFIC OCEAN
Orcutt
Lompoc - Casmalia Rd.
1
Unit 4A
Unit 4B
San Antonio Creek
Vandenberg
Air Force Base
N
0 1 2 Miles
0 2 4 Kilometers
CITIES
STREAMS
ROADS
CRITICAL HABITAT
VANDENBERG AFB
BOUNDARY
California
Area of
Detail

(10) Unit 5: San Antonio Terrace. Santa Barbara County, California.

From USGS 1:24,000 scale quadrangle map Casmalia.

(i) Land bounded by the following UTM NAD83 coordinates (E,N):720671.986, 3857738.093; 720453.412, 3857726.704; 720281.115, 3857636.541; 720199.422, 3857432.991; 719812.779, 3855019.759; 719841.584, 3855009.767; 719747.750, 3854739.257; 719589.722, 3854419.580; 719562.390, 3854433.091; 718693.703, 3852879.368; 718600.969, 3852648.577; 718579.038, 3852436.371; 718578.772, 3852436.492; 718544.020, 3852447.485; 718571.236, 3852656.353; 718666.140, 3852892.545; 719059.902, 3853596.819; 719053.250, 3853600.539; 719528.749, 3854451.014; 719535.402, 3854447.295; 719691.393, 3854762.852; 719783.098, 3855027.223; 719775.572, 3855028.429; 719833.270, 3855388.540; 719840.796, 3855387.334; 720169.857, 3857441.182; 720257.011, 3857658.338; 720445.176, 3857756.805; 720685.817, 3857769.344; 720671.594, 3857740.830 thence returning to 720671.986, 3857738.093.

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


MAP of Unit 5
Critical Habitat for *Cirsium loncholepis*
(La Graciosa Thistle)
PACIFIC OCEAN
Unit 5
Lompoc - Casmalia Rd.
Orcutt
1
San Antonio Creek
Vandenberg
Air Force Base
Santa Ynez River
Lompoc
N
0 1 2 Miles
0 2 4 Kilometers
CITIES
STREAMS
ROADS
CRITICAL HABITAT
VANDENBERG AFB BOUNDARY
California
Area of Detail

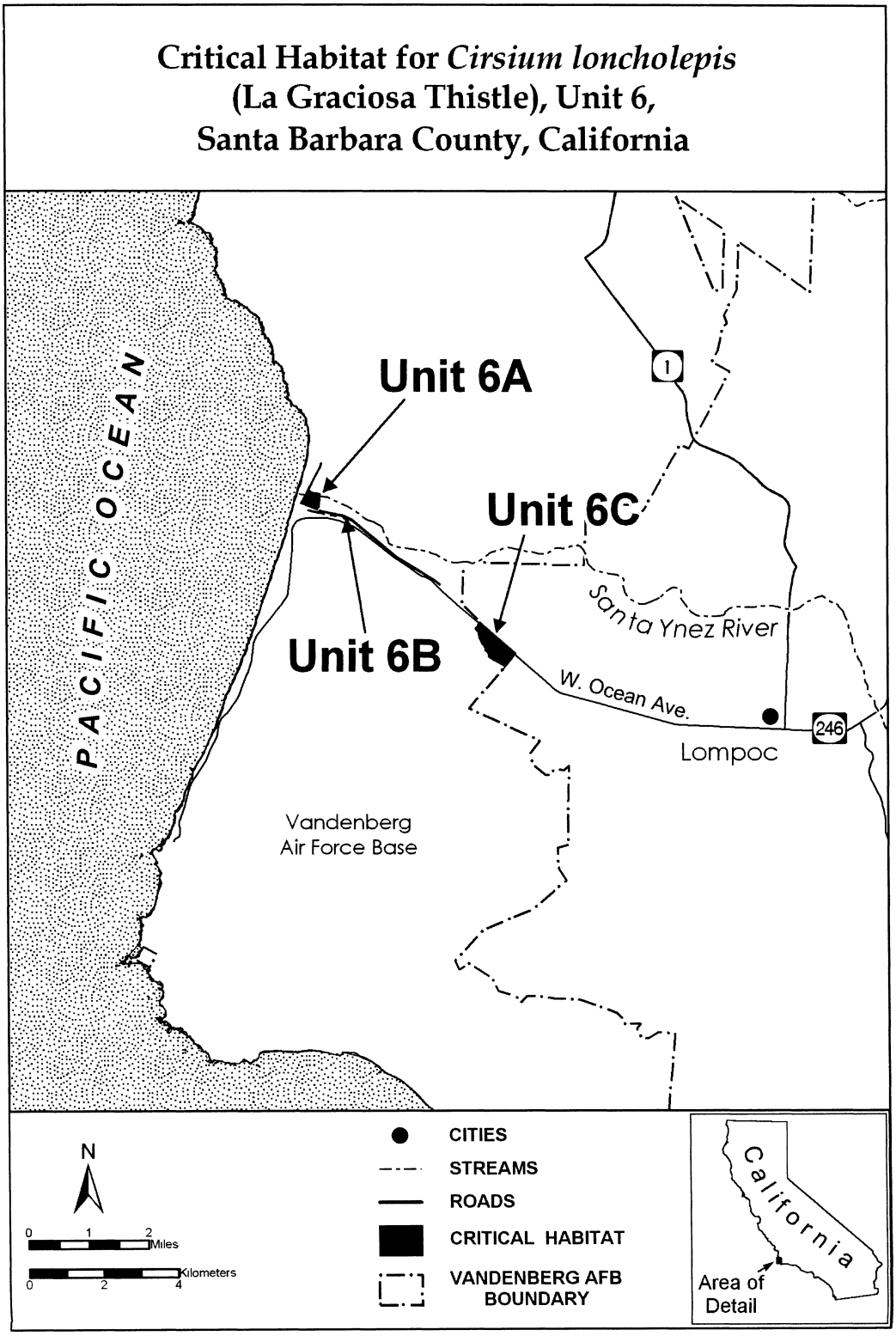
(11) Unit 6: Santa Ynez River. San Luis Obispo County, California. From USGS 1:24,000 scale quadrangle map Surf.

(i) Subunit 6A, Ocean Park. Land bounded by the following UTM NAD83 coordinates (E,N): 719792.443 3841151.121; 719730.100, 3841170.041; 719621.076, 3841203.127; 719717.611, 3841419.172; 719774.993, 3841547.592; 720078.677, 3842226.801; 720100.574, 3842316.450; 720100.560, 3842316.536; 720131.142, 3842313.095; 720131.142, 3842313.089; 720107.678, 3842216.969; 719961.751, 3841890.823; 719803.044, 3841535.634; 719707.554, 3841321.491; 719715.821 3841304.901; 719822.789 3841531.508; 719841.848 3841527.524; 719852.164 3841522.648; 719946.888 3841505.570; 720141.196 3841464.959; 720085.582 3841062.161; thence returning to 719792.443 3841151.121.

(ii) Subunit 6B, Surf. Land bounded by the following UTM NAD83 coordinates (E,N) Land bounded by the following UTM NAD83 coordinates (E,N): 723474.663, 3839240.116; 723474.557, 3839240.155; 723311.640, 3839359.917; 722866.418, 3839587.418; 722273.929, 3839906.194; 721002.007, 3840830.048; 720954.993, 3840831.460; 720879.604, 3840842.694; 720792.364, 3840870.176; 720761.627, 3840922.839; 720605.213, 3840947.380; 720599.378, 3840901.946; 720510.241, 3840921.969; 720449.328, 3840924.762; 720456.185, 3840969.978; 720267.093, 3840998.651; 720267.094, 3841001.464; 720267.095, 3841007.076; 720119.486, 3841051.872; 720783.193, 3840951.285; 720919.150, 3840895.352; 721011.665, 3840860.891; 722289.789, 3839932.356; 723344.086, 3839370.691; 723492.079, 3839261.728; 723492.148, 3839261.657 thence returning to 723474.663, 3839240.116.

(iii) Subunit 6C, Lompoc. Land bounded by the following UTM NAD83 coordinates (E,N): 725260.014, 3837047.156; 725355.118, 3837169.561; 724920.686, 3837394.728; 724627.854, 3837891.814; 724587.911, 3838052.500; 724488.024, 3838137.328; 724619.923, 3838307.972; 724602.411, 3838324.673; 725619.964, 3837543.386; 725271.439, 3837050.804 thence returning to 725260.014, 3837047.156.

(iv) *Note*: Map of Unit 6, Subunits 6A through 6C, follows:



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Dated: October 20, 2009

Signed: **Thomas L. Strickland,**

Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. E9–26221 Filed 11–02–09 8:45 am]

BILLING CODE 4310–55–C